

GROUP KNOW-HOW: A REPLY TO PALERMOS AND TOLLEFSEN

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ABSTRACT: In recent work, Palermos and Tollefsen develop a novel account of group know-how (GKH)—know-how applicable to a group as a whole—and which they take to be superior to envisioned accounts of group know-how that reduce the group know-how to that of individuals. While their argument has promise, I aim to show that it succumbs to several objections, an appreciation of which gives us a better sense of what desiderata a satisfactory account of group-level know-how will need to meet.

KEYWORDS: know-how, group know-how, intellectualism, anti-intellectualism

When we row a boat, ride a bike, play a musical instrument and so on, we manifest our (individual-level) *know-how*. But we also form groups, and these groups seem likewise capable of intelligent behaviour—viz., such as throwing a party, building a house or a car, where the know-how seems applicable to a group as opposed to any one individual agent.

In recent work, Palermos and Tollefsen (P&T) develop a novel account of *group know-how* (GKH)—know-how applicable to a group as a whole—and which they take to be superior to envisioned accounts of group know-how that *reduce* the group know-how to that of individuals.

While their argument has promise, I aim to show that it succumbs to several objections, an appreciation of which gives us a better sense of what desiderata a satisfactory account of group-level know-how will need to meet.

Here is the plan for what follows. The paper can be divided into two central parts. In §1, I critique P&T's rejection of reductionist accounts of GKH. §2 then considers their positive case for an account of GKH along anti-intellectualist lines; I argue that this positive account also comes up short.

1. Against Reductionist Views of GKH

1.1 GKH can't be reduced to individual know-how

P&T's first central objective, in developing an account of group-level know-how, is to show that such know-how is not plausibly *reducible* to a summation of individual-level know-how. To this end, they critique two envisioned reductivist accounts, the Accumulation View and the Division of Labour View.

According to the Accumulation view, GKH is only an accumulation of individual know-how, which can be expressed as:

$$A(KH) + B(KH) + C(KH) \dots = G-KH;$$

Cases that seem to support the cumulative view include group collaborations on a factory assembly line and other similar situations, where the level of cooperation among members is relatively low.¹ Apparently, there are problems with this view. GKH is the knowledge of a group, which can theoretically be mastered by a manager who controls the whole group. But the truth is, no single man can know in every detail how a group will complete a task, such as making a Corvette car. So, although everyone on the team knows how to do their part of the job (like building a part of the car) no one knows how to build the whole Corvette, but the truth is that the car is made, and obviously the conclusion is counterintuitive. Not only that, people will criticise and praise how a Corvette is made, which also conflicts with the fact that no one knows how to make a Corvette. Since GKH does not exist, this formula cannot hold, and the Accumulation View is incorrect.

A second form of reductionism about group-level know how, which P&T consider and dismiss, is captured by the *Division of Labour View*, on which GKH is the summation of the IKH of each specific position in group activities, which can be expressed as:

$$p(KH) + q(KH) + r(KH) \dots = G(KH);$$

p, q, r...represent a certain individual, that is, a certain division of labour, *rather than any specific individual*, in case that the absence or change of a certain individual in the group may cause the whole group to lose knowledge-how.

¹ There can be some cases that do not need a 'central controller,' like parallel activity and the division of labour. For example "two people going for a walk" (Habgood-Coote 2022, 185) is a parallel activity, "two people painting a room by taping down the middle and each painting half" (Habgood-Coote 2022, 185) is a kind of division of labour activities. In this paper, I mostly talk about group activities in "large and complex groups" (Habgood-Coote 2022, 194).

It is important to register how the Accumulation View and the Division of Labour View are two distinctive theories. Take the example of an assembly line in an ice cream factory. Worker A is in charge of making the strawberry jam line, let it be work 1; B is in charge of line 2, which entails mixing the basic materials such as cream, milk, and butter together well; C is in charge of pouring the strawberry jam on the ice cream and shaping it, this is work 3; D is in charge of packaging the finished product line, which is work 4. These 4 partial lines together form the overall steps of making strawberry ice cream in a factory. At this time, under the Accumulation View, this food factory knows how to make strawberry ice cream, and this is equivalent to adding up works of knowledge-how of the individual ABCD operation line. But a problem arises when one of these four people, such as A, can no longer come to work due to a job transfer, because even if the factory knows that strawberry jam is needed to make the target ice cream, it still does not know how to make strawberry jam. Thus, the factory does not have the knowledge of how to make strawberry ice cream. While the Division of Labour View holds that GKH is composed of the knowledge-how of each part of the whole line. So, even if the worker of work 1 is changed from A to X, and the assembly line is changed from manual to mechanical, it won't change the know-how of this line to make strawberries into strawberry jam.

