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Social Epistemology

A Journal of Knowledge, Culture and Policy

ISSN: 0269-1728 (Print) 1464-5297 (Online) Journal homepage: www.tandfonline.com/journals/tsep20

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To cite this article: Benedikt Leitgeb (30 Sep 2025): What Groups Can Tell Us About Expertise, Social Epistemology, DOI: 10.1080/02691728.2025.2559269

To link to this article: https://doi.org/10.1080/02691728.2025.2559269

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Published online: 30 Sep 2025.

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SOCIAL EPISTEMOLOGY
https://doi.org/10.1080/02691728.2025.2559269

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What Groups Can Tell Us About Expertise

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ABSTRACT
The nature of expertise is usually discussed only within the confines of individualistic epistemology, despite the fact that many tasks typically performed by individual experts are now performed by groups. As a result, some definitions and conditions of expertise may fail to account for group expertise. I will argue that current versions of veritism do not allow for group experts beyond the mere conceptual possibility of them. For non-summativists, this is a problem they should address. I also propose a condition for veritistic expertise that retains the veritistic intuition but makes group expertise more feasible in realistic contexts.

ARTICLE HISTORY
Received 4 January 2025
Accepted 1 September 2025

KEYWORDS
Expertise; group belief; veritism; epistemic authority

I. Introduction: What Experts Look Like Today

During the COVID-19 pandemic, experts, especially medical experts, played an important role for society. They advised the public and policymakers, informed them about the status of the pandemic, and developed approaches and plans to prevent and control new pandemics in the future. Although when we hear about experts, we usually think of and discuss individual experts, much of the advising and informing of the public and policymakers is done by groups of (mostly, but not exclusively) experts. They come up with advice, recommendations or plans together.

There are two positions in collective epistemology concerning the epistemic status of groups. On the one hand, summativists hold that a group's beliefs, desires, preferences, or others are nothing more than the beliefs, desires, preferences, … of the individuals who make up the group. For example, when we say that 'the advisory group believes that the COVID vaccine is effective', we are really saying that all, or at least a majority, of the members believe that the vaccine is effective. When we say that an advisory committee is committed to giving good and effective advice, we are really saying that some or most of the members are committed to that goal. According to summativists, this is the case for all sorts of states a group might be in, be they beliefs, intentions, etc. Whatever we say a group says, does, wants, or believes, we are really just talking about the members and their beliefs, intentions, actions, and other properties (Quinton 1976).

Non-summativists, on the other hand, take the position that, at least in the case of relatively complex groups such as governments, corporations, or advisory groups, such statements concern the group itself and are not reducible to claims about individuals. If we say, 'The advisory group believes that the COVID vaccine is effective', we could say that the group itself believes that the vaccine is effective. The relationship between the group's epistemic states and the states of the individual members is not one of reduction, as the summativist claims, but is usually cast by non-summativists in terms of supervenience (see, for example, List and Pettit 2011, or for a critical

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discussion of this idea; Epstein 2015). As such a group belief, or any other a group property, is distinct from the individual's properties and mental states, but causally depends upon them. Not every change in the individuals will lead to a change in group attitudes, but a change in group attitudes can only occur by changing something relevant about the members, be it the way they interact, their beliefs or something else. Although the group's belief is the result of the individual member's beliefs and interactions, non-summativists believe that the group's belief and the member's belief can diverge, eventually leading to the point where the best interpretation is to attribute the belief, desire, intention, etc., to the group itself. Ultimately, non-summativists usually end up claiming that collectives can be epistemic agents in themselves (Gilbert 1987, 2014; List and Pettit 2011; Mathiesen 2011).

Especially for non-summativists, advisory groups represent an interesting case study. Not only are they relatively complex groups engaged in political and social life, but we tend to trust them and take their recommendations seriously. Some non-summativists (e.g. Fricker 2012; Tollefson 2007, 2015) have argued that groups can provide testimony, much like individual epistemic agents. But being a testifier is one thing, being an expert testifier is another.

Given their public prominence, especially in recent years, it is surprising that relatively little has been written about the epistemic authority and expertise of groups. Questions about trust in science, scientists, and experts, or how to improve public trust in science and scientific institutions, are usually considered only in relation to individual scientists and experts, even when institutions are also considered (e.g. Gundersen and Holst 2022; De Cruz 2020; Gilbert 2014, or; Gerken 2018). Although we usually behave in ways that suggest that we take groups like advisory groups to be experts, it is not trivial that groups can satisfy general conditions for expertise. Non-summativists should explore whether expertise is something that applies to groups. If not, we may not be justified in taking the advice and recommendations of deliberative groups seriously after all. At the very least, an important and common reason for taking testimony seriously is lost for group agents.

