



What I cannot do without you. Towards a truly embedded and embodied account of the socially extended mind

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Accepted: 19 September 2022
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Abstract

Through a discussion of the socially extended mind, this paper advances the “not possible without principle” as an alternative to the social parity principle. By charging the social parity principle with reductionism about the social dimension of socially extended processes, the paper offers a new argumentative strategy for the socially extended mind that stresses its existential significance. The “not possible without principle” shows that not only is something *more* achieved through socially located processes of knowledge building, but also that, and more importantly, what is achieved is something that *would not have been possible without* social interaction. The social parity principle states that the result of an activity achieved via social interaction should be assumed functionally equivalent to a solitary investigation and is characterized by multiple realisability. Contrary to the social parity principle, the “not possible without principle” holds that the result would not have been achieved without the social interaction between (at least) two agents with specific existential needs. The socially extended mind never happens in a void. This means that the “not possible without” principle should be located in real-life, affectively charged, embodied experiences of skilful interactions between agents. This fundamental conceptual change via reference to the “existential necessity” that regulates socially extended processes is necessary in order to effectively lead the socially extended mind to a truly embedded and embodied account.

Keywords Socially extended mind · Distributed cognition · Assembly bonus · Embedded and embodied cognition · Affectivity · Existential necessity

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1 Introduction

There are so many things that I cannot do without you. As a newborn, I would not have survived without my mother. As a child, I would not have learnt to speak without playing with my brother. As a teenager, I would not have had fun without my friends. Even today, as an adult woman, my family's continual support encourages me to strive for my dreams. I would not be able to eat fresh vegetables every day without the market system that supplies my grocery shop with produce. From the embodied and affectively charged care relationships that assure my sustenance and well-being, to the apparently more distant networks of structural interdependence that govern human society, my life is literally bound to yours.

In this paper, I consider a specific realm in which this structural interdependence is both inescapable and desirable: knowledge production. Through a discussion of the contemporary literature on the socially extended mind, I will show that not only is *something more* achieved through socially located processes of knowledge building, but also, and more importantly, *something that without you I would not have achieved*. My point is not simply that the interaction with you will help, but that in some cases, I cannot begin, execute, or complete the epistemic task without you. I call it *the "not possible without" principle* of the socially extended mind. This principle aims to replace the parity principle about the social extension of some mental processes. Contrary to the social parity principle, which states that the result achieved via social interaction should be assumed functionally equivalent to that of a solitary investigation, I hold that it would not have been achieved without social interaction. Moreover, by assuming multiple realisability, the social parity principle fails to acknowledge that social interaction happens between (at least) two agents with specific existential needs. I argue that this existential dimension permeates the "not possible without" principle and that it should be endorsed in order to lead the socially extended mind beyond reductionism.

So, after critiquing the reductionist conceptual framework of the socially extended mind, I will explore the "not possible without" principle in terms of "existential necessity". I posit that this is the fundamental step towards a truly embedded and embodied account of the socially extended mind. The socially extended mind never happens in a void. This means that we need to locate the "not possible without" principle in real-life, affectively charged, embodied experiences of skilful interactions between me and you. This fundamental conceptual change is required to effectively move away from the parity principle in socially extended processes of knowledge production.

2 The parity principle and the socially extended mind

After the publication of the now-classic "extended mind" paper by Andy Clark and David Chalmers (Clark & Chalmers, 1998), a profuse debate about the conditions necessary to grant the extension of the mind in the world has taken place

at the crossroads of philosophy of mind, cognitive science, and artificial intelligence. The parity principle, the leading argument settled by Clark and Chalmers in favour of their hypothesis, has been highly criticized as incapable of explaining the integration of external resources into the extended cognitive system (Menary, 2007, 2010). This criticism has led to the proliferation of alternative strategies for explaining the role of external objects in an extended and fully integrated cognitive system.¹ Despite objections, the parity principle has been employed as the argumentative strategy for the socially extended mind theory by Theiner et al. (2010) and Szanto (2013). The socially extended mind, a more liberal account of the extended mind, aims to show that both external objects, from the simple example of Otto's notebook to the most sophisticated smartphones as well as social interactions and institutions (Gallagher, 2013; Gallagher & Crisafi, 2009), can be vehicles of mind extension. Within this context, the social parity principle demonstrates the functional equivalence between a process performed by a single agent and a dyad or group. Although many proponents of the extended mind have turned to an integrationist model² that does not rely on the parity principle and instead employs more liberal argumentative strategies that are closer to other neighbouring conceptual frameworks, especially enactivism and pragmatism,³ I posit that it is essential to provide an argument for the socially extended mind from within the extended mind traditional framework. The reason is conceptual: although I lead the socially extended mind to distributed cognition, I do not take the socially extended mind as synonymous with distributed cognition.⁴ The reason is that in the socially extended mind, the centre of the cognitive process is still the individual. Moreover, as will be clarified in Section 3, the assembly bonus effect, which is a distinguishing feature of distributed cognition, cannot help us in discern cases of extended and distributed cognition. By developing a new argumentative strategy for the socially extended mind, I offer an alternative to the social parity principle that is applicable from within the extended mind framework and that preserves its core assumptions.

In this section, I will first provide a brief account of the parity principle. Then, I will explain how it is integrated into the socially extended mind argument. Finally, I will explain why I do not find this strategy convincing. I will then consider a better option in Section 3: the assembly bonus effect understood from the perspective of distributed cognition. After elaborating and highlighting the limits of the assembly bonus effect, I will introduce my proposal in Section 4: the "not possible without" principle.

¹ See Colombo et al., 2019 for a comprehensive collection of objections to the principle, suggested alternatives, and Clark's replies.

² Richard Menary (2007) has advanced "cognitive integration" as a better framework for the extended mind hypothesis that focuses on the integration of internal and external processes with vehicles of cognition into a whole.

³ Prominently by Gallagher (2017), but see also, for instance, Slaby, 2014; Candiotti & Piredda, 2019.

⁴ The core difference between the two models is that in the former, the mental state of an individual is realised through the interaction with another agent, while in the latter, a mental state is shared among more than one individual.

The parity principle states that if an external object x performs a cognitive function y equivalent to the function y' performed in the brain by x' , then functional parity between x and x' should be granted and, therefore, that y should be considered part of an extended cognitive system. In less abstract terms, this means that if I employ a map saved in the memory of my smartphone while hiking instead of relying on physical memory as an alpine guide does, I am undertaking an extended cognitive process since the information on my smartphone and in the physical memory of the alpine guide are the same; the function they play is equivalent. It does not matter if the information is stored outside the brain. The desired aim of hiking the right trail is still achieved. Of course, as Clark and Chalmers insightfully noted, some conditions should be met: I need to have access to my mobile phone, automatically endorse it when needed, trust it as a safe place of storage for information that will be used to extend my memory processes, and thereby form the extended belief that "we must follow trail 301 until the next turn".