1.2 GKH can't be reduced to individual propositional attitudes

Intellectualism holds that “know-how is a species of knowledge-that” (113). And intellectualists introduce two related theories to explain their view. Firstly, on the basis of the collective acceptance view of group knowledge (Tuomela 1992; Wray 2001), “a group believes that p if all or most of the relevant members accept that p as the view of the group and such acceptance is common knowledge among the members of the group” (118). And secondly, beliefs become knowledge through reliable processes which are known as a kind of justification theory of belief called Reliabilism (Schmitt 1994; Tollefsen, 2002 and Goldman 2014).

Then intellectual GKH theory can be expressed as follows:

P1: Knowledge-how is a species of knowledge-that (propositional knowledge)

P2: Group beliefs are members' acceptance (the collective acceptance view)

P3: Knowledge equates to reliable beliefs (Reliabilism view)

C: Group knowledge-how refers to members' acceptance

Intellectualists argue that this holds true when the situation involves group activities that require skill and expertise, so their theory of GKH “reduces GKH to individual propositional attitudes—in this case, their acceptance that W is the way

to do φ " (119). The reason why it is not described here as members "knowing that W is the way to do φ " is that members cannot know every part of a group activity in many real-life situations. Thus, a looser requirement for members is their acceptance. This can be illustrated by the example of a symphony orchestra. When the members of the orchestra perform a piece of music together, it is quite possible that "each member might jointly accept that W is the way (to complete the ensemble piece φ) without personally knowing or believing that W is the way" (118). For each member, understanding the details of the performance of the entire piece will exceed their cognitive ability, but at least they know how to do their part in this collective operation.

P&T argue that this theory is also problematic. The first problem is, if members of the group merely accept, without knowing that W is the way to perform collective behaviour φ , then add them all together, it turns out that no individual or group knows how to do φ . However, we generally think that this group knows how to do things, so the group knows how to do things but the members do not, which is definitely a strange situation.

Intellectualists can stick to their point by modifying the collective acceptance view, which requires members to accept W as a means of accomplishing collective activities. And now it is changed into that members individually know a part of W as a means of accomplishing φ , and still "reliably or justifiably accept that there is a way W" (119), and the whole way W is only known collectively. Therefore, the agent of joint knowledge has changed from members to the group, and is only owned by the group, such that "this piece of collectively known propositional knowledge guides the actions of the individual members." (119)

1.3 My challenges

For P&T's expressions in 1.1, despite the differences between the Division of Labour View and the Accumulation View, there remain problems within the Division of Labour View. As P&T see it, "Know-how is ... a standing state not an occurrent one" (116). In real life scenarios, even if the factory shuts down due to lack of employees (such as p) responsible for a certain job, that part of the job still exists, which means that the state of GKH will not change. But for the formula, when the p on the left side is missing, a variable quantity p(KH) doesn't exist anymore, thus the right side will be invalid. And again, this result is also contrary to intuition., There are therefore difficulties with such a position, and thus the Division of Labour View is not valid.²

²Now, readers may have a feeling of incoherence. P&T set up the formula where the division of

After the failure of the previous two reductive methods, P&T finally put forward a ‘continuous interaction’ view, then proved this to be the only feasible way. The reason is that since group activities are not limited to the addition of discrete individual actions like assembly line operations, there are many other kinds that produce complex interactions and close connections among members, such as that of team members in a game, or musicians playing in a symphony performance, etc. “The reductive approach can retain its plausibility when applied to cases where the labour contributed by individual members is done in an isolated and consecutive manner”. (116) But it is no longer applicable in some cases, once the members are in a situation of continuous interaction with others, which is more closely related. If those activities above are only the accumulation of the members’ scattered IKH, it can be expected that there will be situations where the members cannot be coordinated, and even hinder each other’s work, which will in all probability lead to an inevitable failure. We can hardly say that the team knows how to complete the collective task under these circumstances.

