A KNOWLEDGE-FIRST ACCOUNT OF GROUP KNOWLEDGE

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ABSTRACT: The aim of this paper is to relate two trending topics in contemporary epistemology: the discussion of group knowledge and the discussion of knowledge-first approach. In social epistemology no one has seriously applied and developed Williamson's theory of knowledge-first approach to the case of group knowledge yet. For example, scholars of group knowledge typically assume that knowledge is analyzed in terms of more basic concepts, such as group belief or acceptance, group justification, and so on. However, if Williamson's theory of knowledge is correct, these are not good analyzes for understanding group knowledge. For, in such framework, knowledge is not analyzed in terms of belief and justification, and the same should apply to group knowledge. Thus, we propose to analyze which consequences Williamson's theory has for social epistemology, namely for an understanding of group knowledge. The questions that will guide this article are the following: What is a knowledge-first approach to group knowledge? And what does a knowledge-first approach teach us with regard to one of the most pressing issues of social epistemology, namely the dispute between summativists and non-summativists accounts of groups? We claim that a knowledge-first account of group knowledge can be offered and that it favors non-summativism.

KEYWORDS: group knowledge, group epistemology, knowledge-first epistemology, extended mind thesis

1. Introduction

The aim of this paper is to relate two trending topics in contemporary epistemology: the discussion of *group knowledge* and the discussion of *knowledge-first* approach. In social epistemology no one has seriously applied and developed Williamson's theory of knowledge-first approach to the case of group knowledge yet.[1] For example, scholars of group knowledge typically assume that knowledge is analyzed in terms of more basic concepts, such as group belief or acceptance, group justification, and so on (Tuomela 2004; Corlett 2007; Hakli 2007; Gilbert 2014; Klausen 2014; Habgood-Coote 2019, and Lackey 2020). However, if Williamson's

[1] A recent exception is the work done by Simion, Carter, and Kelp (2021); but the focus is different from what we present here. It is worth stressing that some group knowledge theories, although not a direct application of Williamson's epistemology, are compatible with knowledge-first epistemology, such as Kallestrup (2019) and Bird (2020).

theory of knowledge is correct, these are not good analyzes for understanding group knowledge. For, in such framework, knowledge is not analyzed in terms of belief and justification, and the same should apply to group knowledge. Thus, we propose to analyze which consequences Williamson's theory has for social epistemology, namely for an understanding of group knowledge.[2] The questions that will guide this article are the following: What is a knowledge-first approach to group knowledge? And what does a knowledge-first approach teach us with regard to one of the most pressing issues of social epistemology, namely the dispute between summativists and non-summativists accounts of groups? We claim that a knowledge-first account of group knowledge can be offered and that it favors non-summativism.

This article is divided in 4 sections. In section 2 we will start with a basic presentation of the main ideas of knowledge-first epistemology. In this part we emphasize that, according to Williamson (2000), individual knowledge is the most general factive mental state. In section 3, we extend Williamson (2000)'s account to group knowledge, hence offering a knowledge-first account for group epistemology. Within a knowledge-first framework, we will defend a non-summativist account of group knowledge, according to which *group knowledge* is the most general collective factive mental state. And, in section 4, we will argue that one can understand *collective mental states* based on the extended mind thesis; thus, there is no resistance to a knowledge-first account of group knowledge.

2. Knowledge-First Epistemology

Let us start with the *knowledge-first* approach.[3] Williamson (2000, 33) argues that "the concept *knows* cannot be analyzed into more basic concepts," such as belief, truth, and justification. Instead, knowledge is prior to other epistemic kinds, the concept of *knowing* being a theoretical primitive. In other words, knowledge is a starting point for explaining other notions: we can analyse and explain belief, justification, evidence, assertion, etc., by reference to knowledge. For instance, "believing *p* is, roughly, treating *p* as if one knew *p*" (Williamson 2000, 47); "a belief is fully justified if and only if it constitutes knowledge" (Williamson 2014, 5); "all and only knowledge is evidence" (Williamson 2000, 193); and so on.

[2] We use the term "groups" to refer only to organized or structured groups, such as committees, research teams, and so on.