To bring the parity principle into the realm of social interactions, both amongst individuals and between individuals and institutions, I can reform my example in the following way: Instead of relying on the information saved on my smartphone, I go hiking accompanied by an alpine guide and I let her drive me to the trail. Suppose that instead of blindly following her, I want to learn how to find the right path in winter when the trails are covered by snow and the landmark features of an area become unrecognizable. The alpine guide will train me to orient myself in the wilderness, spot trail markers under snow, and search for a baseline feature – a hill, stream, lake—that we know will mark the right path. She also trains me to use a compass, altimeter, and GPS to locate and track a specific itinerary even in the absence of visibility. In mountain orientation, many different skills, abilities and techniques are required and should be trained, such as map-reading, recognition of natural features, distance measurement, and how to plan the timing of walks.

Let's consider the ability to correlate the information from the map with the terrain in the following scenario. The map on my mobile phone is useless since there is snow everywhere, but I still need to orient myself in the wilderness. The alpine guide would then use the altimeter to measure the altitude and find the corresponding colour-code of that altitude on the terrain map. I would look for signs nearby and listen for the stream that I know we need to cross. Once I locate the direction from which the sound comes, the alpine guide shows me the stream on the terrain map, and because of this information, I deduce that we need to follow the direction uphill on my left, marked as trail 301 on the map. This would allow me to form the belief "we must follow trail 301 until the next turn".

As before, the formation of this belief involved the employment of some devices (map, altimeter, etc.). But unlike the first example, the belief is now formed through skilful interaction with the alpine guide. In more technical terms, the social parity principle says that if two agents A and B jointly carry out two cognitive processes P and P' for achieving the goal G, and if the same goal could be achieved by a single agent (either A or B) performing both P and P', then there is a functional equivalence between these two processes and thus P and P' are part of a socially extended cognitive system made of A and B. Regarding my example, this principle says that if the alpine guide and I jointly carry out the reading of the terrain map and the

stream location for achieving the goal of orientation, and if the same goal could be achieved if I performed both the reading of the terrain map and the found stream location alone, then there is a functional equivalence between these two processes. Therefore, the map reading and the stream location are part of a socially extended cognitive system that consists of myself and the alpine guide.

So far, so good. But are we sure that performing an epistemic activity with others is in fact the same as doing it by myself, as the social parity principle seems to claim? I think strong intuitions speak against it. For example, what about my need for instruction in order to learn how to read the trail signs? Or to be motivated if I cannot find any clues and be reassured when overwhelmed by fatigue?

It might be objected that, although these questions shed light on some actual features of my experience of winter hiking, they have nothing to do with socially extended cognitive processes. With this paper, I will oppose this view and advocate for a non-reductionist externalist view of mental processes which, in our case, is belief-forming. Many other mental processes could have been examined, from imagining alternatives to skill acquisition, for example. Out of simplicity, I will discuss the mental process that is usually studied in the extended mind literature, namely belief-forming. As I will explain in the next section, this non-reductionist view understands belief-forming as embedded in epistemic practices and, more generally, in the experience of the epistemic agent. For instance, the belief "we must follow trail 301 until the next turn" is formed through a skilful interaction between myself and the alpine guide. I claim that this skilful interaction is realised through the accomplishment of different epistemic practices that are embedded in the training experience of hiking the Luigi Marson Glacier Walk. By "epistemic practice", I mean the materially embedded epistemic activity that is performed by the agents, such as reading the terrain map or measuring the distance to the stream.⁵

Before going into the details, I need to explain why this non-reductionist view is needed. One might think that the socially extended mind thesis is already (or at least sufficiently) non-reductionist. My point, however, is that while this can be true regarding its scope,⁶ it does not extend to its argument. The social parity principle is reductionist because it inherits functional equivalence and multiple realisability from the parity principle. These two features overlook the fundamental difference of forming a belief in solitude and in company. Of course, functional equivalence does not claim that the two processes are identical. However, by considering them functionally equivalent, the parity principle assumes a reductionist approach because it does not focus on the *more* of social processes, namely the bonus effect (Section 3). Moreover, by omitting this difference, the social parity principle fails to acknowledge that there are certain beliefs that *cannot* be built in solitude (Section 4). I claim

⁵ My main reference here is the pragmatist view of cognition as action and of knowledge as an active process of inquiry into a problematic situation. See for details, Hookway, 2003. I cannot elaborate on the many connections and overlaps with the extended mind view of cognition and knowledge in this paper. But I would suggest employing the notion of "epistemic practice" to stress the active and practically engaged view of knowledge building in place here.

⁶ The socially extended mind aims to cover the social dimension of knowledge in the larger scope of institutions as well. See Gallagher & Crisafi 2009; Gallagher, 2013.

that in order to fit with its scope, one must advocate for the socially extended mind thesis in a truly *social* way. And this, as we will see in a moment, means locating the socially extended process within the broader context in which it takes place. In our case, the context is training experience in wilderness orientation. In the last section of the paper, I will also claim that to move toward a non-reductionist account of the socially extended mind, we need to focus on its affective dimension as well. The affective dimension is personal and contrasts with the principle of multiple realizability that implies indifference towards the identity of the cognitive agent. The social parity principle does not consider the affective dimension, which is another reason for charging it with reductionism.

To truly locate the socially extended process in the social dimension where it belongs, let's start by considering the motivating reasons to undertake a social epistemic practice instead of relying on a solitary practice. There can be multiple reasons for engaging in a social epistemic practice, from the most banal ("it's just nice and more fun") to more strategic ones ("I can acquire expertise"). Additionally, some reasons are more instrumental than others, such as when one "uses" her partner's know-how in solving problems to form the belief that the trail that should be followed is trail 301. These reasons show that a socially extended process cannot simply be equated to a solitary action. One could then object that the social parity principle does not claim that the two are the same, but only that they are functionally equivalent. This is not necessarily incorrect, but I would still deny this functional equivalence and, as I will argue in the next sections, I have the intuition that there is distinctly "something more" and a kind of "necessity" at play when it comes to truly extended social epistemic processes.

I will first need to do some conceptual unpacking in order to explain what I mean with these two expressions, namely "something more" and "necessity". In the following two sections, I will consider two elements I take to be fundamental to the socially extended mind: the assembly bonus effect (Section 3) and the "not possible without" principle (Section 4). In Section 5, I will explain that to properly appreciate the mechanism of the "not possible without" principle, the agent's experience, especially in terms of her existential needs, must also be taken into consideration. Finally, I will claim that the "not possible without" principle obliges us to revise the very same conceptual framework in terms of a truly embodied and embedded socially extended mind.

