DECIDING TOGETHER: A PROCEDURAL SOLUTION TO A JUDGEMENT AGGREGATION DILEMMA

J. L. Addison

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Approved by:
Ram Neta
Matt Kotzen
Gillian Russell
ABSTRACT

J. L. Addison: Deciding Together: A Procedural Solution to a Judgement Aggregation Dilemma
(Under the direction of Ram Neta)

This paper begins with a very general question about rational evaluability: what kinds of entities are rationally evaluable? I propose that, in addition to individuals, groups are rationally evaluable—that is, we can rightly call a group rational or irrational, and mean something other than that the individuals composing the group are rational or irrational. But there are some hurdles to such evaluations that do not arise in individual cases—this paper will address some of those first by delineating exactly what the hurdles are, and then proposing a flexible solution, based in group procedure, that preserves evaluability and certain commonsense intuitions about reasoning.
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~ Negation, not

→ Conditional, “if-then”

∈ Element, membership

⊇ Superset of, or equal to

∧ Conjunction, “and”

∨ Disjunction, “or”
DECIDING TOGETHER: A PROCEDURAL SOLUTION TO A JUDGEMENT AGGREGATION DILEMMA

I: Introduction

This paper will explicate a central issue in the judgement aggregation literature, and propose a workaround to that issue. Specifically, I will set up and motivate an impossibility result, and try to show how an appeal to the conditions of grouphood provides principled ways of dealing with the result. I will discuss in depth what I take to be a common procedure type, and make some general comments about the rationality of procedures.

Before jumping into judgement aggregation itself, it may serve to begin by considering a broader question which feeds into what follows. Under what circumstances is some entity rationally evaluable? That is, what does it take in order for something to be subject to norms of rationality?

One clear case of a rationally-evaluable entity is, of course, an ordinary human being. For familiar reasons, we can say either of a person or of their beliefs (perhaps even of their belief-forming mechanisms), that they are rational, irrational, inconsistent, and so on, and these assessments carry the weight of normative evaluations—rationality is generally good, irrationality generally bad, but they may be praiseworthy or blameworthy along other dimensions, and so on. If the ordinary human being is taken to be paradigmatically rationally-evaluable, then a reasonable first pass at conditions for rational evaluability might be something like the following:
**Rational Evaluability** (Rough): An entity is rationally evaluable iff that entity has beliefs, and at least one kind of belief-forming mechanism.

This seems to capture at least some minimal sense of rational evaluation; in order for an entity to be rationally-evaluable, it has to have something to evaluate, and belief seems a good default candidate. And in order to know whether a belief is rational to have, it usually also helps to know the process by which it was arrived at. This allows for two familiar kinds of rational criticism: criticism on the basis of bad procedures (e.g., believing a known liar whenever she says something), and criticism based on not correctly following a good procedure (e.g., refusing to believe something a very reliable testifier says, without having any defeaters for the testimony).

Beliefs can also be criticized on the grounds of being inconsistent with one another. These are, of course, merely some of the familiar ways of talking about rationally-evaluable entities, but they’ll do for the purposes of illustration.

But if something like the rough RE condition is true, are there other entities subject to rational evaluation? If so, what are they?

Linguistically, we talk about many things having beliefs. We intelligibly converse about computers believing things, for instance, such as when we say that ‘it thinks the printer isn’t connected.’ Indeed, pieces of technology are often spoken of in this way. ‘Netflix thinks I’d like to watch *House of Cards,*’ ‘Siri thinks the nearest gas station is five minutes away,’ and so on. Cases where animals are described as thinking or believing things are also common.

One other type of entity often described as thinking or believing things (as well as having a number of other attitudes toward them) is groups. The Senate or electorate of the United States, 

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1 This may depend on the introduction of some practical element to the account. Perhaps, in order for inconsistent beliefs to be expically bad, they must interfere with an entity’s actions or aims in some way. I’m amenable to the suggestion, but for the moment, I leave the issue aside.
an academic department or University, teams and clubs are all often enough described as believing, thinking, even wanting or hoping for various things.

So the natural question here is to what extent these linguistic behaviors represent how we really conceive of these entities, and to what extent our expressions of this sort are merely idiomatic. For whatever belief is in the case of individual ordinary human beings, it doesn’t seem to be something held by computers or groups (maybe beliefs are held by individual ordinary animals of certain types, but likely not of all types).

Perhaps, to some extent, the question is empirical. What any given person means when she says her computer thinks something will, in all likelihood, depend on some psychological or other features of her. More interesting are the likely candidates for what such a statement could mean in general. There’s an easy, idiomatic reading of the statements which connects assertions of a computer’s believing something to its algorithms producing a certain result given their inputs. On this reading, ‘the computer believes that’ is just a sort of convenient shorthand for describing the outcome of processes that most of us don’t fully understand. Importantly, though we might say computers ‘believe’ things, we don’t criticize them as being irrational or praise them for being rational—they aren’t evaluable in the same way people are. To say that a computer is behaving irrationally is to misunderstand something about what a computer is; it’s to adhere too literally to the idioms by which computers are described as thinking and believing.