In this essay, the main question I want to consider is whether, under a non-summativist lens, group experts are possible in two senses. First, whether they can be experts in principle, and second, whether they can be so in a more realistic setting. To motivate these two different questions and my later answers, in section 2, I want to consider some desiderata of what a proper definition of expertise should do. In section 3, I will discuss Croce's (2019) argument for the possibility of group expertise, but I will conclude that he only shows the in-principle possibility of group expertise, not whether it is practically feasible. In section 4, I will argue that a common condition of expertise, veritism, in its standard formulations poses a problem for the practical feasibility of group expertise. In section 5, I will offer some possible responses, leading to an attempt to provide a condition for expertise that preserves the veritistic spirit while making expertise more feasible for groups.

II. Some Desiderata for a Realist Definition of Expertise

As described at the beginning, many tasks that experts perform, especially research and advising the public and policymakers, are also performed by groups. To a non-summativist, this should suggest that if such groups are epistemic agents, then it is reasonable to assume that they are experts. If it looks like an expert, acts like an expert, and we act as if it were an expert, then it probably is an expert (or at least it could be an expert in principle).

However, definitions and discussions of the nature of expertise have been almost exclusively limited to individual experts (e.g. Baghramian and Michel 2021; Croce and Baghramian 2024; Goldman 1991, 2018, 2021; Scholz 2018), which means that it is not trivial that current definitions of expertise are easily applicable to collectives.

I would like to offer some (non-exhaustive) desiderata for any definition or characterization of expertise (for more considerations on how an explication of expertise should look like, see Quast 2018a, 2018b).

(a) It should be applicable to all kinds of epistemic agents that we treat as experts.
(b) It should explain/ground the epistemic authority of experts.
(c) It should allow some room for error or mistakes.
(d) It should reflect or leave room for task- or domain-specific conditions.

Applicability overall I want to understand here as the ability for epistemic agents to satisfy the conditions of expertise. Experts exist, and as such, our definitions of expertise need to explain their de facto existence. But I still want to distinguish two senses of applicability here. First, any definition should make it *conceptually possible* for an epistemic subject to be capable of expertise – if no epistemic agent could ever be an expert, for example, because the conditions of expertise are contradictory or otherwise conceptually flawed or ask for properties which are impossible to possess, then the definition is obviously flawed as well. We should not ask of experts to know true contradictions, for example. Such a definition would be conceptually deeply flawed, and no epistemic agent could ever satisfy it, no matter how idealised they are.

But it should also make it a *realistic possibility*. If our standards of expertise were so high that no individual, group or other agent could possibly meet them under normal, real-life circumstances, then there is little to be gained by allowing them to be experts only conceptually. For example, if we require that an expert in physics must know *everything* there is to know about physics, then nothing prevents people from being experts in physics on a purely conceptual level. Today, however, no one would ever be an expert in physics, given the vast amount of knowledge we have accumulated over millennia. Similarly, to ask of an expert to always be correct in their judgements, we would be asking too much of a realistic epistemic agent. Although we surely can expect high standards for expertise, they cannot be unrealistically high and unnatainable for actual agents, existing in the real world.

Of course, one might ask why an appropriate definition of expertise should apply to all kinds of epistemic agents. Perhaps only individuals can be experts, and other potential epistemic agents, such as collectives or perhaps one day AIs or other artificial, non-human agents, could never be experts. But such a view needs more motivation and seems ad hoc. Sure, it could be that expertise looks very different in groups and individuals (the two types of epistemic agents I am concerned with here), but arguably they instantiate the same phenomenon or property, just in different ways. The type of epistemic agent we are considering might have an effect on what signs laypeople might use to determine whether the agent is an expert – academic titles such as a Ph.D. are something that groups cannot yet obtain, so having an academic title might be a sign of expertise for individuals that does not extend to other epistemic agents such as groups. It would not be surprising, then, if a realistic definition of expertise for individuals were quite different from one for expertise for groups. It is the same phenomenon, so we should expect the general definition of expertise to be the same, even though they may instantiate it differently and we may use different signs to identify them as experts.

The second point is meant to express the idea that any good definition of expertise should give us a good idea of why we can generally ascribe epistemic authority to experts. It is a common assumption that experts are epistemic authorities in their field, especially for lay people, and that their being experts is the basis for their epistemic authority (Constantin and Grundmann 2018; Grundmann 2025). If a doctor tells me that I have a disease, I should usually listen to the doctor and believe him-unless, of course, I have very good reasons to believe that the expert in this case is dishonest or otherwise unreliable for some reason. But unless I have good reasons that undermine the doctor's authority in this case, I should take them seriously, and any good definition of expertise should tell me why this is so.

