Where is the mind? The extended mind reloaded

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Abstract. The aim of this paper is to reshape the mind-body problem in the light of the theory of the extended mind and its relationship to recent technological developments. Rereading the mind-body problem implies returning to Descartes, as it is well-known that the crucial theoretical point of the contemporary philosophy of mind is the refusal of Dualism. Despite the philosophers of mind, on one hand, Descartes wasn't that is usually called dualist, and, on the other hand, reductionism does not work the way recent researches have shown. Taking seriously the relationship between the human mind, body and the technological developments we are facing, we claim for an account of the mind-body problem which includes biological aspects and society, such as the place in which technology reveals itself[3].

Keywords. mind-body problem, extended mind, dualism, technological artefacts.

1 TAKING THE EXTENDED MIND SERIOUSLY

New ideas are witness to the power of the human mind, that it is the *place* where they find a fruitful vortex from which they spread out. Since ideas are the sparks that animate action, knowledge, and scientific research, it is easy to recognize their role in new projects, including technological ones. The relationship between human beings and technology is symbiotic in nature: they both mutually exist and develop, giving rise to new interactions.

Specifically, we refer to the interactions among users of social media and internet services as technological artefacts. Everyone is aware that the interactions mentioned above have become more intense in recent years, launching practices that generally did not exist before in the linguistic and communicative areas.

In view of these interactions, which clearly refer to personal data (collecting, processing, protecting data) and the possibility that each of our daily transactions are recorded (for example, activating an alarm, using an ATM, paying via PayPal, using a smart-phone, watching a TV series on Netflix, commenting on digital news, etc.), the electronic body emerges. The electronic body is a new dimension that coexists with our bodies of bone and flesh.

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Philosophers keep coming back to the mind-body problem within the framework of the extended mind [1, 2, 3, 4, 5], and its relationship to the electronic body.

Since Clark and Chalmers launched the theory of the extended mind twenty years ago, the development of computing sciences and digital technologies has been so tumultuous that a deep discussion is needed on the subject. The themes linked to the extended mind have to be taken seriously, because they seek replies that cannot be reduced to the heated polemics that, yet today, characterize the debate which has tried to resize the metaphysical and ontological range of this theory. Taking a stance on the argument means facing the crucial philosophical issues of the mind-body problem, the nature of thought and personal identity, even the opposition between free will and determinism.

Our goal is to show the relevant features of the theory of the extended mind, its implications, compatibility, and to offer the chance to modify it in relation to recent technological developments. These developments not only render the dualism ascribed to Descartes outdated, but they force the embodied mind, making us question the extended mind even further.

The refusal of Dualism seems to be the crucial theoretical point in the debate about the nature of mind and thought. This refusal is an unavoidable step for contemporary theories of the mind; it is their common denominator. However, is it really anti-Cartesians who criticize the extended mind? And once again, using Karl Marx's words, was Descartes 'Cartesian'?

Finally, if the extended mind is placed side by side with the electronic body, the opposition between mind and body as well as the opposition between internalism and externalism loses consistency. Are we confident that the heart of the problem has to be placed outside the cognitive dimension and inside the ethical and juridical dimension - that is to say social - of the existence of the mind and the body, however they are conceived, and within the relationship between minds and within the chance of cooperative knowledge, of which scientific work is the model *par excellence*?

2 WALKING AND THINKING IN THE SHADOW OF DESCARTES

Returning to re-read some of the crucial elements of Cartesian philosophy, totally hidden by the militant opposition to dualism, should help to set up more appropriately the problem of the extended mind, and pose the right questions regarding this theory.

The starting point here is with the *Third Objections* and *Metaphysical Meditations*, the ones that occur between Descartes and Hobbes.

Hobbes wrote : "Correct. For from the fact that I think (…) it can be inferred that I am thinking; for 'I think' and 'I am thinking' mean the same thing. And from the fact that I am thinking it

follow that I exist, since that which thinks is not nothing. But when the author adds 'that is, I am a mind, or intelligence, or intellect, or reason', a doubt arises (…) I might just as well say 'I am walking, therefore I am a walk'. (…) Yet all philosophers make a distinction between a subject his properties and its essences: an entity is one thing an essence is another. Hence it may be that the thing that thinks in the subject to which mind reason or intellect belong; and this subject may thus be soothing corporeal. The contrary is assumed not proved. Yet this inference is the basis of the conclusion which M. Descartes seems to want to establish" [6, p. 128].

