RIFL (2019) SFL: 10-25
DOI: 10.4396/SFL2019I3

Wittgenstein, language and embodied cognition[1]

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Abstract Embodied Cognition (EC) is a 'new' psychological version of an old philosophical idea: human cognition is grounded in sensorimotor experience. According to EC there is not such an entity as abstract and disembodied knowledge, that is, the root of every form of human knowledge is an acting body in the world. In this paper we will try to show that existing extensions of EC to language partly miss the point because do not fully account for the social and normative nature of language. Therefore, a thorough embodied theory of language requires to consider the Wittgenstein legacy, which stresses at least two main points: (a) a complete theory of language is not possible if not embedded in a more comprehensive description of human way of living; (b) the meaning of a word is not an internal and psychological entity but its social use, it is the action we do using that word/tool. In this paper we will comment on some EC literature showing that it needs to be complemented with Wittgenstein ideas on language and mind.

Keywords: Ludwig Wittgenstein, Embodied cognition, Language, Words as tools, Sociality, Linguistic meaning, Homo sapiens

Invited paper.

> What is the *purpose* of telling someone that previously I had such-and-such a wish? – Regard the language-game as the *primary thing*. And regard the feelings, and so forth, as a way of looking at, interpreting, the language-game! (Wittgenstein, 1953, I, sect. 656).

1. Wittgenstein and empirical science?

It is curious how contemporary analytic philosophy forgot Wittgenstein's ideas on language and mind (Tripodi 2009). That could have been quite reasonable when

[1] Some of the ideas presented in this text have been already discussed in *For in Psychology there are Experimental Methods and Conceptual Confusion: From Embodied Cognition to Wittgenstein*, published in A. Capone *et al.* (eds.), *Perspectives on Pragmatics and Philosophy*, Berlin, Springer 2013, pp. 637-647. I would like to thank Anna Borghi for her comments and observations on a first version of this article. Therefore, even if this paper represents the ideas of the author, these could not have developed without the friendship and dialogue with the psychological research of Anna Borghi.

cognitive sciences seemed to be ready to solve some ancient philosophical problems, as the mind–body one: cognitive sciences are based on the radically anti-Wittgensteinian idea of "mentalese", that is, an internal private language. From this premise, no dialogue was possible between cognitive sciences and the philosopher who holds that no language exists that is not social and external. However, the 'new' paradigm [2] of Embodied Cognition holds views somewhat similar to Wittgenstein's ones. In particular the idea that cognition does not exist which is not context-bound, and that language is a form of action (Gallese 2009). But there are still a lot of theoretical points that Embodied Cognition shares more or less unconsciously with 'classical' cognitive sciences: in particular, methodological individualism, and dualism of mind and body (or semantics and pragmatics).

In this paper we should want to show that in order to overcome these and other difficulties it is necessary to come back to Wittgenstein. This article is part of the recent flourishing of studies in which philosophy and psychology work together to develop a more comprehensive view of human behavior, in particular empirical researches which are based on some philosophical concepts of Wittgenstein (Gallagher 2009, Greenleaf 2013, Hutto 2013, Murgiano, Nardelli 2015, Hutto, Satne 2018, Loughlin 2019).

2. Embodied Cognition

Radical embodied Cognition (REC) is as «non-representational, embodied, ecological psychology» as «Fodor's *The Language of Thought* (1975) was [a] rationalist, computational psychology» (Chemero 2009: IX, Shapiro 2019). In fact the point at issue is exactly that of mental representations, which on the contrary was the main conceptual tool of classical cognitive science. Consequently, according to Chemero, one should consider «radical embodied cognitive science as the scientific study of perception, cognition, and action as necessarily embodied phenomenon, using explanatory tools that do not posit mental representations. It is cognitive science without mental gymnastics» (Chemero 2009: 29). This is a very explicit and useful definition, however, it poses immediately a major problem: while REC probably can furnish a viable theory of visual perception, how can such a theory explain the normative and intersubjective character of language? It is not a case that the book of Chemero does not propose *any* theory of how could a language develop from such a radical embodied grounding. In a very short note commenting Fodor's book *LOT 2: The Language of Thought Revisited* (Fodor 2008), he just writes that «I am quite certain that Fodor would hate the cognitive science described here. […] I will point out that it seems to me that Fodor mistakenly believes that cognitive scientists are concerned with issues in the philosophy of language. They are not, and ought not be» (Chemero 2009: 209). The point is not if Fodor is right about REC or if it has to deal with philosophy of language: the point is that a theory of human cognition which do not dispose of the conceptual tools for accounting of the peculiar nature of linguistic entities cannot be defined a theory of *human* cognition and behavior.