What exactly an epistemic authority's testimony requires of us is unclear in the literature. Some, like Zagzebski (2012) or Constantin and Grundmann (2018), generally argue for deference views, in their case preemptionism, that is, the position that we should generally (unless there are perhaps some defeating reasons not to) adopt the epistemic authority's belief, even if our own evidence

conflicts with it. Another popular set of positions takes expert testimony as just another piece of evidence with which to update our beliefs. Sometimes called the total evidence view, this position has been argued by Jäger (2016), Dormandy (2018), or Lackey (2018).

How exactly we should respond to expert testimony is less important for the purposes of this essay. What is important is that any good definition of expertise should give us a good explanation of why it is a good idea to take expert testimony seriously, especially as a layperson.

An important aspect is that experts should be allowed to make mistakes. No real expert, whether an individual or a collective, is a perfect epistemic agent. As such, any explication of the concept of expert should allow some acceptable room for error or mistakes. A doctor remains an expert even if he (within some reasonable limits) occasionally misdiagnoses his patients, and a physicist might believe some (known to be) false propositions or make some miscalculations from time to time.

Finally, the last desideratum expresses the idea that an explication of expertise should be domain- and task-appropriate, or at least allow for the addition of such domain- and task-appropriate desiderata. If we want to define expertise in terms of the task of advising laypeople, then perhaps an expert should possess certain skills, virtues, or other qualities that allow him or her to advise laypeople. However, such qualities may not be necessary if we are more concerned with research. Similarly, a medical expert may need different domain-specific skills or characteristics than an expert in economics or physics. While it may be the case that there are some universal, common characteristics that apply to all experts in all domains for all tasks, depending on the task or domain, additional constraints and requirements may need to be added.

III. Croce's Argument and the Veritistic Condition

In his 2019 article, Michel Croce argues that groups can, in a non-summativist way, satisfy what he calls a *service conception* of expertise. This is a functional definition of expertise, which defines an expert as someone (or something) who is able to perform certain functions within an epistemic community. The function Croce argues for is *research*-and an expert, according to his functional account, is someone (or something) who possesses the qualities, skills, etc., necessary to contribute epistemically to a discipline (Croce 2019, 173).

Croce's definition of expertise consists of two parts. The first, inspired by Goldman's influential account of expertise (Goldman 2001, 2018, 2021), is the first condition that an expert must satisfy (Croce 2019, 174).

[TLa] S possesses more true beliefs than most people do in D.

This true belief condition expresses the general idea that whatever a cognitive expert is, he is well informed and knows (or at least truly believes) a lot about his domain of expertise. Croce chose to restrict the condition to the number of true beliefs a subject has relative to 'most people', but sometimes other conditions or versions of the above idea are added. I will discuss this in more detail in the next section.

The last part of Croce's definition is the possession of certain research-oriented skills or virtues. An expert not only believes strongly in a particular field, but in order to be able to contribute to a field, he or she should also possess certain virtues that are conducive or helpful in making a positive contribution to a field of study. Such virtues might be creativity, open-mindedness, curiosity, or thoroughness. These virtues enable experts to use their fund of mostly true beliefs in appropriate ways to contribute to their field. Arguably, if we change the goal of expertise to something else (such as helping laypeople make decisions), a different set of virtues may be required (Croce 2019, 174f).

Croce's argument is that if groups can satisfy both *TLa* and the virtues requirement for research (or other functions), then they should be considered true experts. Using Margret Gilbert (1987, 1998, 2014) joint-commitment account of group belief and Miranda Fricker's (2010, 2012) discussion of group virtues, both examples of non-summativist positions, Croce concludes that, to the non-summativist, groups seem able to satisfy both requirements. They can, according to non-summativists like Gilbert and Fricker, possess true beliefs and virtues relevant to research. As such, group expertise is possible. His argument, of course, depends on how convincing the possibility of

group belief and group virtues are in a non-summativist framework – but since I am assuming a non-summativist position here, this is not a problem for this article. Suffice it to say that Croce's argument should be convincing to most non-summativists. If groups can be epistemic agents in their own right, they will have their own beliefs and virtues – whether Gilbert and Fricker are right about how these come about is secondary (for now) (Croce 2019, 175–178).

The uptake of Croce's argument is that collectives and individuals are to be judged in similar ways, when it comes to the conditions of expertise they need to satisfy. The kind of epistemic agent they are does not significantly impact what it takes to be an expert. Different kinds of epistemic agents might realise features differently, but they need to realise the same features. At the very least, it is not clear why they should be experts of a completely different type, and Croce suggests, that for non-summativists, evaluating collective agents concerning their epistemic standing, means we need to compare them to other agents, including individual agents (Croce 2019, 177).