There isn’t a similarly-easy answer for what ‘the United States electorate believes that’ means. Groups are readily-enough described as irrational quite regularly. A herd mentality is irrational, groupthink might be critiqued or endorsed, depending on one’s commitments. Religious or political groups might be subject to such evaluation, either favorably or (more often, it seems) not.
One of two things is happening here: either groups and the names of groups are standing in for either all their members or some number of them, and those are the real targets of these evaluations, or there’s some other thing, sufficiently belief-like to be rationally evaluable, that groups themselves can possess. If there is no such thing as group-belief, then the problems of judgement aggregation I discuss in what follows never arise, and perhaps the entire endeavor I’ve set myself to is futile. But I think there’s reason to believe that there is some kind of thing that is the group analogy to individual belief, and that the similarity is sufficient for groups to be rationally-evaluable entities. Part of the reason I think this is that it looks like, in some cases, each individual in a group can be perfectly consistent and rational in their beliefs, and still the group itself appear to be negatively evaluable in some way, which tells against the possibility that groups merely “stand in” for their members in evaluative statements that talk about them.

There is an upshot to holding the view that groups are themselves rationally evaluable. If they are, then they are subject to certain kinds of critique and correction, not only of the beliefs they hold, but the mechanisms used to arrive at those beliefs. If we judge the United States electorate to be irrational as a group in some cases, that gives us resources to talk about democratic procedures, and how those might be made more rational. If groups have no beliefs and are not themselves rationally-evaluable, we are left to shrug when a rational electorate nevertheless arrives at an inactionable result.

What remains for me to say is divided into several sections. In Section II, I discuss judgement aggregation as it is currently modeled in the literature. In Section III, I survey some basic aggregation rules and discuss the prima facie appeal of each, as well as some considerations that tell against them. In Section IV, I talk about a very parsimonious set of
constraints on judgement aggregation, and why they are impossible to jointly satisfy, as well as what the implications of this impossibility are.

Section V begins my positive account of how to deal with this impossibility result, by drawing a distinction between groups in a robust sense and what I will call mere aggregates. Section VI returns to the question of rational evaluability, with a great deal more concepts more firmly in-hand. And section VII deals with a possible objection to my view.

II: A modeling framework

Suppose we have the following representation of three judges’ rulings on matters pertaining to a specific case, where the final verdict is Q (or ~Q):

**Table 1: A profile of judgements**

<table>
<thead>
<tr>
<th>Judge</th>
<th>P</th>
<th>P(\rightarrow)Q</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

One question that arises here is whether or not there is anything to be said about the judges’ opinions beyond what is already represented. We know what each judge thinks on each item she was asked to decide upon, and any attempt to aggregate these beliefs would in fact lose some information. If one believes that there are such things as group beliefs, however, the response is simple: we have, thus far, the beliefs of the members of the group, but not the beliefs of the group itself. Somehow, we have to decide how it is that we’re to move from the information presented in Table 1 to the kinds of statements we’d be interested in making about what the judges, as a group, believe about the matters at hand.
Aggregation, the determination of group beliefs based on a profile of information like Table 1, provides us with new information. Specifically, it provides us with the information which allows us to rationally evaluate the group. As of right now, all we can say is that there are three judges here, and that each of them is consistent. We can assume for the sake of the example that they are all also rational in their individual beliefs, and still that doesn’t tell us anything about the group, save that it is composed of rational, consistent individuals, at least on the present matter. Something further is required for us to assess the group’s rationality, and that something is the group’s beliefs. In order to determine what these are, we need an aggregation rule, a way to get from the information in Table 1 to a set of group beliefs on the matters at hand.

Before considering any such rules, however, it will be helpful to precisify the ways in which I talk about things like “the matters at hand.”

Call any finite set of propositions that is closed under negation an issue \((I)\). To say \(I\) is closed under negation means that if some \(p\) is in \(I\), then \(\neg p\) is also in \(I\). Roughly, if deciding whether some proposition is true is part of deciding the issue, then so is deciding whether the negation of that proposition is true.

Call the set of individuals whose beliefs are being aggregated the set of judges \((J)\). Generally, in order to avoid obscuring complications, it is assumed that \(J\) contains an odd number of judges.

Any non-empty subset of \(I\) is a judgement-set. Following Cariani\(^2\), I refer to any maximally-consistent judgement-set (for some individual \(i\)) as a total description. Total descriptions are the consistent judgement-sets such that every proper superset of the total description where the members of the superset are all in \(I\) is inconsistent. In less set-theoretic

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terms, the total description covers enough judgements that adding any more would result in some kind of contradiction.

Call a sequence of individual judgements a *profile*. Table 1 is a profile. Given some profile $X$, $X(p)$ is the sequence of 1s and 0s for $p$. So in the table above, a column is an $X(p)$ sequence, while judgement sets and total descriptions refer to rows or consistent parts of rows. The profile $X$ is all of the 1s and 0s taken together.$^3$

**III: Aggregation rules**

Nothing said so far gives explicit instructions for how to move from a profile of judgements about some issue $I$ to an aggregation of those judgements. What Table 1 gives is a set of data, but nothing present there gives the group judgement or aggregate opinion on $I$, nor on any $X(p)$. In this section, I’ll consider a few different aggregation rules, as well as the benefits and drawbacks to using them.