[3] It is important to note that Williamson (2000) is the originator of knowledge-first epistemology and its most important proponent. And there are other knowledge-firsters besides Williamson (for example, Carter (2017), Simion (2019), Antognazza (2020)). However, in this paper we want to focus our attention only on Williamson's version.

The main reasons for supporting this approach, in which knowledge is the central concept, are the following: Not all concepts are susceptible to analysis in terms of more basic necessary and sufficient conditions, at least in a non-trivial and non-circular manner. This seems to happen with several common concepts like red, heap, bald, tall, old, etc., but also with the concept of knowledge. So, against the orthodoxy, it seems that there aren't non-circular necessary and sufficient conditions for knowledge, just as there aren't such non-circular conditions for analysing, for example, the color red. This is confirmed inductively by the continued failure to solve the Gettier problem; for "a succession of increasingly complex analyses have been overturned by increasingly complex counterexamples," as Williamson (2000, 30) underlies.

Although knowledge cannot be analyzed in and reduced to more basic components, a sufficiently informative characterization can be presented. Williamson (2000, 34)'s proposal is to give a positive and externalist understanding of knowledge as a state of mind. More precisely, he holds that "knowing is the most general factive stative attitude, that which one has to a proposition if one has any factive stative attitude to it at all." In other words, knowledge is the most general factive mental state, that is, the most general attitude that one can have to true propositions only.

This characterization needs some clarification. First, "knowing is *merely* a state of mind;"[4] namely, there is a mental state such that being in that state is a necessary and sufficient condition for knowing p. Consequently, contrary to the orthodox approach, knowledge is not a hybrid of mental and non-mental elements.[5] Thus, knowledge is not a conjunction of belief (the mental component), truth (the non-mental component), and something else. Instead, knowledge purely is a mental state, given its resemblance to other mental states. This understanding of knowledge as a mere state of mind is a "presumption" that we must accept, unless we have a powerful reason to reject it.[6]

Secondly, unlike mental states like imagining, desiring, hoping, etc., the mental state of knowing is *factive*. A factive attitude is one that a subject S can have only to truths; for, from 'S knows that p' we can validly deduce that 'p is true.' The fact that knowledge is a factive attitude does not prevent it from being a mental state. As Williamson (2000, 22) points out, "factive attitudes have so many similarities to the non-factive atitudes that we should expect them to constitute mental states too."

[4] See Williamson 2000, 21.

[5] Note, however, that *believing truly* is not a mental state since, in this case, there is a combination of a mental state with a non-mental state. See Williamson 2000, 28.

[6] See Williamson 2000, 22.

Namely, this factive dimension of mental states must be understood in the light of an externalist approach according to which mental states can depend on the external world.[7] For this reason, the essence of such factive mental states "includes a matching between mind and world."[8] Other factive mental states include perceiving, remembering, regretting, etc., and it would be strange to postulate, for example, a mental state of imagining but no mental state of remembering, and so on.

Thirdly, and finally, knowing is not just a factive mental state, but the *most general* of that kind. For, the other factive mental states, like perceiving that p or remembering that p, imply knowing that p. In other words, the other factive mental states imply the truth of their content because they entail knowledge.[9] For example, if a subject S really sees that it is raining, then S knows that it is raining. There are thus several specific ways in which one can know, such as seeing, remembering, etc. Williamson (2000, 39) seeks to elucidate this idea more formally, showing that such factive attitudes are expressed in natural language through a *factive mental state operator* (an FMSO) which is semantically unanalysable. The central points of FMSO can be summarized as follows: 'Know' is an FMSO; and if ϕ is an FMSO, then from 'S ϕs that p' one may infer both 'p' and 'S knows that p.' This allows us to capture the idea of knowing as the most general factive mental state. For the sake of my argument, let us take this approach for granted. Does it apply to group knowledge and, if so, how?

3. Towards Knowledge-First Group Epistemology

We commonly attribute knowledge to groups. For example, we say that "the United Nations knows that the coronavirus is widening global inequality;" "the World Health Organization knows that vaccines against coronavirus have a high probability of success;" "the jury knows that the accused is innocent." How should we understand these group knowledge attributions? Is group knowledge always reducible to knowledge of the members of the group or not? In response to these problems, there are two approaches: summativism and non-summativism. According to the summativist view, ascribing knowledge to a group is an indirect way of ascribing such knowledge to its members. Its first formulation is attributed

[7] According to Williamson (2000, 58), "if taking the externalist attitude of rational belief to a given content can contribute to one's mental state, why cannot taking the externalist attitude of knowledge to that content also contribute to one's mental state? (…) [Once content-externalism is admitted] the denial that knowing is a mental state [is] ill-motivated."