At first glance, I think Croce's service conception of expertise satisfies most of the previous desiderata described in section 2, at least for individual epistemic agents. It is surely both conceptually and realistically applicable to individuals. Moreover, since it should apply to research in general, Croce's restriction to research-relevant properties also reflects the task and function that experts are supposed to perform. And since these virtues are to be determined in terms of their usefulness for research, it arguably grounds the epistemic authority of experts, at least to some extent. In particular, the veritistic condition does so. After all, if an expert really believes a lot in a domain, and I am a layperson in the same domain, then taking the expert's testimony seriously will probably improve my chances of increasing the number of true beliefs I have. One small problem is that Croce's definition seems to say little about acceptable error – but I think this is easily accommodated. After all, truly believing more in D than most does not imply believing only true things in D. And a subject who possesses the relevant (epistemic) virtues might still end up acting incorrectly in some way from time to time.

But on second glance it is unclear whether all desiderata are satisfied by his definition when it comes to collective epistemic agents. Conceptually I think groups can satisfy his conditions, that is what he argues for, and I think he is successful in that. But Croce does not consider whether his definition also allows for actual, real-life groups to be experts in their own right. While it is realistic for individual experts to know more than most people in a domain and to possess research-relevant virtues and skills, he does not consider whether this is also the case for collective agents such as advisory groups. However, when we consider real-life groups such as the ACIP, it is crucial to know whether they can realistically possess epistemic authority or expertise. If it is only conceptually possible for groups to have expertise, little is gained, because we would still lack a good reason to take collectives such as advisory groups seriously. At the very least, the expertise of groups could not ground their authority.

In the next section, I argue that the service conception cannot sufficiently provide a realistic possibility for group expertise because it is built on the veritistic condition. It is unlikely that groups in a realistic setting will be able to satisfy the veristic condition for expertise because of the way groups form beliefs.

IV. Veritism and the Difficulty of Group Expertise

The veritistic condition of expertise is meant to capture the idea that experts have a special access to truth in the domain of expertise. In its current, most popular formulations, the veritistic condition was popularised by the late Alvin Goldman's work (Goldman 2001, 2018, 2021) on the nature of expertise. There are currently several versions of this condition.

The Veritistic condition is not uncontroversial (see, for example, Jamie Carlin 2019; Watson 2018). Nevertheless, I will use it here as my main example to illustrate that non-summativists should not expect that conditions on expertise that are perfectly applicable to individual subjects can be easily and unproblematically extended to collective subjects.

To determine whether groups have a realist shot at satisfying veritism, it is necessary to describe veritism further.

Croce, as described above, uses the following vertistic condition (Croce 2019, 174).

[TLa] S possesses more true beliefs than most people do in D.

A necessary condition for expertise is that the subject has more true beliefs than most people in a certain domain. Alvin Goldman (2018, 5) provides a different version of the same idea.

[TL2] S is an expert about domain D if and only if

(A) S has more true beliefs (or high credences) in propositions concerning D than most people do, and fewer false beliefs; and
(B) The absolute number of true beliefs S has about propositions in D is very substantial.

According to TL2, not only must an expert really believe a lot about domain D, but he should also have fewer false beliefs than most people. Furthermore, they should still truly believe a lot in their domain.

There are other veritistic accounts that, while different in some respects, provide similar conditions linking knowledge or true belief to expertise. For example, Licon (2012) argues that experts should have more true beliefs than their epistemic peers. Coady (2012) claims that experts should have more true beliefs than their epistemic community. Whether our comparison class for determining the relevant number of beliefs is most people, epistemic peers, or the epistemic community, an expert seems to *have a lot* of beliefs in some way. That expertise, in a veritistic sense, is somehow related to the number of true or false beliefs, is the main way veritism is usually characterised in the literature. Then, to determine whether a given epistemic agent is an expert, we should try to figure out how many beliefs an expert ought to have.

Imagine a young vaccine expert, let us call her Elizabeth. After several years of hard work and study, Elizabeth has just completed her PhD in medicine (with a focus on immunization practices). She has attended dozens of lectures and seminars, written several essays, papers, and exams, and has recently been doing her own research. She is familiar with much of the current literature and work in her field, keeps up with the latest publications, and knows at least some basics of general medicine and some discussions and basic theories and issues about other areas of medicine that are partially relevant to her work. She has also worked in a hospital for several months. During these years of intensive training and study, she has probably formed thousands of beliefs about various vaccination methods, diseases, treatments, and more. She is undoubtedly a vaccine expert at this point, so we should expect any other vaccine expert to be. Let's say, for the sake of simplicity, that Elizabeth has formed ten thousand (mostly accurate) true beliefs by the time she finishes her Ph.D., and she also has very few outright false beliefs. Thus, any other vaccine expert should also believe (mostly accurately) at least ten thousand things in this domain – not necessarily the same things as Elizabeth. Whether the comparison class is the general population, Elizabeth's peers, or the medical community as a whole, I think we can say that having ten thousand true beliefs is at least necessary to be a vaccine expert, if Elizabeth had to form that many to become an expert.