Even if, according to Hutto and Myin «some cognitive activity—plausibly, that associated with and dependent upon the mastery of language—surely involves content» (Hutto, Myin 2013: XVIII), nonetheless their Radical Enactive (or Embodied) Cognition (REC) poses itself a similar problem to the one encountered in Chemero version of EC. In fact, when Hutto and Myin face the problem of language, their explicative aim is quite general: «despite the normative language, the intention is to explain representational properties in wholly naturalistic terms—for example, by

[2] In fact Embodied Cognition is a form of neo-Piagetianism which seems ignoring its own origin (cf. Feldman 2008, Carpendale *et al.* 2011).

appealing to standards set by natural selection and by individual learning and training» (Hutto, Myin 2013: 76). This is desirable aim, however it does not explain how is possible to pass from the individual embodied mind to the social mind required to account for the social and normative nature of language (Miłkowski 2015, Cowley, Harvey 2016).

In the less radical version of Embodied Cognition (EC) of Barsalou (a), «cognition is inherently perceptual, sharing systems with perception at both the cognitive and the neural levels», and (b) that there are not «amodal» forms of cognitive representations, that is representations that are «inherently nonperceptual» (Barsalou 1999: 577). EC theory is based on a particular kind of cognitive entity, «perceptual symbol»: «subsets of perceptual states in sensory-motor systems are extracted and stored in long-term memory to function as symbols. As a result, the internal structure of these symbols is modal, and they are analogically related to the perceptual states that produced them» (*Ivi*: 578). «Perceptual symbols» are the building blocks of the whole human cognitive system.

According to EC theory the cognitive process begins with a «perceptual state» which contains «two components: an unconscious neural representation of physical input, and an optional conscious experience» (*Ivi*: 577). However the notion of «neural representation» does not solve the traditional problem that every EC theory encounters, because there are many «neural representations» how many different brains. The usual answer to this problem is that «a perceptual symbol contains only a schematic aspect» of what represents (*Ivi*: 583); however, this solution does not solve the logical problem posed by the individuality of each «perceptual symbol» which is a «record of the neural states that underlie perception» (*Ivi*: 482).

Let's consider the linguistic version of this problem: when someone listens to a word, for example the word "apple", surely a peculiar «neural representation» will correspond to this «physical input». The problem is that if there exist *n* brains there will exist *n* different meanings corresponding to the very same «physical input». In this case, how can language comprehension be possible? There are not *n* different meanings of the English word "apple". Language comprehension is only possible if all speakers of a language use words according to the same rule.

Original EC theory frequently do not take into appropriate consideration the logical problem posed by the contrast between the individuality of «perceptual symbols» and the universality of language use; «like a perceptual symbol, a linguistic symbol is a schematic memory of a perceived event, where the perceived event is a spoken or a written word. A linguistic symbol is not an amodal symbol, nor does an amodal symbol ever develop in conjunction with it. Instead, a linguistic symbol develops just like a perceptual symbol» (*Ivi*: 592). What EC theory wants to rule out is the existence of amodal symbol, that is the very existence of a nonperceptual based form of cognition. But a cognitive entity only which works as an amodal entity can solve the problems we just raised. From this point of view one of the main problems that EC theory has to face is the nature of language: EC theory considers language as a means for expressing internal concepts: «language comprehension can be viewed as the construction of a perceptual simulation to represent the meaning of an utterance or text» (*Ivi*: 605). Linguistic meaning is an internal «perceptual simulation». This is a quite a traditional view, language is an expressive tool which conveys «deep conceptual information» (Barsalou *et al.* 2008: 251).

Therefore linguistic entities are mainly mere vehicles of conceptual information; in this perspective «symbolic operations» are only possible if internal «simulations» are re-activated: «attempting to perform symbolic operations on linguistic forms alone would

be like manipulating symbols in an unfamiliar language, with no true comprehension» (*Ibidem*).
However, in recent years EC started to consider language in a different way, mainly as a social tool (Borghi, Cimatti 2009, Lupyan, Dale 2010, Borghi *et al.* 2017, Borghi *et al.* 2019). In this 'new' perspective, language is considered much more than a simple communicative tool (Lupyan *et al.* 2007). Taking inspiration from the Wittgenstein concept of "form of life" (Ribes-Iñesta 2006), the basic idea is to consider language as the human species-specific form of action. From this point of view the usual distinctions between thinking, acting and speaking are somewhat neutralized, because a linguistic act is now mainly conceived as a complex form of action. In the following parts of this paper, we will try (a) to show how Wittgenstein legacy could deeply improve EC theory on language and mind, (b) to integrate Wittgenstein views with current EC research on language.