In addition, there are some problems in the examples cited by P&T in opposition to the view of the division of labour. P&T believe that shutting down an assembly line in a factory because of a lack of employees in charge of a certain job will not change the GKH of the produced products. There is a mistake that can be found in this statement. P&T’s setting of pqrs is not a specific individual with the ability, but the person who plays the required role. This IKH is essentially the knowledge of the part of the work of position p, and in certain cases knowledge of some divisions of labour does not only contain the element of ‘people’. Here I’d like to borrow Seumas Miller’s view, who distinguishes the notion of ability and knowledge-how. One’s ability to do something includes knowing how to do something and other basic abilities. Plus, “possession of an ability does not seem to entail possession of the means... by which that ability is exercised” (2020, 198). For example, for a woodchopper to be able to chop down trees he needs an axe as its means, but his ability to chop down trees still remains when the means are stolen.

In P&T’s case, the employee in charge of a certain job is only one of the means of knowledge-how of the part he belongs to. The ability of this part is composed of workers and assembly lines. The absence of worker p simply reduces a part of the ability and this means that the group ability cannot be exercised. A real loss of IKH may be that all employees and managers in the factory have lost their memory of this part of the work, thus GKH cannot be established in the group.

labour was used to avoid the lack of knowledge-how caused by absent individuals. But then they deny this formula with the same reason. In my opinion, there is a regression here, which I will discuss later.

Besides, the three perspectives presented by P&T can be included in a non-reductive formula. Using the idea of continuous interaction, members in collective activities not only need to know how to complete their own work, but also how to control their behaviour in order to coordinate and cooperate with each other. Corresponding to GKH, we can take an individual knowing how to do their own work in a group as IKH, and take individuals knowing how to cooperate with others as CKH, then GKH can be expressed as:

$$p(\text{IKH}+\text{CKH}) + q(\text{IKH}+\text{CKH}) + r(\text{IKH}+\text{CKH}) + \dots = \text{GKH}$$

CKH is not a fixed value, and the degree of cooperation changes with the degree of coordination of group action. Therefore, the views of Accumulation and Division of Labour View can actually be included in this formula. In my opinion, cooperation can be found on the assembly line through the sort of collective activities listed in the essay, though the value of CKH is low in the circumstances. As shown in the movie *Modern Times*, whether the factory worker, played by Charlie Chaplin, successfully screws hex nuts will depend on how well workers doing the previous job (like shaping hex nuts), have completed their tasks. And only after Chaplin successfully completes his task can the work of the remaining workers (like assembling hex nuts) proceed smoothly on the assembly line. The knowledge of the workers on the assembly line about how to complete their tasks includes not only the knowledge of how to process the correct type of hex nuts made by another worker according to the specification, but also how to deal with the hex nuts that do not meet the specifications, and even the knowledge-how to adjust their working speed when Chaplin's character slips and wastes more time. Therefore, workers on this assembly line not only possess the IKH for completing their own work, but also the CKH to coordinate with others, and only in this way will the GKH emerge. One thing to point out is that although this relationship can be expressed by a formula, it is still not a reductive view, since group activity is actually members completing their own tasks in coordination with others. IKH and CKH cannot therefore be completely separated, as the formula is only a clearer expression of the view, and GKH can never be reduced to an addition of members' IKH and CKH.

Besides, for P&T's expressions in 1.2, I have to say sadly their attempt still cannot lead to a through path. Group activities need a common reason for each member to accept W (rather than U or V) as the way to complete ϕ at this time, so the view above cannot guarantee the agreement among members on W. Even when there are organisers for group activities, they still do not have the ability to fully understand or believe in the overall GKH. At best, they can only determine a general goal or direction, let alone adjust every activity of each member so that the whole can achieve the goal. Not to mention P&T's belief that in order to ensure consistency

in those spontaneous or improvised activities, such as tango dancing or jamming in a jazz group, most of these activities do not require or imply that the participants jointly accept as a premise that a specific way W is the way of joint action. Thus, it's highly likely that GKH is produced in terms of the mutual coordination of the participants.