Two particularly simple and intuitive aggregation rules are: 1. A conservative rule whereby the opinion is attributed to the group if and only if all the members of the group hold it, or 2. A more relaxed rule, where the the opinion of the simple majority is attributed to the group.

With a little more formality, these rules might go as such:

**R1 (The Consensus Rule):** Given some profile $X$ including $X(p)$ for some issue $I$, the aggregate opinion of $J$ is 1 for $p$ iff every member of $J$ endorses $p$.

**R2 (The Simple Majority Rule):** Given some profile $X$ including $X(p)$ for some issue $I$, the aggregate opinion of $J$ is 1 for $p$ iff the simple majority of $J$ endorses $p$.

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$^3$ I owe these formulations, and much of the ensuing discussion of where the literature currently stands, to Cariani (2011) as well.
The consensus rule has a particular benefit: it really only gives a verdict on the group opinion in cases where intuitively, the group really must have that opinion—that is, cases of complete unanimity on the issue.

But though it captures only cases where the group intuitively has an opinion on \( p \), it seems far from capturing all such cases. For one, it makes no distinction between a case where the members of \( J \) are split nearly evenly over whether \( p \) and the case where only one member of a thousand-member \( J \) does not endorse \( p \). This seems like a difference that could affect what our sense of the “group’s opinion” or “group’s endorsement” is; it would be a very particular kind of group that required unanimity before having an identifiable position on an issue.

R2 gives much more leeway in this respect. For the sake of simplicity, I exclude cases where groups have even numbers of members, to avoid the problem of a tie. Supposing that \( J \) has an odd number of members, though, the rule is intuitively familiar. Many voting systems within groups generally adhere to something like R2 in resolving issues, and it renders decisions on every \( p \) in \( I \).

But using R2 to aggregate opinions can result in paradoxes. Suppose, for example, that a three-member panel of judges votes on a series of related propositions such as in Table 1. None of the individual judges is logically inconsistent; they all reach the judgement on \( Q \) that they do in line with their judgements on \( P \) and \( P \rightarrow Q \). But the aggregate opinion of the group is inconsistent: the majority of the judges believe \( P \), the majority also believe \( P \rightarrow Q \), and yet the majority (and therefore the group) disbelieve \( Q \). If we treat aggregates analogously to individuals, this result renders the aggregate irrational. The result is frequently called the discursive dilemma, and is a version of what’s called the doctrinal paradox.\(^4\) How, the thinking

goes, could it be possible for a group of *ex hypothesi* completely rational individuals turn out to be, as a group, irrational? The paradox rests on an interesting feature of situations like Table 1. Suppose that an R2 rule is used to aggregate the judgements. Then, looking at $X(P)$ and $X(P \rightarrow Q)$, it seems that the group believes Q. But looking only at $X(Q)$, the result is that the group believes $\neg Q$.

So it looks like both R1 and R2 have significant limitations, limitations that an account of group belief should resolve. Ideally, there would be some rule that gives us more decisions than R1, but avoids the paradoxes encountered by R2.

Unfortunately, the result R2 encounters generalizes, and it can be shown that, with a few plausible restrictions on aggregation rules in place, any non-degenerate rule will generate a discursive dilemma in some situations. The restrictions, and the impossibility result, are the subject of the next section.

**IV: Constraints on aggregation rules**

There is a very basic set of properties generally considered desirable of an aggregation rule, one which is provably jointly unsatisfiable by any non-degenerate rule. One constraint is on the inputs to the aggregation process, one on the outputs, and two are responsiveness conditions, or constraints on how the rule treats the inputs. Here, I’ll explain and try to motivate each of these conditions. Most of the literature is either social-scientific or in response to social-scientific work, and so much is made of what would be desirable for aggregating the beliefs of electorate groups. Thus the constraints are themselves often motivated with some view to the democratic process.

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5 See Christian List and Philip Pettit, "Aggregating Sets of Judgments: An Impossibility Result." *Economics and Philosophy* 18 (2002): 89-110. The result applies to any cases that are conjunctive, conditional, or disjunctive, including the case in Table 1.
The input constraint is called *Universality*. It requires that the domain of the aggregation rule be the set of all consistent and complete individual judgement-sets on an issue. Another way of stating this is that the aggregation rule must be able to operate on any “fully rational” judgement-set. This is intuitively desirable—ideally, an aggregation rule would not find impermissible a rational judgement-set. Naturally, we should want any rational combination of votes, say, to be useable by the rule. Rules that don’t meet such a requirement seem to be degenerate in some respect, like R1’s failure to reach a defined result when the judgement-sets are different between individual judges.