3. EC, methodological individualism and dualism

According to classical cognitive science a specific linguistic module exists which only processes linguistic input and output. On the contrary, a very important EC evidence on language is that language processing recruits cerebral motor system (Glenberg, Kaschak 2002, Scorolli, Borghi 2007, Sato *et al.* 2008, D'Ausilio *et al.* 2013). For example, when someone hears a sentence as *Mary kicks the ball* the motor system of the brain, in particular that which controls the foot, is mainly activated. Action verbs used by the utterer are literally understood by the listener through the mediation of his/her foot. According to EC this means that there is no a strong separation between a cognitive module (syntax and semantics) and an executive module (pragmatics); language processing is a form of (more or less mediated) bodily action (Rizzolatti, Arbib 1998, Rizzolatti, Sinigaglia 2006). This is one of the major theoretical points of EC, where it is stronger the proximity to Wittgenstein ideas (Moyal-Sharrock 2013). In particular, the basic idea which can be derived from Wittgenstein is that human cognition is radically embodied from one side; however, such an embodiment extends itself well outside the boundary of the single body:

> it's not enough to model an enactivist approach to perception and cognition on sensorimotor contingencies alone, even if they do play an important role in such matters. There is good evidence that affective and intersubjective aspects of embodiment are also important contributories to perceptual and cognitive processes (Gallagher, Bower 2014: 243).

This perspective mainly focuses on the question of the boundaries of the mind: is cognition an internal (cerebral) phenomenon or is better understood as social linguistic-mediated form of external action?
This a very important innovation compared to disembodied Cartesian view of mind typical of classical cognitive sciences. On the contrary EC stresses the connection between mind and body; there is not such a thing as a mind operating in vacuum. Mind is always situated, in a specific body and in a spatial–temporal context. Nevertheless first versions of EC still belongs to the big 'family' of cognitive sciences, therefore it shares with them their basic and unthought characteristics: cognitive individualism and a persistent and even if concealed form of dualism. Let's take the first point, cognitive individualism. We just observed that when someone hears a sentence like *Mary kicks the ball* the motor system of her/his own brain, in particular that which controls the foot, is mainly activated. It is not too incorrect to maintain that according to EC one

understands this sentence with her/his own foot. The point that EC theorists want to stress is clear and fair but a very difficult problem comes up with such a solution: the brain of such a guy is different from yours, then how can we understand each other? This the classical problem that every theory of language as a bodily activity has to face: how can an individualistic model of cognition account for the social and normative aspects of language (Kiverstein, Miller 2015)? Another problem which is somewhat connected to this one is that of such bodies that have not all the 'normal' bodily capacities: for example, what about if someone is born legless? How can such a different embodied experience match with the embodied experience of those who use the legs (Rietveld 2008)? These two kinds of problem focus on the social and normative nature of linguistic meaning, which is the same for all speakers of a language, while individual representations are always different from those of other individuals. EC model doesn't seem to be able to cope such a problem, which is a logical problem not a psychological or empirical one.
As for dualism, EC holds that putting the notion of action at the very center of its own theory eliminates it, because there could not be any more a mind separated by the body. Actually dualism survives in concealed forms: for example it survives in the distinction between semantics (mind) and pragmatics (body), or between abstract and concrete concepts. The very notion of concept as a separate mental entity should be quite suspect for a coherent and consequent EC theorist. Where are concepts? The usual answer is: they are in the mind. It is not such a big difference if concepts are innate or acquired, the point is the very existence of a special class of mental entities. One can dispute if considering 'concepts' as neural pattern – like it is frequently assumed by EC theorists - really solve the question of dualism and methodological individualism: in fact, such patterns still are internal entities, while a radical embodied theory should get rid of any distinction between what is inside and what is outside the mind (Hutto, 2011, Harvey 2015).

4. The «Natural History» of Rule and Meaning

Wittgenstein, in order to solve the logical problem of cognitive individualism, moves away from minds (together with its own private representations) to «language-games» (Bhushan 2002, Carpendale, Racine 2011, Hutto 2013, Heras-Escribano *et al.* 2015, Pulvermüller 2016). This is not a simple terminological change. Wittgenstein wants us to think of language as a natural behavior rather than a set of explicit rules we have to learn. We have not to teach a child to play: children play, playing is part of our biological nature:

> It is sometimes said that animals do not talk because they lack the mental capacity. And this means: "they do not think, and that is why they do not talk". But—they simply do not talk. Or to put it better: they do not use language—if we except the most primitive forms of language.—Commanding, questioning, storytelling, chatting, are as much a part of our natural history as walking, eating, drinking, playing (Wittgenstein 1953, Eng. Transl.: I, Sect. 25).