Descartes replied: "When I said 'that is, I am a mind, or intelligence, or intellect, or reason', what I meant by these terms was not mere faculties , but things endowed whit the faculty of thought. This is what the first two terms are commonly take to mean by everyone, and the second two are often understood in this sense. I stated this point so explicitly, and in so many places, that it seems to me there was no room for doubt.

There is no comparison here between 'a walk' and 'thought'. 'A walk' is usually taken to refer simply to the act of walking, whereas 'thought' is sometime taken to refer to the act, sometimes to the faculty, and sometimes to the thing which possess the faculty. (…) Now I freely admit that I used the most abstract term I could in order to refer to the thing or substance in question, because I wanted to strip away from it everything that did not belong to it. This philosopher, by contrast, uses absolutely concrete words, namely 'subject', 'matter' and 'body' to refer to this thinking thing, because he wants to prevent its being separated from the body" [6, p. 128-129].

This is only one example of where the disagreement between Descartes' point of view and that of his opponents is clearly stated. Since his interlocutors, for whom he does not feel an aversion, such as that which he feels for Hobbes, or the same compliance he feels for Gassendi, fall into misinterpretation, forgetting that the aim of his work is not to separate mind from body, but to show that the two notions could be conceived as different and separate, although the two aspects are strictly tight in man, Descartes was driven to think about the way he expressed his positions in the *Meditations*. As Margaret Wilson writes, according to Descartes it is clear that: "actual distinctness does not entail actual separateness" [7, p. 189].

Let us be daring here by mentioning Minsky[4], for whom the dimorphism is intrinsic to our models of the world and inspires the basic belief about dualism that, without a homogeneus scientific model of the world which includes mechanical and psychological phenomena, often functions also at a scientific level, engendering doubts and misleading problems. The two-party model of the self is expressed in a conventional way, in the belief of having mind and body as well as free will; these are beliefs that disclose both their endurance and effectiveness in everyday life. One might say that dualism is the way in which common sense shows us how to understand the complexity of the mind.

Descartes insisted on the fact that the term thought as the connotation of the mental is polysemous. In a letter to Arnauld dated July 29, 1648, Descartes wrote that in *Principia Philosophiae* (I §§ 63 e 64) he tried to remove "*ambiguitatem vocis cogitatio*" [8]. As it has emerged through the objections and replies exchanged with Hobbes, the subject as a substance, its features and its acts should be differentiated, which means that *actio*, *res* and *facultas* have to be distinguished even if they are indicated by the same noun, which is *cogitatio*. In the letter to Arnauld, *mens* and *res cogitans* can be distinguished, because *mens* is an eliciting activity of the acts of thought, which means that the essence of mind does not run out in the acts of thought in which its operativity is expressed; *res cogitans* is the subject of all the ways and possible acts of thought, as well as the essence of the body - that is the extension - differs from the ways that it assumes in a variety of figures [9].

We share this recent interpretation which underlines how the Cartesian mind is separated from the body, yet is deeply embodied since - as Descartes expresses to Regius - the mind is not unified to body "per situm aut dispositionem ma per verum modum unionis"[5] [6], erasing each possibility to the 'ghost in the machine' of Ryle.

Cognitive acts "are not forced to populate the stage of a private theatre"[6][9, p.73].This theatre is built and spread out by the Anglophone interpreters of Descartes, from Sellars to Brandom. The human body would remain an animal machine [10] if it were not the embodied mind that differs from the angels' one, because this cannot be embodied. However, the embodied mind is a mind which doubts, understands, affirms, denies, wills and does not, imagines, feels, hates, and loves, in addition to being able to conceive rationally. Thanks to the mind, our living bodies have become ensouled.

It is not surprising that in some crucial letters to Elisabeth, Descartes wrote: "the notion of the union that each always experiences within himself (…) he is a single person who has together a body and a thought" [11, p. 70][7]. This unity allows us to exclude what Anscombe supposed: "How do I know that I am not ten thinkers thinking in unison?" [12, p. 58].

The epistemological questions on the nature of consciousness and the metaphysical questions on the nature of the self must be distinguished exactly within the thought of the author considered an emblem of this identification.

In the XXX article of *The passions of the soul*, the soul is defined as "really joined to all of the body," regardless of the individuation of a place from which it exerts its functions more immediately. In turn, "the body is a unity, which is in a sense indivisible, because of the arrangements of its organs" [6, p.229]. Descartes recalled from *Principia Philosophiae* (II, 14) the distinction between occupying a space and being in a place. The distinction allows him to explain that what does not occupy a space can exert his action in a place, holding a position in the extended matter ("the difference between the terms 'place' and 'space' is that the former designates more explicitly the position, as opposed to the size or shape, while is the size and shape that we are concentrating on when we talk of space")[8] [6, p.195].