3 The assembly bonus effect

Social psychologists have shown that groups are capable of producing outcomes of a higher quality than individuals. More specifically, if the contributions of the members are proficiently integrated into the system instead of merely added up, then the "assembly bonus" will be achieved (Collins & Guetzkow, 1964). The assembly bonus effect is the augmented outcome produced by a fully integrated group. These results show that in the context of the socially extended mind framework, the outcome of a socially extended cognitive practice – such as groups engaging together in decision-making or intellectual tasks – is superior to what would be achieved by the most capable member of the group alone

or by any simple pooling of individual member efforts. The mind is not augmented by an extended technology, such as a notebook or a smartphone, but enhanced by a process of social interaction that is capable of achieving something more than if the task were performed by a single agent.

To explain how this enhanced outcome is achievable, George Theiner has brought distributed cognition into play (Theiner, 2013)⁷ by claiming that the coordination among group members in performing locally distributed tasks matters in a crucial way. The group members work as a functional unit in which cognitive integration is assured along with local distribution. The key point is how to "proficiently" integrate the functions. What Theiner has in mind is not a simple aggregation of individuals working together, but rather a group as a fully organised whole that is more than the sum of its parts. Distributed cognition, then, shows that social cognitive integration is achieved by coordinating different tasks distributed amongst group members. A typical example is of a ship crew that safely brings the vehicle to a harbour by engaging in skillful interactions (Hutchins, 1995). In this context, navigation is performed through the combined efforts of crew members as a functional unit. Safely bringing the ship to the harbour is thus the result of enhanced navigation skills.

Coming back to my example, this means that I do not *merely* acquire information from the alpine guide about where to turn on the trail, but that the guide and I act as a coordinated dyad to safely hike the winter slopes. This includes assessing risks, such as measuring the snow's depth, predicting blizzards, and interpreting tracks left by wild animals. Here, the coordination is therefore between the guide who reads the terrain map and myself who locates the nearby stream by hearing its sound. The point is that we should not interpret this situation merely as a case where an individual uses her partner in an instrumental manner to achieve her aim, but also as a contingent assembly, formed by myself and the alpine guide while hiking in the winter, that should function in a distributive fashion. And only under certain circumstances, will the assembly produce a *bonus effect*. This bonus effect is not just hiking, but hiking safely or, we can also say, hiking well. Distributed cognition espouses that a fundamental condition is the *skillful* interaction between myself and the alpine guide.⁸ This means that the bonus effect of

⁷ Extended cognition and distributed cognition are two different theses, both historically and conceptually. I cannot go into the differences here. It is enough to say that distributed cognition developed before and independently from the extended mind hypothesis, but that the two converge nonetheless in their basic assumptions about the extended or distributed nature of cognition. Moreover, some scientists who work on distributed cognition also work on the extended mind and sometimes try to either inform the latter with some characteristics of the former (Theiner, 2013) or bridge the border between them (Sutton et al., 2010). In this paper, I employ the "socially extended mind" as a framework since my direct target is the parity principle as the main argument of the extended mind hypothesis.

⁸ In a discussion of the most thorough case of distributed cognition, transactive memory, Barnier et al., 2008 have argued that skillful, interactive, and simultaneous coordination among the members of the group is one of its fundamental conditions. Different accounts can be employed to explain what this type of coordination is. Here, I follow the explanation provided by Richard Menary (2007: 77–101), who described it (as well as the most fundamental coordination between an organism and its environment) as an embodied practice, and analysed it in terms of manipulation, enculturation, and expertise. What is important is that a specific type of interaction, one that is skillful, is required for distributed cognition. For a non-individualistic conceptualisation of expertise, such as extension via immersion in cultural practice, see Menary & Kirchoff, 2014.

socially extended cognition can only be achieved insofar as the individuals engaged in that process form part of a certain kind of social group. This cannot just be a random group, since I specifically need to be paired with an alpine guide for hiking that trail in the winter season. Some people rely entirely on their hiking partners, others want to hike solo. But in certain situations, such as in winter hiking where the situation can quite quickly change for the worst, it is crucial to work as a team, meaning as an integrated system regulated by skilful interactions. Only in this case do we achieve the bonus effect of hiking in safety.

It can be objected that the context here is very much changed, that I am no longer speaking of socially extended cognition, but of group knowledge or even joint action. This may be the case, but I think this change in focus should in fact take place. The first step towards a non-reductionist account of the socially extended mind is to move away from a view of individual minds that employ tools (which can be objects, people, or institutions) for their benefit and towards collaborative efforts played by assemblies of people, regardless of how informal and ephemeral they may be. This can lead to group knowledge, but I do not think that we necessarily need to equate socially extended cognition and group knowledge,⁹ since in socially extended cognition, the subject who forms and holds the extended belief “we must follow trail 301 until the next turn” is still the individual, not the group, and the belief is held in a socially extended manner (i.e. through the skilful interaction with the alpine guide). Here, I am considering knowledge from the perspective of knowledge *production*, and therefore as a practice of knowledge *building*. This can easily bring us to conceive of socially extended practices as joint epistemic actions but, as in the previous case, I do not think we are compelled to do so and, moreover, much work is needed to refine the possible overlaps between distributed cognition and joint action. But this reconceptualisation of the socially extended mind in terms of distributed cognition implies transitioning from a teleological account of knowledge to a situated one, especially in regard to the *how* of knowing. The focus should be directed not only to the epistemic aim as the goal of the epistemic process, but also to the modality in which it is pursued.

In our example, this conceptual shift means that the focus is on how to *safely* hike that trail, and not just on how to perform the problem-solving activity of figuring out where to turn onto it. In other words, the goal isn't *hiking with an alpine guide*, but rather to safely hike that trail, for which I *need* to be with an alpine guide. Modality neither replaces nor excludes the epistemic end. The goal is safely hiking in the winter season. This can be a purely individual aim, but in order to achieve it, I need to do it in a social way, namely through a set of recurrent and mutual skilful interactions with the alpine guide. This does not imply that we need to undertake the same activities or perform any with the same level of expertise. Quite the contrary: in distributed cognition, if the functions performed by the agents are properly coordinated and integrated into a system, then the difference in authority, skills, and levels of expertise between individuals is an essential feature

⁹ For a systematic exploration of the various ways of “externalizing” knowledge, especially in relation to group knowledge, see Carter et al., 2018.

of that system.¹⁰ Here, I have described this coordination of functions in terms of the skilful interactions between myself and the alpine guide in forming the belief “we must follow trail 301 until the next turn”. This conceptual shift therefore frames my example within a more comprehensive and non-reductionist context in which the belief is formed through performing epistemic practices with an alpine guide, practices that enhance my skills and abilities to hike in the winter season.