The output constraint is called *Collective Rationality*. CR requires that for any profile \((J_1,\ldots,J_n)\) in the domain of the rule \(F\), \(F(J_1,\ldots,J_n)\) has to be a consistent, complete judgement set on the issue. Again, this seems intuitively desirable. If the inputs are complete and consistent judgement-sets, it shouldn’t be that the act of aggregation produces something irrational. This is precisely what fails to occur when R2 is used to aggregate the results of Table 1.

The responsiveness conditions are called *Systematicity* and *Anonymity*. Systematicity is perhaps the most complex of these properties, and for that reason among others, it tends to be the one that ends up rejected when the joint unsatisfiability of the four properties is run up against. It can be seen as the conjunction of two properties: Independence and Neutrality. From Cariani:

1. **Independence**. For every two profiles \(X_1\) and \(X_2\) and every \(p\) in \(I\), if \(X_1(p) = X_2(p)\) then \(p \in F(X_1)\) iff \(p \in F(X_2)\). Informally, the verdict on \(p\) depends exclusively on the pattern of judgments on \(p\) alone.

2. **Neutrality**. The criterion for determining the collective judgement on each \(p\) is the same across all \(p \in I\). In other words, the verdict on any \(p_n\) is determined in the same way as the verdict on any \(p_m\). The aggregation rule treats all propositions alike.

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7 List 2011: 25.
Both of these conditions, independence especially, might seem strange to want in a case like Table 1, where clearly the various $p \in I$ are logically related. That, surely, is the very reason not to treat them as completely independent from one another! But there’s a motivation for Systematicity, related to judgement aggregation as originally a problem connected to democratic voting processes, which warrants consideration.

If an aggregation rule is not systematic, it is manipulable. Particularly knowledgeable or clever agenda-setters can control a result (assuming they have an idea of what the profile will look like), by deciding which items are considered first. There is something about that which seems undemocratic, and perhaps even epistemically undesirable. Why should a group’s opinion on some issue be decided, in the end, by the order in which the parts of the issue are brought up for consideration? Independence and Neutrality prevent this sort of manipulation, but they do so at a cost. I will argue that, oftentimes, the cost isn’t worth paying, and that both Independence and Neutrality should be rejected, but doing so isn’t without loss.

Anonymity requires that for any two profiles $(J_1,\ldots,J_n)$ and $(J'_1,\ldots,J'_n)$ in the domain of $F$ which are permutations of each other, $F(J_1,\ldots,J_n) = F(J'_1,\ldots,J'_n)$.\(^8\) This ensures that regardless of which judge holds which belief set, they’re treated the same—no bias is given to one judge over another in determining the group’s beliefs. Democratically, of course, this is standard procedure, and it immediately discounts so-called ‘dictatorial’ aggregation rules, that conform the group’s beliefs to the beliefs of a single judge or a small subset, an oligarchy, if you will. Though such aggregation rules do avoid the problems more egalitarian rules have to contend with, they are, relative to the concerns of literature on democratic processes (and, I should think, relative to the vast majority of groups), degenerate.

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\(^8\) Ibid.
I won’t spend any time on the actual impossibility proof here, but I will draw attention to its form. There are several versions of the impossibility result, but the standard one shows that for any aggregation rule, there is a class of issues such that the rule cannot jointly satisfy all four constraints:

**Theorem 1**: If \( X \supseteq \{a, b, a \land b\} \) (where \( \land \) could be replaced by \( \lor \) or \( \rightarrow \)), there exists no aggregation rule satisfying universal domain, collective rationality, systematicity and anonymity.\(^9\)

This leaves us in the position of having to soften or reject at least one of the four constraints, if we want our aggregation rules to be able to operate on issues of a certain degree of complexity. Various options for how to do this are discussed in summary elsewhere.\(^10\) The approach I’ll be taking is to appeal to group procedure, which is actually a multiplicity of approaches, but most often turns out to be a rejection of Systematicity. One of the most useful such approaches is a version of what is called a premise-based rule, or issue-by-issue voting. In doing so, I’ll have to argue that the sacrifice of Independence and Neutrality is worth the gain, or that the sacrifice can be somehow mitigated. Before any of that ground can be tread, however, it must be cleared, and so from here I transition to the positive account.

**V: Aggregates and groups**

The material of this section may at first seem a strange departure from the topic at hand, or perhaps tangential, but it does bear some relevance on the eventual considered view that I

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\(^9\) List and Pettit (2002). Stronger versions of the result have been proven where, for example, anonymity is weakened to a non-dictatorship condition (Pauly and van Hees 2006), and where Systematicity has been weakened to Independence alone. Mongin (2008) has a result where Independence itself was weakened, but an Unanimity condition was added.

wish to put forward. The digression begins with an observation: the problem, currently conceived, of judgement aggregation involves aggregating the judgements of some set of people $J$. But nothing has been proposed to constrain the membership of $J$, nor to specify what relations the members of $J$ might or must bear to one another.