The perspective about the mind proposed by Descartes (and mentioned above) can accompany the refusal of the Cartesian myth of the "privacy of the mental," such as Cottingham wrote: "the common complaint that Descartes 'psychologizes' ideas fails to take account of Descartes'own definition of an idea: an idea is not a thought, but the *form* of a given thought (AT VII, p.

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[4] See Marvin Lee Minsky, *Matter, Mind and Models*, M. L. Minsky ed., Semantic Information Processing, Cambridge Mass., The MIT PRESS, (1968).

[5] Descartes to Regius, AT III, 493.
[6] Translation mine.
[7] Descartes, Letter to Elisabeth, June 28, 1643; AT III: 694.
[8] Descartes, *Principia Philosophiae* II, 14; trad. cit. p. 195 AT VIII, 48.

160). What this implies is that an idea is not a subjective item in an individual mind, but rather that it belongs in the intersubjective domain, insofar as two people's thoughts may have the same representational content" [13, p.19-20].

At the end of this itinerary we can also conclude that in Cartesian works the model *per situm* is not, in any case, suitable to the mind, and the defence of the peculiarity of the mind must not be necessarily managed in the perspective of internalism.

3 A GHOST IN THE PHILOSOPHY

The rediscovery of the importance of the Cartesian philosophy in contemporary Anglophone tradition began in 1966 with Chomsky's *Cartesian Linguistics,* and has been carried out by philosophers of mind over the following decades. The E-approaches (embedded, embodied, extended, enacted) developed by Cognitive Sciences fight against Descartes and the idea of the mind as a non-extended matter, which becomes their most relevant polemic goal. These approaches render the body as the central place of every action and cognition in order to overturn the disembodied mind that, for example, according to Lakoff and Johnson [14], represents the heavy heritage that contemporary thought has received by Descartes.

The mind-body problem, as we discuss it yet today, continuously makes explicit reference to the Cartesian expression. The debate is not conditioned by the way Descartes actually sketched out the issue, but by the reception and interpretation of his thought. Following this path, dualism has become both a polemic goal and a philosophical ghost.

The traditional perspective on the mind-body problem shows that the starting relevant point is Descartes' dualism, the idea that there is an ontological difference between mind and body. The aim here is to show that nearly all of the most relevant theories or philosophers of mind refer to Descartes and his philosophical heritage. The proof of this stance are the introductions to Philosophy of Mind: they all face the relationship between mind and body, suggesting innovative paths that put dualism aside.

During the first decades of the last century, in psychology and philosophy, Behaviourism removed the concept of mind, invoking a black box, which is useless. To study human nature means to study the observable behaviour of human beings. Denying the mind, behaviourism bypasses the issue of dualism.

Dualism is also a challenge for philosophers of ordinary language. Among them, Gilbert Ryle, in *The Concept of Mind* (1949) [15], aimed to discuss and redefine the idea of mind. Ryle charged Descartes with the making of the ghost in the machine: a spirit that rules a body which functions like a machine. According to Ryle, Descartes makes a mistake: it is implausible to think myself divided in *res cogitans* and *res extensa,* because I cannot be in split in two parts.

In *Kinds of Minds* (1996) [16], Daniel Dennett, who attended Ryle's classes at Oxford, tries to define the human mind, referring to Descartes at the beginning of his book: "Could it be that all animals except human beings are really mindless robots? René Descartes notoriously maintained this in the seventeenth century. Might he have been dead wrong? Could it be that all animals, and even plants--and even bacteria--have minds?" [16, p. 1].

One year later, in *Being There* (1997) [17], the early reflection about mind and scaffolding, Andy Clark wondered about how to make an intelligent agent. In order to offer an answer concerning what agency and intelligence mean, he recalled Descartes (and Ryle): "All too soon we are seduced by Descartes' vision: a vision of mind as a realm quite distinct from body and world. A realm whose essence owes nothing to the accidents of body and surroundings. The (in)famous "Ghost in the Machine" [p.XI].