Now consider the case of the Advisory Committee on Immunization Practices (ACIP), the U.S. immunization advisory group.[1] Established in 1964, the ACIP meets about three times a year for its general meetings, but it also consists of subgroups, called workgroups, that meet more frequently throughout the year. These workgroups are responsible for researching, evaluating, and synthesizing current evidence and presenting their findings to the general meeting, especially to the voting members. They use a framework called GRADE (Grading of Recommendations, Assessment, Development and Evaluation). GRADE is a framework for grading and interpreting medical evidence based on the principles of evidence-based medicine. It also includes an EtD (Evidence to Decision) framework that provides rules for determining whether and how strongly different pieces of evidence weigh for or against a particular intervention, and thus what kind of recommendation, if any, is justified by the evidence gathered. It provides rules and a rationale to help medical experts

consider what evidence is relevant, how to assess its strength, and how this affects the recommendation. For example, randomised control trials (often considered one of the best types of medical evidence available) are usually ranked higher than other types of evidence, such as observational studies. However, GRADE allows evidence to be upgraded or downgraded if, for example, the effect size seems particularly large or there is a risk of bias. It also provides some rules for aggregating the evidence to make recommendations. For example, if the evidence is particularly strong and the expected benefits clearly outweigh the potential adverse effects, a strong recommendation might be appropriate. Weaker recommendations are appropriate when there is considerable uncertainty. The working groups present their work and conclusions to the general assembly. Voting members have time to deliberate and ask questions before a vote is taken. At least half of the members must approve a proposed recommendation. If a recommendation is accepted by the voting members, it is recorded and then must be accepted by the head of the CDC (who usually accepts ACIP recommendations). The justification and recommendation are then made public (CDC 2018, 2022).

If any group is an expert, the ACIP should be. It is internationally recognised and uses state-of-the-art processes such as GRADE to make its decisions. But would the ACIP be an expert, given the veritistic criteria above? My pessimistic answer is that it probably would not be an expert.

The reason for my pessimistic answer is that the way group belief is formed is not conducive to forming large numbers of beliefs quickly. In the current, most influential theories of group belief, group belief is the result of members interacting with each other. And when a system like GRADE is added, such a process of group belief formation takes weeks or even months and significant resources. Therefore, it is more efficient for groups to form only a few beliefs that are relevant to the task or question at hand.

Perhaps the most influential account of group belief comes from Margret Gilbert's work on group epistemology (Gilbert 1987, 1989; 2014), but a similar account is offered by Tuomela (1992), which is probably more. Her joint commitment account of group belief requires that group members make a 'joint commitment' in order for a belief to become the group's belief. Tuomela's theory, while very similar, requires only so-called operative members to make such a commitment.

A joint commitment has two parts. First, everyone must somehow express their willingness to make this shared commitment, a commitment that includes all members. They must be aware and willing to act and behave in accordance with this commitment when acting as a group or as a member of the group. A shared commitment cannot be unilaterally revoked, and only becomes effective if all group members agree to it in some way.

Furthermore, this expression of willingness must also be common knowledge among the group members. Everyone needs to know that the other members have agreed to the commitment in some way. This agreement may be very explicit, such as a verbal signature, or it may be more implicit, such as a nod of approval of a commitment, depending on the context and the rules of the group.

Thus, if everyone agrees to the joint commitment that the group believes that P, and this is common knowledge among the members of the group, then the group believes that P. Note that it is not necessary that individual members actually believe that P. Accepting the shared commitment only requires that members, in their capacity as members of the group, act in a way that reflects the group's belief that P, even if they themselves believe that P is false. In this way, Gilbert's account is a non-summativist account, since the group's belief could be very different from the beliefs of the members (Gilbert 1987, 195; 2014).

The advantage of Gilbert's account is that it is very flexible and can cover a wide range of different kinds of groups. Nevertheless, for a group to form a belief, some kind of action by its members is required.