This is, of course, quite deliberate: the above questions and problems can arise for any set $J$ whatsoever. That set might be the members of the 1972 Miami Dolphins, the registered owner of every fourth vehicle in the parking lot outside the UNC Philosophy Department, or the set containing the Pope, my sister, and Kanye West. The idea is that the individuals in the set need not bear any particular relation to each other—they may be anyone whatsoever. As long as there’s enough information to assemble a full profile for their judgement-sets, we can ask about which aggregation rule ought to be followed and run up against the problems encountered in the previous two sections.

But now there is a question: what, exactly, is the problem with the set containing the Pope, my sister Erin, and Kanye West having inconsistent aggregated opinion on something? The problem isn’t that any of them is inconsistent and therefore irrational, because as individuals, they are *ex hypothesi* all consistent in their beliefs. I assume as part of the argument that none of them, as an individual, is being irrational. The problem, if any, lies with the aggregate opinion of the group, which, when R2 is used, comes out inconsistent.

In the cases of individuals, inconsistency is taken to be a form of irrationality, and we might say that it’s bad for both prudential and epistemic reasons. Prudentially, holding inconsistent beliefs might make it more difficult to predict what actions will be more in line with one’s aims, for example. Epistemically, when holding more true beliefs is taken to be a standard of goodness, having inconsistent beliefs is unhelpful for a number of reasons, among them the
fact that at least one of the inconsistent beliefs must be false. But it’s not clear how well these considerations translate to the cases like those involving disparate aggregates. What aims could Francis, Erin, and Kanye share that give consistency any prudential value for the aggregate? Perhaps if the issue were sufficiently broad, then it might matter, but if the issue were broad enough to encompass all three of them, then they would not likely be the only people in $J$ for the issue, given the (presumably) wide variance in their concerns.

Perhaps an interesting epistemic puzzle remains nevertheless. In fact, I think there is one. But I would here like to draw a distinction between that puzzle and the one that arises, both epistemically and practically, for groups of a different kind. Specifically, I want to leave aside cases like those involving Francis, Erin, and Kanye, and focus instead on cases like those involving, say, a panel of judges in a court, or the aggregate opinion of the 1972 Miami Dolphins.

But even to have said this may not be enough. What is it, after all, that distinguishes the kinds of cases I want to talk about from those I’m willing to leave aside? I think the answer is that the ones I want to talk about are cases involving genuine groups, and the cases I don’t want to talk about are cases involving what I’ll call mere aggregates. A mere aggregate is in some significant sense different from a genuine group. Mere aggregates can be composed of any set of individuals whatsoever, selected by whatever means from a population. Genuine groups can’t be, and I think part of the reason why will point the way forward to an answer to the discursive dilemma, and subsequently a way of responding to the impossibility result.

Consider the everyday locution “they believe $p$.” $P$, of course, just represents some proposition or another; it could be about something as trivial as the best flavor of ice cream or something as important as how the U.S. economy should be structured. ‘They’, as well, can be
substituted with a number of possible collections of people. We might say that they are the UNC Chapel Hill Philosophy Department or the Audubon Society or just that bunch of people standing over there.

I suspect that intuitions on what statements of the form “they believe p” actually assert will differ depending on how ‘they’ and ‘p’ are filled in. But some sentences of this form are quite natural in ordinary language. We talk without confusion about what a university’s policy is, or what the NAACP believes, or what the Supreme Court holds, and so on. Importantly, ordinary language unproblematically attributes beliefs to groups. It does not seem, however, to attribute beliefs to mere aggregates in the same way.

Consider the sentence “those three people believe that he’s guilty.” The most natural reading is, I think, something like the conjunction of the sentences whereby the listener is informed that each of the three individuals believes that he’s guilty. It would be very strange for the truth-conditions of “those three people believe that he’s guilty” to allow for it to be true when in fact only two of the three people believe that he’s guilty. But when we say the Supreme Court believes that corporations are legal persons, we need not mean that all nine justices believe so—rather, we’re saying something about a group, the Supreme Court, that we don’t say about mere aggregates, and the truth-conditions for assertions of the form “they believe p” are different.

To get at why that difference appears and what underlies it, I propose an account of what separates genuine groups, to whom we ascribe belief without ascribing it to every single member, from mere aggregates, where it seems that conventionally at least, ascriptions of belief are read as ascriptions of the same belief to every individual member of the aggregate. A genuine group G is:

1. A set consisting of more than one person.
2. That has an aim or aims
In acknowledgement of the difficulties posed by having groups with even numbers of people, I will for the moment set those cases aside, though I think I have more to say about them than do accounts that treat groups and mere aggregates the same. So say that the minimal size of any \( G \) is three. \( G \) must also have some kind of scope \( S \), that is, a set of issues on which \( G \) qua \( G \) has some kind of say. That might seem a bit arcane, but I think it corresponds quite well to an ordinary intuition about groups. The chess club, as a club, quite reasonably has an opinion on whether it allows the \textit{en passant} rule at the tournaments it sponsors. The chess club \textit{qua chess club}, however, doesn’t have an opinion on who will win the World Series this year. Certainly, it may be true that any of the individual members (or all of them) have a view on the subject, but even so, it would be strange to describe the club as having a view on such a matter. Purviews may be blurry at the edges, so to speak—it doesn’t seem immediately clear whether the chess club \textit{qua} chess club has a belief about whether their school’s basketball team will win the state tournament, for example. In some sense, a purview can often be expanded by the members deciding to expand it—particularly, if the \textit{aim} of the group changes or expands accordingly. If the chess club gains an interest in social justice and votes to support the Black Lives Matter movement, they have, I think, expanded their purview and gained a group belief about a social movement that ordinarily would have nothing to do with a chess club. But the key here is that their procedure was involved, and so aggregation is possible on the new issue in the same way it was possible on the \textit{en passant} rule.