In 1998, the manifesto of the extended mind theory contained a reference to Descartes [1]. At the end of their article [1], Clark and Chalmers assigned to language the power to carry on coupling[9] The authors justified the role of language in extended cognition by means of the model of the mind that they challenged: "Without language, we might be much more akin to discrete Cartesian 'inner' minds, in which high-level cognition relies largely on internal resources" [1, p. 18]

The most interesting re-reading of these issues is the one proposed by von Wright, who indicates a non-ordinary reductionist path in order to overtake dualism. Von Wright, recalling Descartes, distinguishes the level of causal interaction from the problem of conceptualization. The conceptual or metaphysical relation between the mind and matter has been thought, according to the forms of materialism, of idealism, or the psychophysical identity theory: "the attribution of mental phenomena to a person depends on a conceptualization of some physical phenomena under the aspect of intentionality. Similarly, one could say that the attribution of qualities to physical phenomena requires a conceptualization of dome mental phenomena *under an aspect of materiality*. (…) This double relationship between 'mind' and 'matter' seems to me remarkable. It is easy to misunderstand it. One could say, exaggerating a little, that the history of philosophy after Descartes it to a great extent the history of these misunderstandings. They traditionally take the form of 'reductions' ore 'false identifications'. There are two main types of such misunderstanding. There is the *materialist* misunderstanding, which reduces the mental to the physical. A modern variant of this is 'classical' *phenomenalism*. (…) Does not rebutting the misunderstandings leave us with a *dualist* position, with some kind of revived Cartesianism? There is the material world and the world of the mental (consciousness, 'thought'), and the two exist, irreducibly, 'in their own right'.

This may be said. But a dualist position, too, invites misunderstanding. There is a temptation to 'substantialize the mind' by analogy with matter. To attribute to the mind a kind of 'shadow existence' as an immaterial and yet *somehow material*, 'ethereal', thing. This temptation is at the root of the question whether there can be such a thing as a 'disembodied mind'" [18, p. 107-108].

Von Wright affirms that the most known complication of dualism is the interaction that reflects itself in the theme of causation in nature; in turn, the similarity is not free of problems; von Wright holds a criterional or semantic position among behavioural phenomena, mental (intentional) phenomena, as well as mental phenomena (sensations) and things and events of the physical world. This is possible because we belong to a community of beings that are able to communicate; but more than this, the community is a linguistic one in which we can conceptualize and distinguish mind from matter. Von Wright's position is a kind of monism, according to which : "the real is, in itself, neither mind nor matter but something 'neutral', out of

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[9] See section 5.

which mind and matter are, somehow, our 'constructions'" [18, p. 109] adding that it is not a third substance, but a position vaguely inspired to Spinoza.

4 IS THERE ANYTHING OUT OF MIND?

During the last century, before the well-known *cognitive revolution*, the discussion on minds and human thinking has already been launched. Alan Turing, the putative father of Artificial Intelligence, wrote in 1948 *Intelligent machinery* [19], considered the manifesto of that rising research field, in which he anticipated the 'imitation game', gave the first hints to build connectionism and some clues to the logic approach to problem solving (after developed by Simon and Newell). Turing (1951) [20] arguing whether a machine can imitate brain's function and wondering about the meaning of making a thinking machine, concludes that "It is customary, in a talk or article on this subject, to offer a grain of comfort, in the form of a statement that some particularly human characteristic could never be imitate by a machine. It might for instance be said that no machine could write good English, or that it could not be influenced by sex-appeal or smoke a pipe. I cannot offer any such comfort, for I believe that no great efforts will be put into making machines with the most distinctively human, but non-intellectual characteristics such as the shape of human body; it appears to me to be quite futile to make such attempts and their results would have something like the unpleasant quality of artificial flowers. Attempts to reproduce a thinking machine seem to me to be in a different category. The whole thinking process is still rather mysterious to us, but I believe that the attempt to make a thinking machine will help us greatly in finding out how we think ourselves" [20, p. 486]. Then, only mind is at the stake. One of the keys to unlock the question is the concept of machine, admitting that the comparison between a machine and the human mind is powerful but the results are not clear, because we do not completely know how human machine works. Working in the so-called GOFAI or classical symbolic cognitivism, Newell and Simon affirm that human minds are machines, systems, such as computers, that can manipulate symbols. Precisely, "mind is a system that produces thought, viewed at a relatively high level of aggregation [...] The primitives of the mind are symbols, complex structure of symbols, and processes that operates on symbols" [21, p. 23]. Machines and computers as well as human minds "have been thinking 'logically' and they have been thinking 'intuitively' – even 'creatively'" [21, p. 38].

The aim of those perspectives within Artificial Intelligence (and classical Cognitive Science) is to reproduce human thinking by the means of a machine, that is the way the well-known metaphor of computer spread out, holding an internalist approach to study human nature.

Today, the deepest desire of cognitive scientists is making a complete reproduction of the human mind in order to recreate a human being, including his beliefs and desires, behaviours, and all his cognitive skills. It seems that we are far from predicting human emotions and behaviours, but developments in informatics technologies allow us to memorize, remember, and share more easily, without exploiting our cognitive processes. It seems that memory can rely on features outside our brain and skull, which means outside our body, for example, using cloud platforms such as Google Calendar and other apps.