I claim that this shift is crucial for the socially extended mind framework since its aim should be to detect epistemic practices that are *socially* extended. This sociality is a modality of the process of knowing; the adverb “socially” points to epistemic practices that are enacted by two or more agents together.¹¹ I think it is a mistake not to take these collaborative processes as pivotal cases of socially extended cognition because distributed cognition provides a better explanation than the social parity principle for the enhanced nature of socially extended cognition. Social extension is in fact what enables the generation of an enhanced outcome, which, in distributed cognition, takes the form of expertise. Cognition is not just brought into a social setting; it is placed within a specific social context (with particular agents and rules of interactions) such that an enhanced outcome is produced. This means that a shift from functional equivalence to social cognitive enhancement is required. What is possible with an alpine guide is not the same as what I can do by myself, it is something *more*. Although I cannot argue here in favour of the reasons provided by distributed cognition for the assembly bonus effect, it is enough to acknowledge that if socially extended cognition really wants to be *socially* extended, then the first step is to use distributed cognition as a conceptual framework.

This conceptual shift is fundamental to my argument, but it does not have the last word. To move beyond the social parity principle, we need to highlight that we achieve something more through social epistemic activities and that there is a *compulsion* in place. The assembly bonus effect shows that group’s capacities can be enhanced, but it does not demonstrate *the necessity* of such group-level activities. In failing to do so, the assembly bonus effect is not a sufficient measure for detecting socially extended practices. Many of these practices can be socially embedded. In other words, the assembly bonus effect can be assumed as a desirable condition but not a necessary one.¹² The latter, necessary element of compulsion will now be introduced with “the not possible without” principle and further explained in Section 5 with the hermeneutical tool of “existential necessity”.

¹⁰ “Coordination is the glue of distributed cognition and it occurs at all levels of analysis.” (Kirsh, 2005: 258).

¹¹ It can be reasonably argued that the socially extended mind explicitly takes an individualist approach (see Lyre, 2018: 6). But my point here is that this is conceptually problematic insofar as the interaction is the vehicle of extension. There are also other reasons for rejecting an individualist framework of the extended mind, especially in relation to its utilitarian dimension. On this, see Slaby, 2016; Candiotta & Piredda, 2019.

¹² This also means that the assembly bonus effect is not a necessary condition for the socially extended mind. We cannot argue that if only the assembly bonus effect is achieved, we have socially extended cognition. In fact, there are cases of “assembly malus” where we still have socially extended cognition (see Theiner et al., 2010). The concept of socially extended cognition might be narrowed to only include cases where a positive outcome is achieved, making the assembly bonus effect a necessary condition. But this is not a good strategy since it would set aside many real-life instances of socially extended cognition and consequently hinder our understanding of why groups frequently fall short of their cognitive potential.

4 The "not possible without" principle

It seems to me that although the assembly bonus effect can justify some socially extended practices, such as those related to cognitive enhancement and development of expertise, it does not capture the necessity of undertaking them. In failing to do so, it cannot be a fully-fledged alternative to the social parity principle since the option to perform the action by myself, most likely poorly, still remains in place.¹³ A necessary condition should show that we cannot imagine two worlds, one in which I can hike that trail alone in winter and another with an alpine guide, and then simply choose the more desirable one. The fact is that without an alpine guide, I cannot safely hike the path or form the belief that is necessary to find and hike the right trail. This means that solitary agency *cannot* be granted for certain tasks. In some situations, we are forced to pursue social cognition because it enables us to accomplish what is impossible on our own. This *need* becomes apparent if we properly contextualize the formation of the extended belief, meaning that we must understand it as belonging to an epistemic practice embedded in a situation with specific features, constrains, and possibilities for action. Since it is extremely difficult to see the snow-covered trail signs in winter, being accompanied by an alpine guide is crucial for many reasons. Among these are also epistemic reasons, for instance, without the alpine guide I would not have formed the extended belief "we must follow trail 301 until the next turn". The extended belief formation is thus embedded in the broader context of training experience in wilderness orientation, and this context is a condition for the generation of an extended belief.

It follows that the extended belief is neither equal to what I could accomplish alone nor just preferable. It is simply not possible without social engagement. The "not possible without" principle thus says that if an agent A needs an agent B to realize the process P, and if A without B cannot realize P, then P is performed by a socially extended cognitive system made of A and B. The "not possible without" principle allows the identification of socially extended processes and discloses their necessity: the agent needs these socially extended processes, and she would not be able to do otherwise. For the moment, we will take this necessity in logical terms, namely that it is impossible that P occurs without the skilful interaction between A and B. In the next section, however, I will show that we need to enlarge its scope in terms of existential necessity.

It can be argued that the "not possible without" is only the extreme case of a broader range of socially extended activities. This objection claims that one could undertake socially extended practices for other reasons, such as because they are quicker, and not because one cannot do otherwise. However, this objection is simply a subspecies of the assembly bonus effect, which provides good

¹³ I can still walk the path with an injured leg, and the crew could bring a half-broken ship to the harbour. It is also possible that I can safely hike the path alone by chance, but this does not secure the cognitive process since I cannot guarantee that I would be able to do the same the next time; this would be a case of epistemic luck. There is also the case in which I keep trying until I become an expert. But this case should be understood as the benchmark for distributed cognition, in which I compare the prolonged process of learning by myself to the easier, accelerated process with the help of an alpine guide.

reasons for socially extended practices. We can thus rephrase the objection by saying that certain socially extended practices enhance the process's speed, and they are therefore desirable. But the assembly bonus effect cannot in principle discriminate between a socially extended process and a socially embedded one. The "not possible without" principle, on the other hand, allows us to make this distinction by way of the necessity it involves. To put it briefly: if I cannot walk the Luigi Marson Glacier Walk without an alpine guide, then the cognitive social processes between the alpine guide and myself undertaken for safely hiking the path are extended, and not simply socially embedded. This necessity should, of course, be clearly assessed, and this is far from an easy task. Agents quite often choose the easiest way to attain their goals. For example, say a student does the homework with her classmate not because she cannot on her own, but because it is easier and faster. However, this brings us again to the assembly bonus effect. Therefore, the real job is to assess whether the epistemic social action is just desirable or necessary. In doing so, the distinction between socially extended and socially embedded cases will be evident. In the next section, I will show that this difference is grounded in existential necessity.