This, I propose, is because a judgement about the \textit{en passant} rule is obviously within the scope of the chess club, while predictions as to the outcome of baseball games (ordinarily) are not. That is, whether or not to allow \textit{en passant} is in \( S \) for the chess club, and whether the Mets
will win the World Series or not is outside S. There’s a question here about how to determine what is or is not (ordinarily) in S for some G. While it might be obvious enough that the chess club’s S doesn’t include anything about baseball, it’s less clear whether or not it would contain judgements about the best material to make chess pieces and boards from, for example. Is there any way to sharpen the apparent vagueness?

Helpfully, I think most groups of this kind are formed with an S in mind, if not at the forefront. And (4) may be of assistance here, in conjunction with (2). The chess club at some local high school aims for something like providing its members a place to play chess matches against other interested parties. Perhaps it aims also to improve their skills, or to enter (and ideally win) chess tournaments. Insofar as meeting those aims involves making judgements, the judgements fall under S. And insofar as the chess club is a genuine group, it has some kind of procedure for coming to group decisions about things in S. In many cases, this would be a simple majority vote, but of course procedures can be much more complex than (or very divergent from) that.

So, keeping in mind that a genuine group has these four features, it’s easier to see the distinction between cases where “they believe p” refers to a group opinion, rather than asserting that “all of those people believe p.” And if a group has a scope, a decision procedure, and we’re inclined to talk about what the group believes, then there’s some prima facie reason to believe that the group’s rationality can and should be assessed in a way analogous to the way we assess the rationality of individuals. We have, in other words, reason to care about whether or not a group’s beliefs are consistent or not, a reason which doesn’t seem so apparent in the case of mere aggregates.
VI: Assessing group rationality

Well and good, perhaps, but what does all this business about genuine groups and aggregates get us by way of solution to the original problem posed by trying to find an aggregation rule for Table 1?

I propose that the answer to the problem posed by the impossibility result is manifold. Any answer will have to reject one of the constraints on aggregation rules, and which one to reject depends on the features of the particular group, especially the procedure. For example, some groups, with a severe internal hierarchy, may have the policy of adopting _qua_ group the opinions of one particular member of $J$, say, the CEO or something. This amounts to a rejection of Anonymity. Rules that do this are often referred to as ‘dictatorial’ or ‘oligarchic’ rules, and considered degenerate. Certainly, if one were to use it to decide the outcome of a democratic vote, then such a rule _would_ be degenerate—it is a procedure ill-suited to groups with a desire to represent the views of their members equally. But nevertheless, there are some groups for which a dictatorial rule might serve just fine, and since by hypothesis, the individual members of the groups are all rational and coherent, there would be nothing _irrational_ in aggregating such that the group simply has the dictator’s opinion.

Of course, the vast majority of groups don’t work this way, so generally speaking, Anonymity might not be the condition to reject. A group could in theory also reject Collective Rationality. To do so would amount to saying that the aggregation rule could accept a cluster of consistent, complete judgement sets and fail to output one of the same; that is, the rule might not be able to decide what the group’s opinion is on every issue. But suppose the group in question is some kind of fact-finding committee which adheres very soberly to the most conservative epistemic principles it can—such a group may well rather return a verdict of ‘indeterminate’ on
an issue than endorse something that isn’t certain to everyone. This group might actually make best use of an S1-like rule, where consensus is required for a determinate group opinion, and, against the backdrop of the group’s features and procedures, that’s not necessarily irrational either.

It’s difficult to imagine a group’s procedure precluding the need for Universality, but in principle, it’s possible, and there might be some groups for which that is the way to avoid the impossibility result. I think, however, that the vast majority of groups operate on at least a quasi-democratic basis, and so with aggregation rules akin to R2. These results, of course, generate discursive-dilemma-type problems, and are likely motivated to keep Universality, Collective Rationality, and Anonymity. Given that impossibility results are proven for even very weak versions of Systematicity, and considering that it’s the only constraint left, it should be no difficult guess that the constraint to reject in such cases is in fact Systematicity in its entirety (both Independence and Neutrality).

How, exactly, the procedures of a democratic or near-democratic group recommend a rejection of Systematicity is perhaps not as obvious as how a dictatorial group’s procedures recommend a rejection of Anonymity, but the approach to this that I favor is often called a premise-based approach. The idea is that groups that vote on issues that are logically interconnected can (and, with rationality in mind, should) treat some of the matters in the issue as premises and others as conclusions.