Philosophers of mind still argue about the relationship between the mind and brain, the relationship between the mind and body, and the relationship between the mind and the external world - which means that they still argue about essential questions concerning mental states and intentionality.

One of the most relevant philosophical perspective about the human mind is functionalism. The basic idea of functionalism is that a mental state plays a precise role, and it is defined by the relationship with other mental states. Furthermore, a mental state causes a behaviour, which means that mental state plays causal role of our actions.

Intentionality, beginning with Franz Brentano (1874) [22], is the feature of mental states to be directed toward something. According to Tim Crane (2016) [23], intentionality is a relation, and the matter of mental content is what distinguishes internalism from externalism. The core thesis of internalism is that the mental content is determined inside our mind; externalism is the view that allows that external world to play a role in the content of our thoughts, which means that these last ideas are not only defined but could also be modified by things outside our mind and skull (Putnam, 1975 [24]; Burge, 1979 [25])[10].

Is the process of memory by the means of Google Calendar a mental one? This is (one of) the challenge(s) of the theory of the extended mind by Andy Clark (and David Chalmers), which will be analysed in depth in the next section.

The philosophical perspective that supports the extended mind is a kind of externalism, which Clark and Chalmers [1] define as 'active externalism': "the relevant external features are active, playing a crucial role in the here-and-now. Because they are coupled with the human organism, they have a direct impact on the organism and on its behavior. In these cases, the relevant parts of the world are in the loop, not dangling at the other end of a long causal chain" [1, p.9]

The claim for active externalism does not exclude functionalism: the extension of the mind is justified by the causal role that external features play during the development of a cognitive process.

What if the place of our mind is not in our skull? If the human mind is extended, cognitive processes do not keep on going only in the brain and body, but rely on the active role of the external world, which includes technological artefacts.

If we are looking for the place of the human mind, we could imagine the making of an intelligent agent, a trick to shed light on intelligence and the features of intellect. The preface of *Being There* (1997) [17] shows clearly the starting point of active externalism as a philosophical account: without astonishment, following Ryle's critique, the controversial goal is Descartes' dualism: "All too soon we are seduced by Descartes' vision: a vision of mind as a realm quite distinct from body and world. A realm whose essence owes nothing to the accidents of body and surroundings. The (in)famous "Ghost in the Machine" [17, p. XI]. However, since the expression 'being there' also refers to existence, Clark's goal widens toward a metaphysical and ontological perspective that warrants the relationship among the

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[10] Externalism such as philosophical position that explains the relation between mind and the external world, introduced in contemporary philosophy by Putnam and Burge, is very different from positions like Dennett's one. In fact, despite Dennett claims for the role of tools of the external world, they are used to put at the exterior what has already been interiorized, such as language and concepts. See section 6.

body, the mind and the world. This is the ghost Clark must fight: "But what then am I? A thing which thinks. What is a thing which thinks? It is a thing which doubts, understands, [conceives], affirms, denies, wills, refuses, which also imagines and feels" [6, p. 19].

The question about the place of the mind differs from the question concerning the nature of the mind. At last, if our mind is extended, then the concern about its place is nonsense, because of its flexible boundaries.

Every time I need milk, meat, vegetables, and other items, I update my list in my shopping app, and I share it with my husband, who updates the same list, but neither of us knows who will go to the supermarket. The smart-phones and the app are the artefacts we use, which are included in our cognitive equipment. This means that if there were boundaries, the external features we use with a causal role are not outside my mind, they are part of a cognitive system - then, they are inside boundaries: "We use intelligence to structure our environment so that we can succeed with less intelligence. Our brains make the world smart so that we can be dumb in peace! Or, to look at it another way, it is the human brain plus these chunks of external scaffolding that finally constitutes the smart, rational inference engine we call mind. Looked at that way, we are smart after all—but our boundaries extend further out into the world than we might have initially supposed" [17, p. 180].

External scaffoldings, an explicit tribute to the Vygotskyan concept, are not only objects. External scaffoldings are not only artefacts, meaning material objects made by human beings for a specific purpose in order to solve a problem. The early Clark claims that the ultimate scaffolding is public language, the tool that agents use in trading spaces exploiting "external symbol structures" exchanging "culturally achieved representation against what would otherwise be (at best) time-intensive and labor-intensive internal computation" [17, p. 200].