[8] See Williamson 2000, 40.

[9] It is relevant to note that 'believe truly' does not count as factive mental state, given that it has a non-mental component, that is, the truth. See Williamson 2000, 39.

to Quinton (1976), but there are several versions of summativism, some being more plausible than others. Lackey (2020) developed a minimal version of summativism which provides a *necessary* but not sufficient condition for group knowledge. This minimal version holds that a group g has knowledge K *only if* some members of g have that knowledge K. So, the minimal summativist view implies the following characterization of group knowledge:

> Summativism $=_{df}$ Necessarily, a group g has knowledge K only if at least one individual i is both a member of g and has K.

$$\Box(Kg \rightarrow \exists i(i \in g \wedge Ki))$$

By contrast, the non-summativist view of group knowledge rejects this thesis, holding that group knowledge might diverge from individual members' knowledge. So, a group g can have knowledge K even when no member of g has K. There are also several versions of non-summativism, such as Gilbert (1989; 2014), Bird (2010; 2014), Carter (2015), and Kallestrup (2019). But all of these approaches accept this characterization of group knowledge:

> Non-summativism $=_{df}$ Possibly, a group g has knowledge K even when no individual member of g has K.

$$\Diamond(Kg \wedge \neg\exists i(i \in g \wedge Ki))$$

If Williamson's approach to knowledge-first is correct, how should group knowledge be understood? Should it be understood in a summative way? Or, instead, in a non-summative way? When Williamson discusses the nature of the evidence, he appears to be inclined to accept non-summativism. In this regard Williamson (2000, 185) argues that

> The communal case is needed: science depends on public evidence, which is neither the union nor the intersection of the evidence of each scientist. We can ascribe such knowledge by saying that p is known in community S, or that we know p, which is not equivalent to saying that some, many, most, or all of us know p.

Although Williamson (2000) does not develop his argument beyond this quote, he seems to accept non-summativism and reject summativism. Therefore, according to Williamson, group knowledge isn't reducible to individual knowledge and to individual factive mental states. Instead, one has to resort to *collective factive mental states* in order to accommodate for group knowledge. In this framework, while individual knowledge is an individual factive mental state, group knowledge is a collective factive mental state. To develop Williamson's argument, it is worth stressing that the general structure of Williamson (2000)'s argument is as follows:

1. Evidence equals knowledge.

2. Communal or group evidence does not equal or reduce to individual evidence.

3. Therefore, communal or group knowledge does not equal or reduce to individual knowledge.

The first premise is dependent on his externalist theory of evidence. In such theory, for every individual or community S, Williamson (2000, 185) equates S's evidence with S's knowledge. So, S's total evidence is simply S's total knowledge. This thesis is called "$E = K$". According to this theory, a hypothesis is supported by S's evidence if only if that hypothesis is supported by S's knowledge.

Now, according to the second premise, communal or group evidence is not (reducible to) individual evidence. Indeed, it is possible that E is part of a community or group's evidence, while none of its members has E. We can support this idea with the help of *divergence arguments*, that is, situations in which the epistemic states of some group differ from the epistemic states of individual members of that group. Williamson (2000, 185) agrees that such a situation occurs in science since public scientific evidence is not the same as the evidence available to each scientist. Although Williamson does not offer a concrete example, we will use an example inspired by Bird (2014).