It might be asked why the particular motivating reasons for social epistemic action, such as the safety reasons which require that I go hiking with an alpine guide, should be the measure for assessing its social extension. The answer is that these motivating reasons point to a necessity: I cannot hike the Fellaria glacier solo in winter because, for example, I cannot form the belief to turn on the left and follow track 301 without the skilful interaction with an alpine guide. Without this belief, I cannot safely hike the Fellaria glacier because this belief contains essential information about which direction to take when all of the track signs are covered in snow. Two options, one in which I can achieve the goal by myself and the other with the alpine guide, are not actually available since the first option is entirely excluded by the impossibility of safely hiking solo the Fellaria glacier in winter and forming the belief about where to go. It follows that the cognitive process of belief forming must be extended to achieve the goal of safely hiking the Fellaria glacier in winter. I cannot do otherwise than form the belief with social interaction as vehicle. Therefore, this belief must be socially extended.

Finally, it might be objected that relying on the need for skilful interaction in order to detect social extension brings the individualistic framework through the backdoor again since motivating reasons belong to the individual(s). However, this is not the case. We can easily imagine the need for a group of people to undertake an epistemic socially extended activity, notably in the context of teams, for example, when colleagues brainstorm collectively to find the best solution to a problem or when a volleyball team employs timeouts for strategic interruptions and tactical revisions.¹⁴ Or, coming back to the assembly bonus effect, we can also detect the necessity of undertaking certain epistemic tasks in a social manner within cases of distributed cognition. We can imagine that the crew members' expertise in navigation

¹⁴ For an externalist account of motivation that employs the extended mind framework, see Battaly, 2018.

skills is not only a desirable enhancement of the navigation performance, but also a necessity. The ship will only be safely brought to the harbour if the crew members skilfully engage in socially extended activity during an intense storm, for example. Therefore, distributed cognition can be a measure for socially extended activities in certain situations, specifically those in which the assembly bonus effect is functional to the "not possible without" principle. Still, as I said before, the assembly bonus effect does not have the last word. These examples show that the socially extended mind can be ascribed to groups. But it is also true that the standard reference point of the socially extended mind is the individual, who uses sociality as vehicle of her extended processes. As I said, we do not need to make the socially extended mind a case of group knowledge to transcend its reductionist account. We can hold the individual as the agent of the extended processes without individualism, namely by focusing on how much she relies on others to form her beliefs.

I believe that the strength of the third wave model of the extended mind theory, in which the social world is understood as a vehicle of cognition, is its emphasis on the *need* for social interaction.¹⁵ I repeat, the conceptual power of a socially extended mind and cognition model is its potential to demonstrate how certain mental processes realized at the intersubjective level could not have been realized in a solitary mode. For the socially extended mind framework, it is still the individual the epistemic agent that undergoes the mental processes, and not the dyad or the group. The point is to recognise that this individual cannot form certain beliefs without skilful interaction with other individuals. The necessity of relying on skilful interactions for forming beliefs is only required in certain contexts and under certain conditions. I am not claiming that all mental states are socially extended, but that there are specific cases in which social interaction enables belief-forming processes that otherwise would not have been produced at the individual level.

5 Towards a non-reductionist account of the socially extended mind

I could have ended the paper here. I have provided the "not possible without" principle as an alternative to the social parity principle, highlighted how much distributed cognition can help, and replied to some objections. However, something fundamental, something that confers existential significance to the "not possible without" principle, is still missing. It is not just due to a logical necessity that I cannot hike the Luigi Marson Glacier Walk without an alpine guide in the winter season. There is an existential compulsion in place. I will call this compulsion an "existential necessity". I provide "existential necessity" as a hermeneutical tool to point to the existential dimension of the "not possible without principle", thereby counteracting a reductionist interpretation of it. An existential necessity can take different shapes.

¹⁵ As remarked by Gallagher (2018: 434, n. 10), each wave is not always clearly delineated, which makes it difficult to distinguish between them. Following Kirchoff (2012) and Cash (2013), I take the "third wave" to be based on the socially extended mind, but others define it differently. Notably, Gallagher (2018) takes the socially extended mind to be part of the second wave and characterizes the third as a view that links predictive processing to the extended mind.

In this paper, I focus on the embedded and embodied dimensions of the “not possible without principle” because they are what should be considered first to avoid a reductionist account. The specific shape that an existential necessity takes regarding the embedded and embodied dimensions of socially extended processes is one of an existential *need*. An existential need inextricably links two specific, particular agents in performing joint epistemic tasks such as, in our case, assessing risk, measuring terrain, interpreting changes in weather, and avoiding blizzards.¹⁶ This cannot be a random agent in a random, abstract situation, but specifically must be me and the alpine guide in the Luigi Marson Glacier Walk in December, with our specific desires, concerns, attitudes, mindsets, plans, gestures, and particular ways of behaving. It must be “us”, “we” who skilfully interact to build meaning and are moved by our existential need to understand the situation and avoid danger.¹⁷

In the previous section, I highlighted the relevance of the context in which the epistemic practice takes place for the generation of extended beliefs. Here, I want to refine what I mean by this “context” via references to phenomenological and existential themes, and relate them to the embedded and embodied dimensions of the epistemic practice. I argue that the socially extended mind is necessitated by existential needs and concerns that drive our epistemic activities. These needs are directed towards what is meaningful to us. Looking at existential necessity in the context of knowledge implies focusing on *what* confers meaning to the epistemic practice. I argue that what confers meaning to hiking the Luigi Marson Glacier Walk is not just getting to the Fellaria glacier, but also *how* one does it. As we will see in a moment, there are many aspects of this experience that make it existentially worthwhile. But there is also a specific modality that obliges the agent to skilfully interact with the alpine guide and form the belief that we must turn left and follow track 301. This specific modality is to “safely” hiking the Fellaria glacier.

In this section, I will thoroughly analyse the features of this need in order to locate its existential relevance. In doing so, I will bring the socially extended mind towards a non-reductionist account that stresses not only the social situatedness of socially extended processes, but also their existential significance. The existential significance that I uncover here as an existential need at the ground of socially extended processes is what renders one incapable of forming a belief without another agent in certain situations. This means that an existential necessity regulates the socially extended mind.

In the first subsection, I will perform a more detailed analysis of my example. This will allow me to explore preliminary steps towards a truly embedded socially extended mind. Then, in Section 5.2, I will explore the non-reductionist account in terms of a truly embodied socially extended mind.

¹⁶ In this paper I employ the notion of “existential necessity” concerning the specific case of socially extended cognition. But this does not exhaust its meaning. A detailed analysis of the notion of “existential necessity” is provided in a work-in-progress paper with Kathy Ran. We hope to publish it soon.

¹⁷ This is a crucial point that is derived from the phenomenological, existentialist, and pragmatist traditions in philosophy. In cognitive science, this can be found in enactivism, especially by looking at “sense-making” as the fundamental cognitive activity. See Weber & Varela, 2002; De Jaegher & Di Paolo, 2007; Colombetti, 2014; Zahavi, 2015; Dreon, 2019.