2. Positive Aim: Defend a Non-reductive Account of GKH

2.1 P&T's positive proposal

In this part of the discussion, P&T take 'responsibility' as the central argument. After sorting out the viewpoint of Gilbert Ryle the anti-intellectualism, P&T point out that the anti-intellectualism view "holds that knowing-how to ϕ is in virtue of the possession of some relevant ability or disposition to ϕ " (113) and opposes that knowledge-how can be reduced to knowledge-that. Besides, anti-intellectualism has a key feature, that is, responsibility, "mere successful performances differ from intelligent performances in that the latter, but not the former, exhibit some form of responsibility that allows the relevant agents to take ownership of their successful performances" (114).

This view is quoted from Ryle. He links someone's knowing how to do something with his tendency to do it well. Doing something well means that it will meet the standard of 'good', while the responsibility and ownership lie in the agent's successfully accomplishing his work, not through passive compliance, but actively regulating his own behaviour. He will understand and be willing to improve through mistakes and failures, learn from others, and ultimately succeed. During all of this, the agent is in the process of active action and correction, to meet the standard of 'good'. Therefore, the agent is responsible for his own behaviour, that is, he has ownership of it. This is also the difference between intelligent performances and "the successful performance like the automatic operation of a well-functioning instrument" (113).

To support anti-intellectualism, we need to prove that "successful group performance may not always be regulated by the aggregate of the members of the group, but instead by the synergetic operation of the group as a whole" (120). This part borrows the distributed cognition hypothesis to assist in the explanation. The distributed cognition hypothesis assumes that "certain cognitive abilities may be distributed between several individuals at the same time" (120).

P&T borrow a mathematical theory commonly used in understanding the distributed cognition hypothesis to build the model, namely Dynamical Systems Theory (DST). DST is mainly based on differential-difference equations to describe

and study complex dynamical systems. It is also used for “modelling collective behaviours”. However, P&T aren’t talking about complex equations here, but only use the DST model to explain natural phenomena to demonstrate that the composition of the various parts of the group should be in a state of mutual coordination. The “non-linear relations between parts give rise to an overall non-decomposable system that consists of all the contributing subcomponents operating in tandem” (121). By using this, they point out that there is a non-linear relationship between the various components of the whole, and the whole they produce is indecomposable.

DST helps to prove that the connection between the individuals in GKH is closely nonlinear or parallel, not the linear combination of some independent subsystems, nor the temporary aggregation of independent necessary components. It’s the continuous interaction and influence between the members. For example, a couple might recall the name of a small town they visited a few years ago on their wedding anniversary by reminding each other. This is a process of interactive cueing. Otherwise this “would normally be unavailable to either of them, were they to act as isolated individuals.” (Palermos 2016, 421) The scattered parts accumulate together, like an improvisational performance. It is possible for a group of players who do not know each other to gather together and perform successfully once, but sustained successful performances require a closer relationship between members. This connection can be understood and proved by DST’s modelling of the whole system.

It is necessary to assume the existence of an overall system. First, some new attributes emerge after the combination of various parts, which requires an overall system as a carrier. Second, since the subsystems cannot be completely decomposed, because they are all involved in an interdependent relationship, it is necessary to assume that they form a system at the same time in order to conduct better research.

The following are several core contents of anti-intellectualism GKH theory:

I. Coordination and constraint

Firstly, the interaction between members is not only coordinated with each other, but also constrained by each other. “When individual members coordinate on the basis of reciprocal interactions, they adapt mutually to each other by restricting their actions in such a way” (122). Ryle’s anti-intellectualism setting can still be met at this point: “To be intelligent is not merely to satisfy criteria, but to apply them; to regulate one’s actions and not merely to be well-regulated. A person’s performance is described as careful or skillful, if in his operations he is ready to detect and correct lapses, to repeat and improve upon successes.” (122) In this active coordination and

regulation, members “collective entities that self-organize” (123), thereby promote each other to complete group activities, and urging IKH to combine into a whole GKH. Even if it is not well assembled at that moment, members will dissolve or change configurations to make adjustments to be more suitable for the purpose achieved, and become a new coordinated organization again. “This process of self-organization ensures the reliability of the collective performance.” (123)