The mind extends itself by the means of public language that has the power to offload on the environment and at the same time to reshape human beings' experiences and the external world. This special feature of language makes its nature ambivalent: language is "so ubiquitous it is almost invisible, so intimate it is not clear whether it is a kind of tool or a dimension of the user. Whatever the boundaries, we confront at the very least a tightly linked economy in which the biological brain is fantastically empowered by some of its strangest and most recent creations: words in the air, symbols on the printed page" [17, p. 218].

5 OUTSIDE THE BODY, INSIDE THE MIND?

In 1998, Andy Clark and David Chalmers addressed an innovative view on the mind and its relationship with the environment. The theory of the extended mind challenges individualism, one of the basic ideas of the classical approach of Cognitive Sciences. Individualism is a methodological approach which studies the mind without taking into account the body of the individual and the world around him [26, 27]. Today, the paradigm of the extended mind is one of the most relevant samples of the so-called E-cognition.

"Where does the mind stop and the rest of the world begin?" [1, p.7]. The question is clearly a pretext for supporting the argument that the mind is part of the world, and between the two there is a strong relation that cannot be denied. It is well known that Clark and Chalmers give the first chance to extended cognition, grounding it on the notion of epistemic actions [28], considered as "actions that alter the world so as to aid and augment cognitive processes such as recognition and search" [1, p.8]. However, supporting the extended mind needs to justify the role of external elements in determining mental states. Here is the famous example of Otto and Inga. They desire to visit a museum exhibition. They need to know the address of the museum. Inga recovers the belief of the address of the museum from her memory. Otto, who suffers from Alzheimer's syndrome, recovers the address of the museum from his notebook. "The notebook plays for Otto the same role that memory plays for Inga. The information in the notebook functions just like the information constituting an ordinary non-occurrent belief; it just happens that this information lies beyond the skin" [1, p.13]. This view suggests the externalism about vehicles [23] and the chance that the same content can be realized by different kinds of vehicles. "The moral is that when it comes to belief, there is nothing sacred about skull and skin. What makes some information count as a belief is the role it plays, and there is no reason why the relevant role can be played only from inside the body" [1, p.13].

Obviously, not all the external resources extend to our mind, but only the ones that are "reliably available when needed and used or accessed pretty much as automatically as biological processing and memory" [39, p. 139].

Clark and Chalmers pointed out four criteria to individuate the external resources as part of a cognitive system:

1. The resource is available and not occasionally invoked;
2. Any information has to be more or less automatically endorsed;
3. Any information stored in the resource has been easily accessible when needed;
4. Any information has been consciously endorsed in the past.

Defining active externalism in the previous section, I have stressed on the notion of coupling between human beings and the resources of the external world, which are causally relevant as internal resources, classically situated in our brains. In order to clarify what is a cognitive process, besides coupling, Clark and Chalmers [1] invoke the Parity Principle: "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 cognitive process, then that part of the world *is* (so we claim) part of cognitive process" [1, p. 8].

Parity principle and coupling have been strongly criticized. Adams and Aizawa [29, 30] claimed that Clark and Chalmers' [1] arguments fall in the coupling-constitution fallacy. Given the process X and the cognitive process Y, X is coupled with Y, then X is part of the cognitive process Y. Adams and Aizawa do not deny that X can be coupled to Y, but this does not imply that X constitutes Y. This fallacy concerns the definition of the domain of cognition: it has been highlighted that Clark and Chalmers do not give clues about the distinction of cognitive and non-cognitive processes. As Clark [31] suggests, replying to this critique, the four criteria (mentioned above) answer to the issue and the relevant focus on the external resources is the role they play in "the larger organization of which biological Otto is a part. Then we can ask questions such as: Does the notebook enable this larger system to exhibit the kinds of behavioural regularity characteristic of an individual's disposition, believing that such-and-such?" [31, p. 97]. Adams and Aizawa [29] try to challenge the basic idea of externalism, invoking intentionality.

The authors maintain that cognitive resource is intrinsically intentional, and located in the human brain. One of the answers to this critique involves the difference between intrinsic intentionality and derived intentionality. Since the distinction is not plain, the critique loses its potential strength.

Besides this kind of critique, the model of the extended mind has been widely criticized: Gallagher [32] points out that Clark and Chalmers [1] and Clark's [2, 3] examples concern desires and beliefs, giving the weak suggestion that this is the only nature of cognition. When Clark and Chalmers introduced the label 'extended mind' they were cautious about the chance to consider the extended self. In 2011, Chalmers still held this position, although he considered Hurley [33] and Noë's [34] arguments, claiming an extended mind and an 'internal conscious core.'