It is possible that a scientific research team deals with complex evidence such that the evidence cannot be obtained by any individual alone. As Bird (2014, 55) holds, "no modern science depends for its conclusions just on the intellect and the evidence of the senses of a single scientist nor even of a local team of scientists." Instead, several individuals are given roles in gathering different pieces of evidence. This happens, for example, in the scientific works developed at CERN: results are published in papers authored by hundreds of authors, but the evidence and content of these papers is not fully known by each one of them.[10] In such a case there is a *distributed cognition*, i.e. a division of cognitive labor within a group or research team.[11] Here the task of gathering evidence is divided into subtasks. Each subtask is assigned to different individual members, depending on the area of expertise. However, no member of the group is able to grasp each other's tasks. In such scientific work it is possible that the communal or group evidence is different from the individual evidence. This can be illustrated with this toy example inspired by Bird (2010, 34–35; 2014, 57–58):

> RESEARCH TEAM: Dr. X is a physicist and Dr. Y is a mathematician. Both are collaborating on a project to gather evidence E_β to support a conjecture β. This

[10] See Cetina 1999, Ridder 2019, and Palermos 2020.

[11] The classic example of *distributed cognition* is presented by Hutchins (1995).

> project has three parts. The first part is about gathering physical evidence E_α which is a task that Dr. X will do alone. The second part is about gathering mathematical evidence that E_α implies E_β which is a task that Dr. Y will do alone. And the last part is an application of *modus ponens* to the results of parts one and two, for which Dr. X and Dr. Y provided a prewritten text like this: if we have evidence E_α and if we show that evidence E_α implies evidence E_β, we also have evidence E_β. They arrange for an assistant to publish a scientific paper with these three parts if and only if the assistant receives from Dr. X the evidence E_α and from Dr. Y the evidence that E_α implies E_β. Suppose further that Dr. X and Dr. Y have no other communication with each other; but each one reached the desired evidence without the other knowing this result and, then, a paper with the evidence E_β is published.

In such a case the research team has the evidence E_β; but none of its individual members has it.[12] Because Dr. X only has the evidence E_α; and Dr. Y only has the evidence that E_α implies E_β; but neither individually has or is aware of the other scholar's evidence. Nor does the assistant have such evidence E_β, given that he limited himself to assembling the three parts and publishing them in a single document. Since $E = K$, we can conclude that in this case the research team has knowledge while none of its individual members has that knowledge. Thus, non-summativism is true. There are many other examples to help establish that conclusion. For instance,

> LAW-COURT: Suppose that a jury, as a group, following the best epistemic standards has evidence E that supports the belief that a particular refugee defendant is innocent. However, imagine that each individual member is *biased* and individually lacks the evidence E; thus, each individual member has no evidence to support the belief that the refugee defendant is innocent (instead, each one privately believes that the refugee defendant is guilty). In this case, a group has some evidence E, but each individual member does not have E. Since $E = K$, we can hold that, in such case, the group, the jury, has knowledge while none of its individual members has that knowledge.[13]

> PILGRIMS: Imagine that Joseph and Mary want to go from location α to location γ. Each individual only partially remembers the path (for instance, Joseph has evidence from α to β and Mary has evidence from β to γ). Therefore, none of these individuals has evidence of the full path from α to location γ. However, suppose that Joseph and Mary have been working together as a group; in such a case, the

[12] As an objection, based on the work of Lackey (2014), it can be said that in RESEARCH TEAM we only have evidence *production* and we have no evidence *possession*. But we can answer that whoever is reading this research team's paper naturally attributes such evidence to that team. Hence the team also possesses evidence. See Ridder 2013.

[13] This case is adapted from Kallestrup 2016.

> retrieval of all the information about the path is done by Joseph and Mary working together. So, as a group, they remember the full path from α to location γ and hereby have evidence of that path. And we can say that Joseph and Mary, as a group, have dispositional evidence of the full path even before consulting each other. Since $E = K$, and even before they consult each other, this group has dispositional knowledge of the full path, while none of its individual members has that knowledge.[14]

If these cases (or at least one of them) are plausible, premise 2 of Williamson (2000)'s argument is established. Thus, based on the thesis that $E = K$, as supported in premise 1, it can be concluded that communal or group knowledge does not equate or reduce to individual knowledge. Therefore, non-summativism is true.[15] But if that is so, and given that individual knowledge is the most general factive mental state, then it is necessary to appeal to *collective factive mental states* in order to account for group knowledge. Following Williamson (2000), it seems that a consequence of knowledge-first approach to group knowledge is to acknowledge factive mental states at the *collective level* (in ways that are irreducible to the individual level). It is thus necessary to provide and develop a plausible account of collective minds and collective mental states in non-summativist terms. But are there collective factive mental states?