II. Non-propositional knowledge

Here P&T put forward a special idea, namely by removing the place of propositional knowledge so that W is a way to accomplish φ in group action, then replacing it with ‘mutually interdependent’ among members. Members exhibit mutually responsible collective behaviour by coordination and through regulation, since what sustains this self-organizing whole is a form of responsibility that “does not require that the group as a whole or any of its individual members possess propositional knowledge of a way, W , that indicates how to perform the relevant skill” (124). This is because the entire group action process is just an interaction among members, that is, a kind of adjustment and coordination. Members need not develop propositional knowledge to respond to any situation. According to DST, the activities of members constitute a collective action which is not reducible to the summation of individual skills, that is, a system of non-linear interactions. It is an emergent process which requires only that members “continuously interact with each other” (124) and does not demand the formation of relevant propositional knowledge.

The word ‘emergent’ above comes from DST theory, which emphasises the integrity of a system. Emergent processes can be observed in many natural and social phenomena, including neuroscience, collective behaviour, urban planning, and more, so it is suitable for the group activity discussed in this paper. The concept of emergent processes in Dynamical Systems Theory refers to the collective properties or functions that arise from the synergistic interactions between different parts or components. These emergent properties and functions cannot be predicted based on the behaviour and properties of individual units or components, but are observable only at the system level. Therefore, emergence once again proves P&T's point that mutual interdependence among members in group activities replaces the position of propositional knowledge.

III. Hypothesis of Coordinating Intellectual Commitments

The idea of responsibility is considered the basis for GKH's choice of either intellectualist or anti-intellectualist interpretations. For intellectualism, there is a view which says “GKH carries an additional form of responsibility, which depends

on the explicit propositional commitments that the underlying members of the group undertake.” (125) As in Bratman’s theory, which discusses the case of GKH in cooperative activities with only two members, there is a requirement for some definite commitments that the two members involved in the action must accept or know. These are as follows: (a) I intend that we J and (b) you intend that we J; (c) I intend that we J in accordance with and because of (a) and (b), and meshing sub-plans of (a) and (b). (125)

But P&T do not agree that such an explicit propositional commitment is necessary. Group activity requires participants to suppress selfish ideas about their own superiority and instead coordinate with others in the group. Sometimes commitment from members is required, and sometimes it is spontaneously emergent during the process, such as in circumstances of interpersonal rhythmic coordination,³ “[it] can spontaneously emerge on the basis of dynamical processes of interaction —without the further need, on the part of the individual members, to take up any intellectualist commitments” (126).

Therefore, a Hypothesis of Coordinating Intellectual Commitments can be proposed for the relationship between group members and propositional commitments, that is, “the likelier are the members of the relevant group to deviate from the coordinated activity that gives rise to the group’s GKH, the bigger the need for the members of the group to undertake intellectual commitments to coordinate”(126). At present, intellectualist commitment is needed to encourage members to reflect on whether their behaviour will affect team coordination, then make appropriate adjustments, and support each other in activities at the same time, which can help to maintain joint action and group stability. “Intellectualist commitments can act as an extra reflective layer that provides the members with additional reasons for appropriately engaging in the team’s coordination dynamics.”(127) This can help explain how, in some games, people praise or blame the entire team and individual players at the same time, and it is a result of whether their actions live up to their commitment to the team.

2.2 My challenges

This positive proposal is another central part of P&T’s paper, in which they put forward some important points, but some of the following statements are prone to misunderstanding and thus need further clarification.

³ “Some forms of rhythmic interpersonal coordination emerge spontaneously, as when audience applause becomes synchronised, or when conversational partners unintentionally align their postural sway or inadvertently fall into step while walking.” See Keller, P & Novembre, G & Hove, M (2014).