After this analysis, there is still an open question: "Where does the mind stop and the rest of the world begin?" The model of the extended mind reshapes the mind-body problem: the bound of the 'thing who thinks' is very thick because it relies on the external world, passing over the skull. The dynamics of the mind-body relation has to be reloaded, including - as Clark [2] affirms -scaffolding, giving birth to the mind-body-scaffolding problem.

6 CLOUD COMPUTING: NEW SCAFFOLDINGS FOR OUR MINDS?

What is at stake within the theory of the extended mind is the classical issue of philosophy of mind about the relationship between mind and body. Although philosophers of mind still begin their arguments by pointing to the dualism of Descartes at the basis of their arguments, here I put aside this question (see sections 2 and 3), in order to provide an account of the role of scaffoldings in this problem, and to argue about the technological scaffoldings we facing currently in our daily experiences.

The tools we use daily are in some way the answer to the precise problems we need to solve. Our needs and desires shape our skill of tool-makers, but—as Clark [2] maintains—once they are used in problem solving, they are considered a part of our minds. The danger is being thrown into a world full of artefacts which invade our mind. The advantage is that the nature of human beings is evolving, thanks to a large variety of cultural and technological scaffoldings, that, in some sense, make us smarter [35]. The danger and the advantage represents the nature of human brains: "What the human brain is best at, is learning to be a team-player in a problem-solving field populated by an incredible variety of non-biological props, scaffoldings, instruments, and resources. In this way, ours are *essentially* the brains of natural-born cyborgs, even eager to dovetail their activity to the increasingly complex technological envelopes in which they develop, mature, and operate" [2, p. 37]. The human condition of being a cyborg is due to our symbiotic relation with technology. Even if some animals deploy instruments, we are the only ones that combine biological and non-biological aspects as problem-solving in a creative way.

It is important to underline that artefacts are not only material objects. In fact, Clark [2, 3, 17] considers words, both speech and writing—whose invention is considered a technological revolution—more than a scaffolding. Words are defined as "problem solving artefacts" [2, p. 70] that "systematically sculpt and modify our own processes of selective attention" [3].

A similar idea of words and language as a mind-tool in the contemporary philosophy of the mind was proposed by Daniel Dannett (1996). Language, specifically conversation, is the tool that helps me if I am wondering if the person in front of me has a mind like mine. The human mind is an anticipatory system that can predict events, and organize future actions according to the past. Recalling a Vygotskyan perspective, Dennett's concept of mind is similar to the function of language. Here the relation between mind and language, "thinking—our kind of thinking— had to wait for talking to emerge, which in turn had to wait for secret keeping to emerge, which in turn had to wait for the right complexification of the behavioural environment" [16, p. 130]. Then, according to Dennett, the ability to offload our cognitive tasks on the environment is not a perspective that extends our minds but a way to use tools in order to modify internal cognitive processes, that is to put at the exterior what is already interiorized.

Today, we use cloud platforms in a lot of our tasks[11]. Let's recall one of our days at work. I have a job that requires meeting many individuals, and I usually do not take note of my appointments, meetings, phone numbers, details, and so on. I deploy Google services to put all the data I need into Google Calendar. Or, because I am too lazy, my secretary does that for me. Then, my secretary shares the updated calendar with me. In turn, I share the calendar with my husband to show updates about our family events. At the end of the work day, my husband and I have an appointment with some friends. One hour before the appointment, I receive an email that reminds me of the appointment. My husband receives the email as well. However, it's late, and we will meet at the restaurant. I don't remember the right place. I search for it on my calendar, and then using Google Maps and GPS, arriving safely. The same happens to my husband. We have the same belief: in our Google accounts, there is the name of the restaurant and its address. It seems likely Otto's belief and behaviour. However, we do not use a notepad, but a non-material, digital archive that does not occupy space. Is this technological artefact an example of an external resource that extends the human mind? We can access the same content (of thought), using the same vehicle. According to the four criteria mentioned in section 5, this kind of external resource is part of a cognitive system. Yet there is a new issue to consider: what I labelled before as a 'same belief' is actually a 'shared belief.' My husband and I are equipped with our (extended) human minds, which overlap one another.

The challenge is to think once again of the mind-body problem, widening the concept of scaffolding. Props, aids, and scaffoldings are a large variety of things: material artefacts, language, technological artefacts, and the recently created "cloud computing artefacts".

"Cloud computing artefacts" are the innovative tools that remind us that "The human mind emerges at the productive interference of brain, body, and social and material world" [3, pos. 4360]. "Minds like ours emerge from this colourful flux as surprisingly seamless wholes: adaptively potent mashups extruded from a dizzying motley of heterogeneous elements and processes" [3, pos. 4376].