Another theory of group beliefs comes from judgement aggregation theory. A group is said to believe that P, if the proposition is the result of some suitable judgement aggregation procedure. The choice of aggregation function can influence what the group ends up believing, and whether the group shows properties on the group level which are epistemically relevant (like a level of consistency). List and Pettit have argued that if a certain kind of aggregation function, especially

premise-based aggregation functions are used, a group satisfies functionalist conditions for rational agency, while also potentially being distinct from the group members (List and Pettit 2011).

In practice, there are several ways in which groups can aggregate the judgements of their members. They can do so implicitly through deliberation, but most paradigmatically, we can think of aggregation as members voting on particular propositions. Depending on the aggregation method used, this can also lead to a non-summative outcome, where groups end up believing propositions that none or only a minority of members actually believe.

In both pictures, group belief is not formed simply by bringing members together. For a summativist, group belief comes about by determining what most people in a group believe. If more than half of the members believe that P, then that's the group's belief (though the members may not be aware of it). But among other things, this means that a group will end up believing many things that are completely irrelevant to the group's task. For example, suppose that by some comical coincidence, the ACIP consists only of members who believe that the colour blue is the best colour. In a summativist fashion, the ACIP would believe that blue is the best colour. But obviously, the ACIP should not be concerned with matters of aesthetics, but rather with matters of medicine. Then, for non-summativists, group members must do something to bring about a group belief, such as voting or expressing their willingness to a joint commitment.

Consider groups like the ACIP. These groups have relatively explicit rules about how beliefs are formed. In the case of the ACIP, each belief is the product of several members (organised into workgroups) working together, receiving input from other members and outside experts until they finally present their work to the other members, and finally the voting members vote on their recommendations. Although the workgroup is a proper part of the ACIP as a whole, its work is not elevated to the level of the entire ACIP until the voting members are briefed on it and vote on it at one of the few general meetings.

The number of beliefs formed by the ACIP will therefore be limited. First, the few recommendations made at each meeting express the belief that certain interventions will have certain beneficial or non-beneficial effects on a target population. Perhaps it can be argued that by accepting a workgroup recommendation, the voting members implicitly accept the workgroup's rationale. Even if this is the case, only a few dozen beliefs end up being formed that can be said to be the beliefs of the ACIP as a group. Many of these beliefs are also subject to revision. When the ACIP adopts a new influenza vaccine recommendation, some or all of the previous influenza vaccine beliefs are abandoned and new beliefs are adopted. Thus, beliefs are not just cumulatively added at each meeting, but often replace previous beliefs.

So, even after dozens of general meetings, we should not expect the ACIP to have formed anything close to the ten thousand beliefs that an individual expert like Elizabeth has. And that is to be expected – it took Elizabeth years to accumulate that much knowledge, and the ACIP takes longer to form a belief than she did, and does not have the time to spend years forming enough true beliefs as Elizabeth did. And as we expect Elizabeth to be a paradigm expert, the ACIP will not be able to believe even close to the amount of things, Elizabeth does, which, for the non-summativist, is a requirement for expertise (Croce 2019, 77).

Now, in the case of the ACIP, the group has been around for several decades, so one might wonder whether it has formed enough beliefs over those decades. But in the case of advisory groups, it seems that longevity is at best a sign of expertise, not a requirement for it. Imagine that the ACIP is disbanded and a new group, ACIP 2.0, is formed to replace it. It has the same membership, structure, and procedures, but because it is a new group, it is not bound by the decisions of the original ACIP. ACIP 2.0 meets for the first time and makes exactly one recommendation. The number of beliefs formed by ACIP 2.0 certainly does not approach the number of beliefs formed by a single expert. Nevertheless, it seems that the ACIP 2.0 should still be considered an expert, even though it may have formed only a handful of beliefs so far.

I conclude that, given that the emergence of group beliefs requires some level of intention and action on the part of group members, especially in highly structured and regulated groups such as

the ACIP, it is unlikely that the ACIP will form enough beliefs to rival individual experts in the quantity of beliefs they form. And even if the ACIP could form enough beliefs, it should not have to. And an advisory group should have epistemic authority in a field regardless of how many beliefs in a relevant field it possesses.

V. Some Possible Responses and Objections

I have argued that, in a non-summativist picture, groups, even groups like the ACIP, are unlikely to be able to form enough beliefs to rival individual experts. Thus, on a veritistic definition of expertise, group expertise is unrealistic. Now, one might ask what answers are available to non-summativists here.

The easiest way would be to bite the bullet. Perhaps it is simply the case that groups, given a truth-based account of expertise, cannot be experts in a realistic setting. As I said, I think this is a problematic answer. We seem to think that groups like the ACIP have epistemic authority, but if they lack expertise, their epistemic authority seems unfounded. At the very least, we would have to come up with some other way to justify epistemic authority, unless we accept that we are making a mistake in taking the testimony of the ACIP and other advisory groups seriously.