4. Group Knowledge as a Collective Mental State

One may be tempted to answer this question negatively. The main resistance to accepting collective mental states is based on the following reasoning: Mental states are located in minds, that is, in heads or brains; groups do not have heads or brains; therefore, groups cannot have minds or mental states.[16] However, this is not a sound

[14] This idea is supported by studies of cognitive psychology; see Wegner, Giuliano, and Hertel 1985.
[15] It is possible to criticize such a conclusion holding, based on Wray (2001), Meijers (2002), Hakli (2007), that if groups have knowledge, then groups have beliefs; but groups cannot have beliefs (given that group doxastic states are voluntary); therefore, groups cannot have knowledge. As reply it can be said that the group doxastic states in RESEARCH TEAM and in PILGRIMS seem to be involuntary. Furthermore, it is very doubtful that involuntariness is a necessary condition for something to be a belief, because there are beliefs based in deliberation. Another possible reply is to defend that knowledge does not imply belief, even in a knowledge-first framework, as supported by Antognazza (2020). Also as an objection, following Lackey (2020), one can try to analyze cases like RESEARCH TEAM, LAW-COURT, and PILGRIMS as groups that are *in a position to know* rather than groups that know. However, we can reply by saying that the groups in such cases actually know the target propositions, since they have at least a dispositional belief and knowledge that can be readily retrieved for active deployment in reasoning; and in LAW-COURT case the group has not only a disposition to believe, but has an occurrent belief.
[16] See Tollefsen 2006.

argument, because we can plausibly deny the premise that says "mental states are located in minds and minds are in heads." More precisely, we can deny such premise and support our conclusion that there are collective factive mental states with the help of the Extended Mind Thesis (EMT).[17] According to EMT, the realization of mental states sometimes extends beyond skin and skull's boundaries to include non-biological material components and/or other biological individuals. We can formulate this thesis with the slogan *"mental states ain't all in the head."*[18]

In support of EMT, Clark and Chalmers (1998, 8) propose a *Parity Principle* (PP), supported by functionalist intuitions, and offer examples of the mind's partial realization in the environment.[19] The main idea of PP can be summarized in this way: when devices and other things in the world function sufficiently like things we normally regard as cognitive, they too should be regard as cognitive and as parts of minds. In order to illustrate the mind's partial realization in the environment, Clark and Chalmers (1998, 12–13) propose an analogy between Inga's and Otto's cases:

> CASE 1 (INGA): Inga hears about an exhibition at the Museum of Modern Art (MOMA) in New York. She starts to think, recalls it's on 53rd Street and sets off.
>
> CASE 2 (OTTO): Otto suffers from Alzheimer's, and as a result he always carries a notebook. When Otto learns useful new information, he always writes it in the notebook. He hears about the exhibition at MOMA, retrieves the address from his notebook, and sets off.

By PP, we can hold that Otto's mind includes his notebook, because the latter is *functionally equivalent* with a part of Inga's brain. In other words, following PP, there is no relevant functional difference between the role of the internal memory storage for Inga and the role of the notebook for Otto. Then, just like Inga had a belief about the museum's location before consulting her biological memory, so did Otto have a belief about the museum's location before consulting his notebook. Both Inga and Otto have a *dispositional belief* and *dispositional knowledge* concerning the museum's location. So, according to EMT, not only Inga but also Otto knew,

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[17] This thesis is also known as "active externalism" or "vehicle externalism." See Carter & Pritchard 2018a and Carter & Pritchard 2018b. A different but related thesis is known as the "extended cognition thesis" and is about cognitive processes and not mental states. See Pritchard 2010 and Kelp 2011.

[18] See Clark & Chalmers 1998, 8.

[19] The original formulation of PP is as follows: "If, as we confront some task, a part of the world functions as a process which, *were it done in the head*, we would have no hesitation in recognizing as part of the mental process, then that part of the world *is* (so we claim) part of the mental process" (Clark & Chalmers 1998, 8).

even before consulting his notebook, where the museum was. Thus, some of Otto's mental states are determined, in part, by the contents of his notebook.