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[11] De Bruin and Floridi [37] point out that the first ideas about cloud computing are developed in the Sixties by John McCarthy, one of the fathers of Artificial Intelligence. For an ethical account on business and cloud computing in reference to storage data, see De Bruin and Floridi (2016).

7 AT THE BEGINNING THERE WAS ACTION

As described in the letters to Elisabeth, Descartes' mind-body problem does not totally overlap to the opposition between person and body. The canonical text in which *Consciousness Makes the Same Person* is indeed written by Locke "but though the same immaterial substance, or soul does not alone—wherever it be, and in whatsoever state—make the same man; yet it is plain consciousness, as far as ever it can be extended, should it be to the ages past, unites existences, and actions very remote in time, into the same person, as well as it does the existence and actions of the immediately preceding moment: so whatever as the consciousness of present and past actions, is the same person to whom they both belong" [36, p. 340]

"*Self* is that conscious thinking thing, (whatever substance, made up of whether spiritual, or material, simple, or compounded, it matters not) which is sensible, or conscious of pleasure and pain, capable of happiness or misery, and so is concerned for itself, as far as consciousness extends," [36, p. 341] and "in this personal identity is founded all the right and justice of reward and punishment; happiness and misery, being that, which everyone is concerned for himself" [36, p. 341-342].

The issues at stake would be completely different and they have to shift from knowledge to action.

Additionally, with regard to this perspective, the comparison with Clark's thesis is necessary because new technologies reshape criteria, ways, places, and spaces of the action: "New technologies can alter, augment, and extend our sense of presence and of our own potential for action. Even when they fail, when they reveal themselves instead as loud, abrasive, opaque barriers between us and our worlds, we learn a little more about what really matters in the ongoing construction of our sense of place and of personhood. In success and in failure, these tools help us to know ourselves" [2, p.125].

The self, the person such as at the centre of action and responsibility, such as the subject of imputability (that can be found in Kelsen, for whom, however, this aspect is suitable with the causal legality of the physical world), is threatened by the theory of the extended mind, about which metaphysical range must be minimized. Even if the theory aims to explain how minds develop more powerful cognitive systems through the natural and artificial environments, it does not attack the personal level in which "the most distinctive personal phenomenon is action, our capability to behave in virtue of our reasons. In action there is an essential reference to the system as a whole: its self-interest, well-being, autonomy, happiness, or responsibility. It is this global unity that gives the notion of person its grip" [38, p.74]. Furthermore, this level has a second unavoidable dimension: the social context that fixes limits and conditions of feasibility in terms of practices and values [38, p.77] but, "unfortunately, though, when these phenomena are acknowledged, they are dealt with either in purely functional terms (Dennett, 1978) or in exclusively social ones (Harré, 1984). The former lack the capacity to understand how human action is shaped by the social context in which it takes place. The latter overlooks the nature of computational mechanisms that sustain and distinguish our psychological features, in comparison to other social beings"[12] [38, p. 78]. Certainly the acquisition and the use of language according to their place between nature and society have to necessarily play a crucial role. It is as much clear that, whatever are the instruments deployed to acquire knowledge and expand itself, whatever is its calculating capacity and the faculty of communication and memory that can rely outside thanks to a new concept of mind, the extended mind, along with the notion of the electronic body, cannot avoid the issue of the definition of the 'person' and its interactions with other minds. Rather, the problem of the person stands out exactly due to these technological changes that make plausible the extended mind, but they involve this theory in a metaphysical tangle that is not in Clark's intentions. Sure enough, this does not imply the idea of the distributed mind, but the idea that a plurality of individual minds cooperates in the enterprise of knowledge. The task of the philosophy of mind has been defined by Minsky during an interview : "Our old ideas about our minds have led us all to think about the wrong problems.(…). It seems to me that our first priority should be to understand what makes human thought so resourceful"[13].

Theories like that of the extended mind, and positions like those of von Wright, Minsky or Simon, which we have taken into account, have the merit to thematise the complexity of the thought that a reductionist view does not explain and which can drive us outside of dualism. The problem is to accept all the hints without preventions, considering that the mind, at last, is made of the same matter of which language is made: nature and society.

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[12] Gomilla's reference to Dennett is very interesting, but we think that Dennett's work deserves a more careful analysis, taking into account his complex position.

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[13] The full text of the interview is here: https://www.edge.org/conversation/marvin_minsky-consciousness-is-a-big-suitcase. See also, Marvin Lee Minsky, *The Emotion Machine: Commonsense Thinking, Artificial Intelligence and the Future of Human Mind*, London, Simon & Schuster, 2006 [40].

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