Perhaps other definitions of expertise are more promising. Still, there is something very intuitive about veritism, so it deserves a few more attempts to salvage it for group agents.

Another response might be more promising. Expertise is always defined in relation to a domain. It may be that we can reduce the number of beliefs required if we simply define the domain in question very clearly. Sure, maybe it is unrealistic to expect a group to be an expert in medicine in general, given the vastness of the field, but maybe groups like the ACIP are experts in a very narrow domain like 'the assessment and evaluation of vaccines X, Y, and Z and their public health effects and the derivation of relevant policy recommendations' or something even narrower. Arguably, this domain is much smaller than just medicine or even just vaccines, and it might be a little easier to become an expert in such a domain.

But I think this is not a good response for several reasons. First, it is not clear why we should accept that groups simply cannot become experts in larger domains. Such a claim seems ad hoc and would need further justification. To say that groups can only be experts in very narrow domains is a difficult bullet to bite.

Second, making a domain narrower or smaller does not necessarily imply a reduced set of beliefs in that domain. It may be true that the domain of modern medicine is larger and contains more propositions than a comparatively smaller domain like vaccination practices or 'Tolkien's Middle-earth'. But we cannot expect the number of propositions necessary for expertise to be substantially reduced simply by limiting the domain; what the domain might lack in breadth, it might make up for in depth. If an individual is a general medical expert, little or no knowledge of some areas of medicine is to be expected – a generalist expert in medicine is unlikely to rival a specialist in vaccination practices. But this does not mean that the specialist needs to know less than the generalist, it is simply the case that the requirements of being a specialist in immunization practices are different from being a general medical expert. So, just saying that groups can only be specialists will not necessarily help reduce the number of beliefs required.

But even if we were even more radical and carved out a domain containing only a few dozen propositions, such that groups could form sufficient beliefs relative to that very specific domain quickly, this would not solve the problem. Those domains would be hard to justify practically. Usually, domains emerge for practical and theoretical reasons as a vague set of interconnected propositions. Achieving expertise in a domain that consists of only three propositions is probably not difficult. Expertise would become almost trivial, and expertise in them would most likely lack any practical and epistemic significance.

It also gets the direction of fit wrong. We would be constructing the domain for the expert, when we should be looking at whether the subject is an expert in a domain. So while it is fine to some

extent to be more specific about the domain we are talking about (vaccination practices rather than medicine in general, for example), when we get to the point of constructing our domains relative to the expert, expertise seems to lack the potential to justify epistemic authority in any meaningful sense, especially in practical contexts.

Given the intuitive plausibility of veritism, the non-summativist might be well advised to try to salvage it before moving on to another account of expertise. In what follows, I will propose an account of expertise that retains the spirit of veritism but is more applicable to real-life groups.

In order to develop a definition of expertise that includes the possibility of group experts, it is important to pay attention to how groups such as advisory groups are currently used and operate. In a sense, advisory groups are characterised not only by the topic they are asked to advise on, but also by the processes they use to achieve that goal. So it makes sense that a definition of expertise that is sensitive to group expertise should take this into account, even a veritistic one.

This does not necessarily contradict the intuition behind veritism either. Fricker (2006, 233) offers a definition, or at least characterization, which also links experts to true belief, but does so not in a way that experts actually need to know anything (in principle):

> 'S is an expert about P relative to H at t just if at t, S is epistemically well enough placed with respect to P so that were she to have, or make a judgement to form a conscious belief regarding whether P, her belief would almost certainly be knowledge; and she is better epistemically placed than H to determine whether P". (Fricker 2006, 233)

Fricker is still talking about individuals here, but because she does not require an expert to know a substantial number of true things in her domain, it is more manageable for groups. Still, I think we can do even better for accommodating groups.

My proposal is the following, procedural, veritistic condition:

> *[PVC]*: S is an expert in domain D (if and only) if S is sufficiently reliably capable of forming relevant, true beliefs in D via reliable belief-forming processes, and could do so within a suitable time frame.

PVC is supposed to focus on the process of belief formation. The main claim is not that the epistemic subject has many true beliefs, but that it can form them reliably under certain circumstances. For individuals, this means that they should have reliable belief-forming processes, just as groups should. Reliable here should not be confused with a form of reliabilism about the justification of knowledge. Reliability here means that the belief-forming processes are good at producing (approximately) true beliefs, but this does not necessarily mean that these are justified, true beliefs. An individual expert might have accumulated a lot of true beliefs over time, so an individual with a lot of true beliefs in D is a special case of an expert according to PVC, but having a lot of true beliefs at all times is not required.