However, EMT is ambiguous and there are at least two versions of this view, when applied to Otto's case, namely:[20]

> EMT-1: It is Otto who believes that the museum is on 53rd Street.
>
> EMT-2: It is the coupled Otto-notebook system (for short, 'Otto+'), rather than Otto, that believes that the museum is on 53rd Street.

According to EMT-1, the realization of individuals' mental states sometimes extends beyond the skull boundaries to include non-biological material components and/or other biological individuals. In this interpretation, Otto himself is the subject of extended mental states.[21] By contrast, following EMT-2, the subjects of extended mental states are hybrid or coupled systems constituted by the conjunction of individuals and artifacts or other individuals. In this latter interpretation, Otto+ coupled system involves Otto's brain and nervous systems plus other features of his environment, such as his notebook.[22]

Besides that, following EMT-2, Otto+ is a distinct agent of which both Otto and the notebook are parts. In other words, it is worth observing that the *coupled system* Otto+ is not numerically identical to Otto. Indeed, if Otto were numerically identical to Otto+, then Otto would no longer suffer from any deficiency in memory, given that the notebook functions as Otto's memory. But Otto suffers from a deficiency in memory (it is only the coupled system Otto+ that lack such deficiency).[23] Therefore, Otto is not numerically identical to Otto+. On this basis, we can claim that the coupled system Otto+ has more beliefs than the biological individual Otto; and something similar happens with groups.

But is there a criterion to prevent the arbitrary formation of coupled systems? What would the criterion to form a *coupled system* be? Clark and Chalmers (1998, 17) propose the following criteria: constancy, availability, automatic endorsement,

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[20] This ambiguity of interpretations is underlined by Adams & Aizawa (2008), Nakayama (2013), Miyazono (2017), Milojevic (2018), and Harris (2019).

[21] This is typically the standard interpretation of EMT.

[22] It is relevant to note that Clark and Chalmers (1998) sometimes seem to be inclined to accept EMT-2 instead of EMT-1. They hold, for example, that "the human organism is linked with an external entity in a two-way interaction, creating a *coupled system* that can be seen as a cognitive system in its own right" (Clark & Chalmers 1998, 8). Such *coupled system* need not be paired with non-biological artifacts only, given that "it is entirely possible that one partner's beliefs will play the same sort of role for the other as the notebook plays for Otto" (Clark & Chalmers 1998, 17).

[23] See Preston 2010.

and prior endorsement.[24] Regarding EMT-2, we can say that Otto+ is a coupled system (constituted by Otto and his notebook) because Otto has constant access to his notebook, the system is easily available to him, with an automatic and prior endorsement. However, Clark and Chalmers (1998, 17) do not regard these criteria as necessary and sufficient conditions.[25]

There are several reasons (like the one presented in the penultimate paragraph) to prefer EMT-2 interpretation over EMT-1. First of all, following Miyazono (2017), the *systems reply* (SR) to Searle (1980)'s Chinese Room thought experiment supports EMT-2.[26] According to SR, while the person inside of Searle's Chinese Room fails to understand Chinese, the *broader system* of which she is a part understands Chinese. Analogously, it is the hybrid or coupled system realized by Otto and his notebook that has a dispositional belief in the museum's location. Consequently, Otto, as an individual, does not have certain mental states that are possessed by the broader system (Otto+) of which he is part. Thus, if functionalists have a reason to accept SR, then functionalists also have a reason to accept EMT-2.

Another advantage has to do with the fact that EMT-2 handles some objections better than EMT-1. An important objection to EMT, known as "Otto 2-step objection," maintains that there are two stages to Otto's behavior: Otto believes that the museum's location is recorded in his notebook and, based on that belief, he consults his notebook to find out the museum's location. Thus, Otto does not believe in the museum's location before consulting his notebook.[27] This objection can be stated in this way, where *t1* stands for the time interval just before Otto consulted the notebook and *t2* for the time interval just after he consulted the notebook:

1. At *t1* Otto believes that the address of the museum is written in his notebook.
2. At *t1* Otto does not believe that the museum is on 53rd street.
3. At *t2* Otto believes that the museum is on 53rd street.