5.1 Towards a truly embedded socially extended mind

In order to appreciate the relevance of existential necessity to the socially extended mind and frame it in a broader, non-reductionist view, we need to consider real-life cases in detail. First, we need to consider the specific characteristics of both the agents and the context. In our case, these are my and the guide's characteristics: the first is a woman in her forties, in relatively good health, of a passionate nature, and has a wish to hike the Luigi Marson Glacier Walk on Fellaria Glacier. The guide has thirty-five years of experience in alpine hiking, and for the last twenty years has taught mountain skills at a small alpine school she founded with three friends. She is also a volunteer at the Lombard Glaciological Service and is very much concerned about the impact of climate change on the glaciers.¹⁸ The Luigi Marson Glacier Walk on the Fellaria Glacier runs through stunningly beautiful landscapes moulded by the glacier passage. The environment is strongly influenced by the presence of the Fellaria glacier, one of the largest in the Italian central Alps.

Then, we need to consider the activities undertaken during the hiking experience and focus on the epistemic ones. Therefore, we need to consider activities such as orientation in the wilderness and assessment of dangers. Then, we need to consider the specific circumstances, such as the activity of winter hiking on a sunny day in December, the skills possessed by the agents and the ones they want to acquire, the quality of their interactions in terms of communication, empathy, and so on.

This more detailed analysis of the case allows us to detect the motivating reasons grounding the process of extended belief formation and consider the “not possible without principle” in terms of existential necessity. As I have already introduced, the existential necessity in this case should be understood not only in terms of developed expertise (as per distributed cognition), but also in terms of safety. This means that I would not be safe hiking the Fellaria glacier without the alpine guide. And this of course matters to me; in the context of having already committed to doing the hike and setting about going on it, it is perhaps the thing that interests me the most, since it is a life-or-death issue.¹⁹ That's why I need to form the belief of turning left before crossing the river through a skilful engagement with the alpine guide—and I would not be able to do it without her—when the trail signs are no longer visible due to the snow. So, understanding the “not possible without” principle from the broader perspective of an existential necessity enables us to better appreciate why I cannot form my belief without the alpine guide and, so, why I *need* to do it with her in a socially extended manner. The motivating reason is safety and by forming the belief with her, I attend to my need.

¹⁸ I cannot go into further detail, this is just an example of considering the agent's characteristics in terms of gender, age, desires, affects, motivations, etc.

¹⁹ Again, we should contextualise “safety” in the context of hiking the Fellaria glacier in winter. We cannot take “safety” in general terms because, it might be objected, it would be safer to stay at home. So “safely” is the modality of hiking the Fellaria glacier in winter, and this context should be always taken into due consideration. In doing so, we can appreciate that safety becomes a central concern for the agent.

Attending to my need does not mean that by engaging in socially extended epistemic practices I secure my safety on the trail with absolute certainty. Unfortunately, we witness deaths every year in mountaineering. Safety should therefore not be understood as an outcome, but rather as the need that grounds the “not possible without” principle in an existential theme. Existential necessity is thus an enabling criterion of the socially extended mind, not a success one. This applies similarly to the objection that relying on a guide could also be detrimental to my safety because it might make me over-confident in my own abilities and attempt a hike that I am not capable of.²⁰ Again, the focus is not on the successful outcome of the socially extended epistemic practice, but on what compels me to engage in a socially extended epistemic practice with another person, namely the alpine guide. However, it is safe to say that most of the time we achieve more through social interaction, as per the bonus effect discussed in Section 3. It follows that most of the time, relying on a guide might be beneficial. But again, the criterion here is not the outcome of the socially extended mind, but a compulsion that enables it.

This means that wanting to hike safely in winter and avoid danger provides meaning for the formation of the correct belief. This existentially motivating reason is enacted through many different concerns and practices. For example, one should be alert when there is a sudden temperature change because it is easier to get back by following your footsteps, which can disappear in minutes if it is snowing and windy. There are, of course, other important things that can provide meaning to form the correct belief about the right path during winter hiking, such as enjoying the beauty of the encompassing whiteness or discharging stress through physical activity. But I argue that safely hiking and avoiding the risk is the fundamental existential necessity that determines *how* the belief-forming activity involved in the hiking experience analysed in the previous sections is existentially meaningful. Of course, not all epistemic activities are explicitly governed by this kind of existential necessity. Here, the adverb “explicitly” plays a pivotal role. I take this existential dimension to be at the ground of all human activity, including epistemic ones, but I cannot elaborate on this more radical thesis here. The adverb “explicitly” expresses that some epistemic actions are directly driven by existential concerns, such as understanding the sudden change of the weather to avoid a storm or learning how to read a terrain map. Contrary to a reductionist approach, I emphasize the existential dimension that frames the socially extended mind in a wider and more phenomenologically accurate picture.

In my formulation, epistemic practices are always located in the knowers’ experience and acquire meaning through what they care about in their concerns and interests. The question of what kind of meaning is conferred by individuals depends on the existence of the individuals in question. But existence should not be taken as a universal concept. Existence is always my existence and it is located in specific contexts, interactions, and ways of being in the world. We could say that a person who wants to hike the mountain has this desire out of her own personal grounds. Perhaps out of a love of nature that was developed in early childhood, a scientific interest in the region,

²⁰ I thank one of the anonymous reviewers for this objection.

a personal goal she set as a New Year's resolution. The guide might have a similar passion for nature, likes sharing it with people, and takes her job as a serious commitment to guiding people safely through the journey. But we can actually disregard many of these facts because all we need are those motivating reasons that are relevant to constitute a situationally common goal. In most cases, the most basic goal from both parties is to avoid danger while hiking. The existential necessity is defined by the situation: someone wants to do the hike, the other person wants to act as a guide. If there are more reasons at play, the modality changes: if it is a scientist who wants study the region, she might want a guide that possesses scientific knowledge in addition to survival skills. If the hiker is looking for a social experience, she would want a guide with an extroverted personality. The desires of the individuals at play constitute the motivating reasons *for those two specific individuals to become involved with each other in the first place*, and the more specific these motivating reasons are, the more complicated the modality becomes, and the more *urgent* the existential necessity is.

This analysis, which takes into consideration the specific characteristics of both the agents and the context, can be understood in terms of what John Haugeland (1998) has called “existential holism” regarding the understanding of natural language. According to Haugeland, the meaning of a proposition cannot be understood in isolation from the context, as per common sense holism. But this is not enough: Haugeland argues that there is *no understanding* (of natural language, but also in general) without “mattering” and “caring”. The “mattering” discloses the existential dimension of understanding that, in my case, should be taken as the motivating reason governing sense-making in extended epistemic practices. As we will see in the next section, this “mattering” has a fundamentally affective dimension.