To clarify how this might work, let’s examine a paradigm case. Suppose that some group, G, has a procedure for making judgements that generally accords with R2. That is, any matter the group has to decide on is decided by a vote, with the simple majority determining what the group adopts as its official judgement. What we say about Table 1 will depend on exactly how this
deciding is conducted, but let’s suppose that what the group really thinks is at issue is whether Q, but the group knows or believes (or holds whatever doxastic state a group can have that’s analogous to knowing or believing) that Q is determined by first determining whether \( P \rightarrow Q \) and whether P. Judgements on P and \( P \rightarrow Q \) count as reasons for believing or disbelieving Q. So the way the group gets to a verdict about Q is by voting on those two premises and seeing where the majority falls there. If the majority votes for P, and the majority votes also for \( P \rightarrow Q \), then the group holds both of those things to be true.

On the premise-based approach, the group’s verdict on Q is forced. Rationally, they have to, as a group, hold that Q, on pain of irrationality. The three propositions at issue are not independent—the group’s very procedure for deciding whether Q rules out that possibility even by their own lights. But how much sense does it make to say that a group with simple majority voting rules holds a position (Q) that the majority of the group’s members do not?

Intuitively, it’s actually not that strange. Say the UNC Philosophy Department is trying to decide on a set of new curriculum requirements, and each item in the set is brought up for a vote separately. We assume for the example that the department uses some R2-like rule for deciding whether the group is in favor of some \( p \) or not. Suppose that each part of the proposed curriculum revision receives a majority vote, but that there is no single \( j_i \) in \( J \) such that \( j_i \) voted “yes” on each part of the proposed curriculum revision. So there is no individual who judged in favor of the entirety of the new curriculum, but nevertheless, the natural thing to say about the new curriculum is that the department judged it to be appropriate. No one in the entire department voted for the new curriculum in its entirety; represented as a conjunction of its parts, the curriculum received no votes. And yet, it’s also very obviously correct to say that the curriculum is what the department judged appropriate, because of the way the voting procedure
worked. The R2-like rule established that the group opinion on each of the parts of the curriculum was “yes”, and the department’s hypothetical procedures in the case forced the (intuitive) conclusion that the curriculum the department adopted was judged by the department to be appropriate, even if an R2-tally of judgements on the whole thing would have otherwise produced a “no” result.11

Note that if the department’s decision procedures were different, the opposite result might obtain. If the curriculum as a whole were simply brought up for consideration, with the understanding that it was the conjunction of several smaller policies, it could be quite possible for the department to overall not endorse the curriculum, even though the majority of its members would endorse each part taken individually. It is, of course, also possible that in such a situation, individuals would take the curriculum to be something other than the conjunction of its parts. Perhaps they prioritize certain parts or don’t take disagreeing with one part to be a reason to downvote the whole thing. But these are separate issues from determining the judgement of J. What’s at issue here is whether the introduction of these considerations about genuine grouphood can enable us to say anything useful about the discursive dilemma.

What do we say, then, about Table 1 exactly? That, I submit, depends. It depends mostly on what kind of group J is. Most of the versions of the discursive dilemma that I’ve seen frame Table 1 cases as a panel of judges in a courtroom. This is an especially clear case for procedural aggregation rules, because the procedures for deciding courtroom outcomes are most often extremely specific. To decide that a defendant was in breach of contract just is to decide that she

11 There’s a question here about what the endorsement amounts to. If everyone in the department found the new curriculum to be preferable to the status quo, then the case works quite well. If, however, no one finds the new curriculum in its entirety to be preferable to the status quo, then it looks like something has gone wrong. Somehow, the group opinion seems to really be something that no one in the group holds, in an especially problematic way. If this is the result, my instinct is to say that the group needs to reevaluate its procedures, or that the caricature I’ve sketched here is inaccurate, if still hopefully illustrative.
made a contract of some kind, and then acted in some way that violated it (to oversimplify). The procedure is clear: determine whether the premises are true, and in so doing, arrive at an opinion about the conclusion via those considerations.

If such a procedure is applied to the panel, what we ought to say about the group opinion is that all the judges really have to decide is whether or not the premises are true—the conclusion will then be forced one way or another by those preliminary matters. Perhaps some courts have procedures that are more conservative: each judge votes only on the conclusion, and that is what the majority rule is applied to, so as to leave maximum room for various doubts to count. (Whether one judge votes no on the conclusion because of doubt about premise 1 or 2 then doesn’t matter, but the importance of the doubting is clearly preserved). The view itself doesn’t settle what the answer is—only the actual procedures of the group can do that. Nevertheless, it provides a recipe for doing so, which can then be applied to individual cases.

There is an obvious objection here: most groups, genuine or not, don’t have procedures that are so precise as court procedures are. What about much more informal groups, or ones whose procedures are very basic? How do such groups decide what counts as a premise in the first place?