I take it that employing adequate belief-forming processes within a suitable time frame is something that it is both conceptually and practically applicable to both individual and collective agents. One question to be asked is of course what kind of belief forming processes we are talking about. For groups, different kinds of aggregation measures, voting mechanisms or discussion formats might count as such belief forming methods. For individual agents, other processes, like introspection, memory, perception, use of certain methods or heuristics etc. might also be included. That being said, which belief forming processes are suitable for any given situation are also domain-specific, and, as belief forming processes need not be one hundred per cent accurate or successful in forming true belief, room for error is possible. The epistemic authority of such an expert is also grounded, at least it should be as grounded as in the case of other veritistic conditions of expertise.

The addition of relevance is due to the recognition of how current advisory groups are used today. Groups do not just form beliefs about things for no reason; they are asked and tasked to solve problems or address specific issues. As such, the beliefs these groups form will usually be relevant in some way to the task at hand. This can easily be extended to individual experts. A doctor should normally be able to deal with the medical problems of his patients if those

problems fall within his area of expertise. Note that 'relevant true belief' also does not mean that the belief must solve a problem or provide a definitive answer to a question. Depending on the circumstances, there may simply not be enough evidence to answer a question definitively, and an expert does not lose his or her expert status by recognizing that the evidence so far is inconclusive.

I take it that [PVC] also produces the correct result in my comparison between the vaccine expert Elizabeth and the ACIP. Both, if they can form their beliefs through reliable means, and in an appropriate time frame, they can both be experts. While Elizabeth might use belief forming processes, like retrieving memory (if memory is considered to be such a process), or through testimony (while she studies at university), or by means of appropriate consideration of medical evidence and applying the appropriate methods. The ACIP on the other hand uses other processes, which are more appropriate to a group setting, the use of subgroups, appropriate voting mechanisms, etc.; both are experts, no matter how much they believe at a particular time.

The expert should also be able to do this within a certain time frame. Advisory groups have to come up with a recommendation or advice within a few weeks or months. The same goes for individual experts. A doctor who usually takes years to diagnose his patients is not much of an expert.

Of course, it is another problem to determine the exact time frame. To some extent, it depends on the importance of the problem and how difficult it is. If the problem an expert faces is very important, the sooner the expert forms relevant true beliefs, the better. However, if the problem is extremely complex and difficult, the expert may take longer to form relevant beliefs because of the need to conduct additional research, which may take a long time.

If persuasive, this may be a feature of expertise that is more pronounced in group experts than in individual experts. Given that individuals often have already formed a lot of (hopefully true) beliefs, they probably do not need to spend a lot of time when confronted with a problem. Sure, gathering evidence or doing proper analysis may take time, but the act of forming a belief takes very little time, so considerations of time seem less salient for individuals. In groups, however, belief formation often takes much more time, the group needs to be organised, deliberations may take hours, and a vote needs to be taken, counted, and ideally verified. Group beliefs tend to take more time, and so the time sensitivity of expertise is more salient in the case of groups. Perhaps other features of group expertise are simply more salient in groups than in individuals, but still apply to individuals.

PVC satisfies the desiderata outlined in section 2 while remaining, at least in spirit, a veritistic definition. If PVC, or the general strategy of considering group experts as well, is convincing, it may provide some insight into conditions of expertise that have not been as well recognised in the current debate due to the individualistic focus.

VI. Concluding Remarks

Expertise is often said to ground epistemic authority, but despite the fact that many groups today perform many tasks that experts usually do, and seem to enjoy epistemic authority for doing so, the idea that groups can be experts is relatively new and under-discussed. I have tried to argue that non-summativists have little trouble showing that groups can theoretically be experts, but whether this is a realistic possibility is less clear. In particular, a condition like the common version of veritism seems to make group expertise too difficult. I have tried to argue that some possible responses, such as narrowing the domain or biting the bullet, are unsatisfactory for non-summativists. Their best strategy is to analyse group experts and see which aspects of expertise are perhaps more salient in group experts than in individual experts. PVA should provide a definition of expertise (or at least a necessary condition for it) that retains the veritistic, truth-bound character of common veritistic definitions of expertise, but makes it more applicable to groups by noting some salient features of group belief formation. If that's the case, groups could help us explore and analyse many common concepts in epistemology.

Note

1. This article was written and submitted before the sudden discharge of all members of the ACIP by the secretary of health of the Trump administration, Robert F. Kennedy Jr. in early June 2025.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Funding

This research was funded in whole or in part by the Austrian Science Fund (FWF) [10.55776/COE3]. For open access purposes, the author has applied a CC BY public copyright license to any author-accepted manuscript version arising from this submission.

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