First, P&T point out that “group activity requires participants to suppress selfish ideas about their own superiority and instead coordinate with others in the group”, and this is too strong. When a small number of members in a team are thriving, even arrogant, and always have a sense of superiority, it does not necessarily lead to the failure of group activity. This situation is not uncommon in current competitive sports, such as basketball and football. I think what should come first is mutual coordination among members, then ‘suppressing selfish ideas’ can only be one of the sufficient conditions for completing cooperation. After all, those members who are outstanding and arrogant in teams do not completely refuse to cooperate with other members. Therefore, the authors’ requirement here is too strong. The advice is that it can be modified so that “group activity requires participants to suppress selfish ideas about their superiority whenever those ideas would undermine their capacity to coordinate”.

Secondly, according to P&T, mutual coordination and cooperation among group members seems to be an initial stage, which is why members do not need to possess propositional knowledge about *W* to accomplish group activities (otherwise members would have the opportunity to form propositional knowledge). In my perspective, this view weakens the significance and difficulty of cooperation and coordination in group activities. If mutual coordination and cooperation are an initial response, then it can be understood that mutual coordination and cooperation are produced immediately when members participate in group actions, otherwise there will be a place for propositional knowledge. But I think GKH cannot be regarded as a low-level simple ability, since it is impossible that the ability of coordination, cooperation and supervision can be acquired automatically during group activities. In many cases, at the beginning of group activities, members may not have the ability to coordinate and cooperate with each other. Members of a group have different personalities and abilities which require them to go through the process of working with each other and learning how to coordinate, for there is still a probability that individuals in the group “could do their parts in ways that mutually interfere” (Habgood-Coote 2022, 184), so the whole process should not be an emergent state. Even if the members of a symphony orchestra are all good soloists, they still need to rehearse when playing together, and the rehearsal will go through a process from difficult integration to harmonious and pleasant. Therefore, I believe that coordination ability should be regarded as a core ability in GKH, and one that it is difficult to obtain, which cannot be achieved overnight, and which requires continuous adaptation and improvement among members.

This view is echoed by some theoretical research. Michael Tomasello (Tomasello 2014, X) emphasises the importance of coordination in his book *A*

Natural History of Human Thinking: “...modern human cultures were made possible by an earlier evolutionary step in which individuals made a living by coordinating with others in relatively simple acts of collaborative foraging.” And Jonathan Birch's (Birch 2019, 3336) Active Mutual Enablement (AME) theory points out that in the joint action of mutual responsiveness, coordination is members ‘predicting and monitoring what the other agent is doing in real time’. Monitoring can take the form of direct perception (commonly used by novices) or adjustment from others’ cues and signals (commonly used by experts and those who are proficient). Furthermore, coordination is not only the observation and reaction of members to others, it also requires them to actively adjust their own behaviour to facilitate the observation and monitoring of other collaborators. This is an activity with complex processes and multi-faceted sensory mobilisation.

Does the view that coordination is not the emergent state of GKH give room for propositional knowledge? I believe so. One thing to point out here is that the propositional knowledge here is only a joint commitment rather than knowledge about *W* of accomplishing the group activity. And this kind of propositional knowledge can exist. During this process, members may form some common beliefs in order to complete common tasks and to better achieve common goals. Especially when members realise that they are participating in a group activity and have an overall goal, “I’m going to get this done” becomes a commitment of members, even though it may sometimes be latent. Although the interpersonal rhythmic coordination mentioned by P&T occurs when the level of group cooperation is low, at least the subjects have no specific cooperation goals under these circumstances, so the coordination situation that occurs can be understood as an unconscious behaviour tendency.

Finally, the embodiment of responsibility in GKH is not obvious, although P&T regard responsibility to be the core of judging GKH and mention this word many times in their essay. It is not yet known to us what the relationship is between knowledge and responsibility, and there is no clear discussion on whether a group or an individual should bear the responsibility.⁴

3. Conclusion

Let me close with a more overall perspective. This essay delineates the various possible explanations of GKH clearly and comprehensively, before advancing the development of the opposing theories of intellectualism and anti-intellectualism in

⁴ Anyway, in a later article, Palermos explains that self-regulation among members in cooperation “allow the collaboration to produce beliefs in an epistemically responsible manner”. (2022, 339)

the field of GKH. It explores a GKH theory in which anti-intellectualism and intellectualism coexist by proposing an account called “intellectualism commitment”. There is a limited amount of literature in this area, and the emergence of this paper demonstrates that GKH deserves greater philosophical attention.

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