It’s obviously true that some groups do not have an explicit mechanism for deciding what’s a premise and what’s a conclusion. Certainly, bylaws about voting are not part of the requirements of genuine grouphood. But I suspect that if such a group ever finds itself in the position of needing to vote on logically-interconnected propositions of this kind, they’ll find themselves in fact operating on some procedure to do so. If their procedure before was nothing more specific than ‘we vote and a simple majority wins’, a discursive-dilemma situation will force a decision about how to handle other cases like it. Adding an ad-hoc rule for what to do in
cases like that or ignoring the problem and allowing the group to have inconsistent beliefs are both possible ways of handling the difficulty of such cases, but of course the latter is negatively rationally evaluable: it would be a rather poor procedure which did not resolve the dilemma.

An ad-hoc rule would be a relatively easy fix. Several simple possibilities come to mind: the group might decide to vote on the simpler matters initially, something like an ‘atomic-first’ approach, or else they may want to attempt more of a ‘reasons-first’ approach, whereby the items actually voted on aren’t necessarily the simplest statements, but the ones that might serve as reasons for the others. Not every group need already have such answers ready-to-hand; the important part is that they could, if necessary, be established, and the choice of how to go about separating premises from conclusions could supplement the procedure already in place. An answer could in principle be arrived at, even if it were not already decided. Of course, more conscientious groups might want to restructure their procedures to more systematically account for discursive dilemma cases, and avoid some of the pitfalls of rejecting Independence and Neutrality.

The best preservation of something like democratic standards, then, seems to me to come by way of rejecting Systematicity, and allowing for issue-by-issue voting. The specter of ambitious agenda-setters remains, as does a problem of insincere voting, whereby a person might misrepresent their actual judgements in order to manipulate the result via the issue’s logical closure. These are certainly real threats, but there is some assuagement, I think, to be found in procedure.

An agenda-setter’s power might be quite minimal if there is already built into a procedure a way of setting agendas that applies broadly. This could be done in whatever way makes sense for the group: perhaps some would benefit from voting on “atomic” or simpler items before the
complex ones. Others, like panels of judges, are often already constrained by legal definition—in such cases it makes abundant sense to vote on the items required for breach of contract before determining group opinion on breach of contract itself, for example. If the agenda is set the same way most of the time for a given group, the biggest problem would be misrepresentation.

In small groups, it might well be a considerable risk, but I suspect that the likelihood of insincere voting affecting aggregation in a group as big as, for instance, an electorate, would become quite small, as it became increasingly difficult to either predict what other voters would do or make a difference with one insincere vote. If the goal is the most rational voting system (for a democratically-inclined electorate, anyway), rejecting Systematicity still seems like the route to take.

VII: Does the procedural account suffer from a regression problem?

It’s natural enough to wonder how it is that groups come to have procedures. In individual empirical cases, for example, it might variously be true that groups voted bylaws into place, tacitly accepted a certain way of doing things, drew up some kind of foundational document detailing how the group would make decisions, or even had procedures foisted on it by an outside source, say, a university administration.

In any case, it seems that a regression problem arises. If a group uses procedures to determine in part what its opinions are, how are they to determine their procedures, except by determining which ones they believe are best and implementing those? That action would itself require a procedure, but of what kind? How is the procedure for determining the procedure determined? The regress continues indefinitely.

Empirically, there might be a lot to say about how this happens. In principle, one could take, I think, a few different views, which I can do no more than sketch here. Perhaps what
happens is that at *some* level of the regress, it is stopped by a sort of brute procedure: everyone making general assent noises or no one protesting or someone simply doing things a certain way until refinement becomes practically necessary. Perhaps procedure is, at some point, primitive.

A different alternative would be to say that the regress problem can’t actually arise because a group is, in fact, not a group until there *are* procedures, however basic or informal they may be. A group is constituted in part by having a procedure for making decisions and judgements. As with an aim and a scope, a procedure is necessary for grouphood at all, and so, whatever happens before the group is constituted, there is no case where a genuine *group* has to decide on its procedures. It can, of course, decide later to refine or change its procedures, but this does not threaten a regress in the same way *generating* a procedure does. This does make group constitution somewhat mysterious, and on this point I must confess that I have little else to add. At what point a group becomes a group rather than an aggregate might be a question akin to at what point a statue becomes a statue instead of a mere lump of clay, or a heap of sand becomes a heap, instead of a collection of grains.

One might also, I suppose, choose to be a quietist about procedure. Perhaps arriving at them and following them is simply something that we do, and to ask how that is is to ask a bad question. In any case, there are options for dealing with the regress problem, and they aren’t any more impoverished than the options for dealing with regress problems elsewhere in philosophy.

There is, of course, a great deal more to be said about groups, procedures, and the rational assessment thereof. Which procedures are better or worse from an epistemic standpoint is no doubt something that will take a great deal of careful philosophy to consider, but what I take myself to have done here is provide one way of making that assessment: procedures are, in their most rational forms, a vital part of ensuring the rationality of groups. Where a group goes
irrational, then, a procedure is a relevant target of criticism and reform. And with a good enough procedure in-hand, a group can avoid the situations characterized by the impossibility result, a profitable upshot of the view.
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