It can be argued that these concerns are egotistical and because of that, bringing existential necessity into the picture does not really provide a truly social framework for the socially extended mind. But I think that we are not obliged to be reductionist about existential necessity either, i.e., take it just in terms of survival, shelter, and nourishment. For Haugeland, with a key reference to Heidegger (Haugeland, 2013), if existence is in play, it is never “just” about survival, shelter, and nourishment. The needs cannot easily be factored into basic needs of the species: they are personal and they are centered around the uniqueness of each individual. Or, if they do, this has to be done on an individual case-by-case basis and not construed as a species-wide requirement. It is true that in my example the main concern is “safety”, but neither should the need for survival be understood only as an individualistic concern. We can, in fact, find a worldly, existential necessity in terms of survival if we consider that by hiking the glacier I can appreciate the drastic receding of the glacier since the so-called Little Ice Age. Through this realization, I could become aware of the real dangers of climate change to life on our planet. We can also suppose that the alpine guide could train me to find proof of and measure the glacier's regression, since she very much shares this environmental concern. But, again, the survival of the species and the planet cannot be understood only in terms of basic needs. From an existentialist perspective, it has to do with the meaning that I, exactly I, with my personal needs, history, and projects, confer to life. But this is also true of my finitude. In fact, one's own death means a very specific end to the existence

that belongs uniquely to that person, and this is a relation to oneself that completely permeates one's needs and concerns.

It can be objected that, although relevant, this has nothing to do with socially extended cognition; or, it might be claimed, that the concern about climate change matters to another epistemic practice (of measuring the ice level, for example) and not to the formation of the extended belief "we must follow trail 301 until the next turn". Does the glacier's drastic receding matter for forming the belief to turn on the left? At first glance, we may simply dismiss its relevance. But upon deeper scrutiny of the situation to understand the importance of the glacier regression for the landscape, we may ask if it is safer to go straight instead of turning left. In this case, considering the situation in terms of "existential holism" enables us to build the correct belief. But, setting aside this specific contingency, I would say that this criticism is still victim of the reductionism that I am here arguing against. So, instead of directly replying to it, I suggest that the reader take a heuristic attitude, and test the change of framework and assess its advantages, if there are any. With this paper, I claim that there are advantages in this conceptual shift. Concerning the socially extended mind, the main advantage is really getting to the *social* meaning of the extended mind by discovering mental processes that I cannot perform without you.

A last step is still missing in this attempt of moving the socially extended mind towards a non-reductionist framework. This step is about the affective dimension that permeates my needs and concerns while hiking the Fellaria glacier in winter. Let us move to it in the next subsection.

5.2 Towards a truly embodied socially extended mind

Since the beginning of this paper, I have referred to a specific relationship between myself and the alpine guide in winter hiking. I defined it as a skilful interaction in a training context. In this section, I will clarify its embodied dimension by analysing existential necessity in terms of affectivity. Affectivity certainly does not cover all that should be said about the embodied dimension of the socially extended mind. I begin with affectivity since it is a prominent feature of the embodied dimension of existential necessity. It can also help us to avoid taking the "not possible without principle" strictly in terms of its logical necessity. Therefore, it is the first step towards a truly embodied account of the socially extended mind.

Affectivity generally refers to "a *lack of indifference*, and rather a *sensibility or interest* for one's existence" (Colombetti, 2014, 1).²¹ It provides a kind of qualitative appraisal that is felt in the living body.²² In my case, the existential necessity is

²¹ Affectivity, in this sense, is the primordial way through which agents actively generate and bring forth their own domains of meaning and value (Colombetti, 2014; Thompson, 2007; Varela et al., 1991).

²² Giovanna Colombetti (2007), has, in this regard, insightfully remarked that we cannot split appraisal and arousal in affective experience, as done by the cognitivists. This means that the evaluation allowed by the emotions is largely constituted by the felt experience. This felt quality expresses the agents' specific evaluation of the experience (Döring, 2003, 2010), implicit reasons (Betzler, 2007), attitude (Helm, 2002), concerns (Fridja, 1986), and the meaning that only they, specifically, ascribe to it (Slaby, 2008, Slaby & Stephan, 2008). Work on affective valence has showed how much the felt experience is already a form of evaluation (Charland, 2005; Colombetti, 2005).

embodied in my affective concern for safety, my sweating hands and increased heart-beat, my fear of losing the trail, and my excitement at hearing the nearby stream. But it is also present in the significance I assign to undertake the Fellaria hike in the first place, the value of that experience for me. In fact, affects endow our life with existential values (Haugeland, 1998; Helm, 2001; Solomon, 1976). This means that affects do not track any or all meaning, but particularly existential meanings: things that matter to us (Slaby, 2014). In our case, this would be safely hiking the Fellaria glacier as a primary meaning, but also other meanings related to personal values, such as challenging myself with such a hard task or finally seeing with my own eyes the hiking that I have read a lot about in the last years of passionate investigation into the biographies of the alpine hikers. Finally, existential necessity is expressed in affective concerns about what really matters to me, that about which I “give a damn”.²³

It is important to stress that this personal dimension of needs and concerns, which becomes explicit with a focus on affectivity, should not be necessarily taken in individualistic terms. Recently, Szanto (2020) has pointed out the inherently affective dimension of our concerns in terms of shared emotions. This is important to highlight since one might object that the embodied dimension does not fit with the social dimension of the extended mind that I am here discussing. But social interactions are affectively charged. They are made up just as much of affects as of decisions and plans.²⁴ This means that there is something that matters—safely hiking the Fellaria glacier—that binds the alpine guide and me together, that this concern is felt by our interacting living bodies, and that it can be reinforced or prevented by the quality of our interactions. This “something that matters” is not just abstractly conceived; it is felt in in our feelings and dispositions towards each other. I do not intend to refer to the much-debated notion of extended emotions by integrating affectivity into the extended belief-forming activity I am here analysing, although this could be an important line of investigation to develop.²⁵ I am just pointing to the plain fact that the skilful interactions between agents we saw to be crucial in the socially extended mind have an affective dimension. Theories of the socially extended mind, however, simply do not consider this basic truth,²⁶ which I think is a mistake.²⁷ If we agree that modality matters in the socially extended mind, as I hope to have established in the previous sections, then the *how* of the interaction in terms of the quality of the affects involved matters as well.