In support of 2, we can say that Otto cannot simply think in order to know the museum's location and that he needs to do something more. But if so, and if it is intuitive to accept 2, then EMT-1 is false. However, this objection affects only EMT-1 and not EMT-2. According to EMT-2, we can accept 1, 2, and 3 because what this version adds is the following:

[24] Such conditions are also known as "trust and glue" conditions. See Clark 2008, 46.
[25] See Clark 2008, 80.
[26] The Chinese room argument aims to refute the possibility of strong artificial intelligence.
[27] See Rupert 2009, Wikforss 2014, and Harris 2019.

4. At *t1* Otto+ believes that the museum is on 53rd street.

5. At *t2* Otto+ believes that the museum is on 53rd street.

In the same way, it can be argued, following Harris (2019), that other standard objections to the extended mind thesis, such as the cognitive bloat objection, affect only EMT-1 and not EMT-2. The main idea of the cognitive bloat objection is that EMT implies that a subject has an implausible range of extended beliefs and knowledge.[28] For example, if a student has the same relationship with a cheat sheet as Otto has with his notebook, then we can say that the student who cheats during an exam has the same knowledge and credit as a student who is academically honest and does not cheat. But this is an implausible consequence. However, again, this consequence applies only to EMT-1 and not to EMT-2. For, according to EMT-2, the cheating student, as an individual, does not have the relevant knowledge and does not deserve credit on his exam result. Still, this student is part of a broader cognitive system that has that knowledge. So, EMT-2 seems more resistant to objections than EMT-1.

Finally, and most importantly for our purposes here, EMT-2 offers support to the idea of collective mental states.[29] For, according to EMT-2, the relevant interactions between individuals and artifacts or other individuals give rise to a *coupled system* that functions as a cognitive system in its own right.[30] So, we can hold that group minds or collective mental states are realized in *coupled systems* that are constituted primarily by interactions between humans. In other words, similarly to what happens in the Otto case, in which there is a coupled system (i.e. Otto+) with mental states formed by interactions between Otto and his notebook, it is also possible that a group and certain relevant interactions between individuals form a coupled system with mental states.

Thus, group mentality is a form of EMT-2; that is, group minds are instances of coupled systems. This way of understanding collective mental states, as being a mere instance of EMT-2, is hereby not ontologically mysterious. In addition, EMT-2 offers a way of understanding group knowledge as a mental state at the collective level, along the lines of the knowledge-first approach. In other words, EMT-2 offers a plausible account of collective mental states in a non-summativist way. For instance, in the PILGRIMS case (§3), we can see that Joseph and Mary have been working together as a group so that we can say that they form a *coupled system* that

[28] The cognitive bloat objection is developed, for example, by Allen-Hermanson (2012), Wikforss (2014), and Aizawa (2018).

[29] See Tollefsen 2006, Theiner, Allen, & Goldstone 2010, and Harris 2020.

[30] "Relevant interactions" are those underlined by "trust and glue" conditions, such as constancy, availability, automatic endorsement, and prior endorsement.

has dispositional knowledge of the full path, although none of its individual members has such knowledge. Likewise, in the LAW-COURT and RESEARCH TEAM cases, it appears that similar coupled systems are formed, that is, systems that have more mental states than their individual parts.

In short, as the resistance to collective mental states is misplaced (given that EMT-2 is plausible), then we can hold that group knowledge is the most general collective factive mental state, within a knowledge-first epistemology and along non-summativist lines.

5. Conclusion

This paper examined the consequences of *knowledge-first epistemology*, namely the thesis that knowledge is the most general factive mental state, with regard to group knowledge. The knowledge-first approach, when applied to *group knowledge*, requires to account for factive mental states at the collective level. This is a first consequence. We argue that we can make sense of *collective mental states*, in a non-summativist way, with the help of the Extended Mind Thesis as long as we interpret it as EMT-2. This knowledge-first account of group knowledge has several advantages, since it opens the path to explaining group belief, group justification, group evidence, group assertion, etc., with reference to group knowledge, reversing the traditional order of explanation. For instance, consider the following claims concerning group epistemology: a group believes that p insofar as that group treats p as if it knew p; a group belief is fully justified if and only if it constitutes group knowledge; the evidence available to some group is the group's knowledge; a group should assert p only if this group knows p; and so on. Thus, in principle, we have an elegant and unified framework for understanding the phenomena of group epistemology. Of course, defending the tenants of this new approach in detail should wait for another occasion.[31]

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