Focusing on existential necessity from the embodied perspective of affect means that the existential need is always felt in the first-person perspective and, at the same time, it qualifies the *how* of the interaction (Candiotto, 2017, 2019),

²³ This recalls the famous slogan “computers don’t give a damn” by Haugeland (2013),

²⁴ This means that we need to look at feelings, emotions, moods, and sentiments in specific circumstances and employ the conceptual tools of situated affectivity (Colombetti & Krueger, 2015; Griffiths & Scarantino, 2008; Maiese, 2016; Slaby, 2016, 2018a, b).

²⁵ See Krueger & Szanto, 2016 for a review of different accounts that have been provided in the last years.

²⁶ Important exceptions can be found in Slaby, 2014 and Candiotto, 2016.

²⁷ In other words, it is not a question of adding an analysis of the function of emotions to a “neutral” model of epistemic cooperation, but of seeing how the cooperative engagement is affectively arranged. On affective arrangements, see Slaby, 2018a, b.

what the word “socially” in the socially extended mind truly means beyond reductionist accretions.

The *how* is expressed in terms of valence, or the quality of emotion experience, how good or bad the experience feels (Charland, 2005; Colombetti, 2005).²⁸ We can understand valence in terms of “charging”, an affective power that confers a specific quality to the experience such that one will accordingly feel in a certain way. The many different affective charges are distinguished by both intensity (weak and strong, shallow and deep) and quality. The affects in place can be appreciative, respectful, and vivacious, but also disenchanting, distressed, and gloomy. They determine the quality of the interactions and create different affective bonds in the form of different persistent, emotionally laden patterns of behaviour towards others. The quality of the bonds is more than some pure valence but a specific qualitative mode of human interaction. The affective concerns implied by hiking the Fellaria glacier with an alpine guide will therefore have a specific charge depending on different circumstances. These various charges will significantly qualify the *how* of the social extension. This means that I can form the belief “we must follow trail 301 until the next turn” through a skilful interaction with you—and would not have achieved it without you—when the trail markers are hidden under snow not only if I feel safe with you and admire your qualities, but also if I am afraid of losing the trail and trust you as an expert guide to teach me to find it again.

I would like to add a last point. Focusing on the embodied experience of existential necessity helps avoid the risk of missing the individual(s) under the umbrella of the socially extended mind.²⁹ As I have already mentioned, a third criterion is usually ascribed to the emergence of new properties in groups: multiple realizability. This criterion says that different parts of the system can equally perform a function. It has also been employed by the social parity principle to claim that functional equivalence should be met independently from where and by whom a process is executed. I take the opposite stance. It is precisely because this function is performed by me through a skilful interaction with the alpine guide that the task of forming the correct belief of walking the right path can be achieved. In existential necessity, the individuals are not replaceable.³⁰ They are unique. The uniqueness of the individuals involved in a situation matters because it delineates the modality of a particular situation via meanings conferred from the concerns of the individuals in question; without the particular needs, wishes, or desires of these specific individuals, there would be no meaning to

²⁸ Along with Colombetti (2005), I sympathize with the need to challenge the standard dichotomy of valence since emotional experience is much more complex than the classical contrast of polarized hedonic feelings would imply. Although I cannot develop this point here, I ask the reader to understand “valence” in terms of the plurality, ambivalence, and nuances of our emotional life.

²⁹ Claiming that the socially extended mind needs to overcome an individualistic framework does not dismiss the personal dimension of knowledge creation. As argued by some enactive thinkers, the point is to focus on the agents *and* their relationships, as I am investigating here in the specific case of epistemic cooperation. See De Jaegher, 2019 and Candiotta & De Jaegher, 2021. In Candiotta 2020, I also claimed that the personal dimension of knowledge creation emerges in the subjective value of truth as disclosed by epistemic emotions.

³⁰ Autonomy does not stand in opposition to dependency on others since, although it requires independence of judgement, it does not amount to self-sufficiency. Accordingly, Carla Bagnoli (2020) has defined autonomy as proper emphatic reliance on others and has differentiated it from defective cases of reliance, such as servility and submission.

confer, and therefore the modality would be absent or, in the case of different individuals, entirely different. The interacting agents are not mere tools of a more prominent cognitive system with its own needs, since their bodily-felt interests, concerns, and evaluations are the life and impulse of that cognitive system. The agents' existential necessity is what gives life to the socially extended mind. That's why the kind of interaction, the how—with all that it implies—matters so much.

6 Conclusion

More work should be done to move the socially extended mind away from a reductionist framework. In this paper, I began this task by focusing on the embodied and embedded dimension of existential necessity. Hopefully, I convinced my readers about the need to adopt this aim. I started the paper by mentioning the many situations in which I cannot grow, learn, and even exist without you. Throughout the development of the paper, it has become clear that the necessity of interacting with you is existential. This necessity is orchestrated by personal needs and is grounded in affectively charged interactions. I specifically argued that this existential dimension pertains to knowledge processes as well. While discussing the literature on the socially extended mind, I challenged functional equivalence, multiple realizability, and the instrumental role assigned to the vehicle of cognition by advancing the "not possible without principle". The path I followed may seem to have brought us quite far from the extended mind canon, however, I think that if the extended mind wants to be a *socially* extended mind, this is one of the paths that should be pursued, even at the risk of changing its conceptual framework. It can be argued that this conceptual shift obliges us to get rid of the socially extended mind framework since it does not deal with extended mental states anymore. I do not think that this is the case; we simply need to drop its reductionist framework. This means taking a serious look at the phenomenology of social extension, at the *how* of social knowledge in terms of locality and feelings. In particular, I foresee that the focus on the affective dimension of the socially extended processes can be extremely fruitful in further developing integrationist approaches to the extended mind. To sum up, considering the "not possible without" principle in terms of "existential necessity" does not imply dismissing mental states, propositional attitudes, and truth criteria. On the contrary, it means that they must be framed within the wider existential horizon of epistemic practices, knowledge producers' social locations, as well as personal and collective concerns.

Acknowledgements A previous version of this paper has been presented at Jan Slaby's weekly colloquium in the winter semester 2020/2021 at FU Berlin. I would like to thank the participants for the very insightful questions. I express my gratitude to Jan Slaby for the thoughtful advice provided in revising the paper and the ongoing conversations about the need of a non-reductionist account of mental processes and the conceptual issues regarding the socially extended mind. I also thank Kathy Ran for her sagacious and expert comments about existential necessity.

Funding Open Access funding enabled and organized by Projekt DEAL. This work has been supported by the Alexander von Humboldt Foundation under the project "Bond. Positive emotions for group cognition". I revised the paper while working at the Centre for Ethics of the University of Pardubice, funded by the grant no. CZ.02.1.01/0.0/0.0/15_003/0000425 of the Operational Programme Research, Development and Education.

Declarations

Conflict of interest The author has no conflict of interests.

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