A «language game» is not the application of an internal mental rule. The basic idea of this notion is that language is not an external instrument we can or cannot use. We should consider «language games» as peculiar human behaviors, much like walking or breathing. We do not think to how to breathe; the same holds for «language-games». We 'use' language as we 'use' our own foot for walking: there is the same intimacy relation between 'us' and our body as between 'our' minds and the language we speak. We do

not breathe because it is the best way to oxygenate our lungs: we breathe because the body we are breathes. Something similar holds for language: we do not speak because this is the best way for conveying information, we speak because… we speak, because speaking is in our nature. In this sense as playing is self-rewarding, so language use is self-rewarding. «Language-games» notion forces us to completely change the way we used to think of language: much more as a physiological behavior than an acquired set of explicit conventions. The constitutive individualism of cognitive sciences is the first victim of this approach: children can immediately begin playing because a mutual relationship already exists between them. There is no logical need of deciding that they are playing: they play, that's all. First is the playing, the «language game», then the individual players, the individual speakers. Language is not a way for communicating human's private thoughts, language is the common field between them: therefore one has to consider a language-game «the whole, consisting of language and the activities into which it is woven» (*Ivi*: I, sect. 7). What is at stake here is the idea that language cannot be considered apart from the rest of human life: «The word 'language-game' is used here to emphasize the fact that the speaking of language is part of an activity, or of a form of life» (*Ivi*: I, sect. 23). If one wants to develop a thorough psychological theory of language one cannot limit to treat is as a communicative or a cognitive device: it is the entire human "form of life" which directly or indirectly connected to language. This means that speaking is a form of action, that is, a bodily intersubjective relation. Take the case of the linguistic act of naming an object. Such a simple act is not yet an effective linguistic action because it does not have any use in the language game:

> Naming is not yet a move in a language-game - any more than putting a piece in its place on the board is a move in chess. One may say: with the mere naming of a thing, nothing has yet been done. Nor has it a name except in a game. This was what Frege meant too when he said that a word has a meaning only in the context of a sentence (*Ivi*: I, sect. 49).

It is not surprising that the discovery of mirror neurons confirmed Wittgenstein's philosophical analysis: a mirror neuron is a neuron which discharges both when the body whose it is part executes a certain action and the same body sees another body executing the very same action (Rizzolatti *et al.* 1996). Mirror neurons are the physiological bedrock of language (Fogassi, Ferrari 2007, Schilhab 2007, Corballis 2009), they ensure the basic «intercorporeity» (Gallese 2009: 493) which allows the very possibility of mutual comprehension. In «language games» conventions between speakers are of no use, because the departure point, the presumed internal states, are not shared:

> how do words refer to sensations? - There doesn't seem to be any problem here; don't we talk about sensations every day, and give them names? But how is the connexion between the name and the thing named set up? This question is the same as: how does a human being learn the meaning of the names of sensations? - of the word "pain" for example. Here is one possibility: words are connected with the primitive, the natural, expressions of the sensation and used in their place. A child has hurt himself and he cries; and then adults talk to him and teach him exclamations and, later, sentences. They teach the child new pain-behaviour. "So you are saying that the world 'pain' really means crying?" - On the contrary: the verbal expression of pain replaces crying and does not describe it (Wittgenstein 1953, Eng. Transl.: I, Sect. 244).

The fundamental «language-game» of the expression of internal states presupposes, in order to get started, that a natural way exists in which human beings live the experience of pain. An adult does not need to teach a child what to do when he bangs his head against the edge of a table. Without this spontaneous behavior, the entire "language-game" of the expression of pain simply could not begin. It is also necessary that this behavior be, somehow or other, similar in different humans, in the sense that, faced with a person who is crying in pain, for example, human beings react in a manner which is reciprocally recognizable:

> look at a stone and imagine it having sensations.—One says to oneself: How could one so much as get the idea of ascribing a sensation to a thing? One might as well ascribe it to a number!—And now look at a wriggling fly and at once these difficulties vanish and pain seems able to get a foothold here, where before everything was, so to speak, too smooth for it. And so, too, a corpse seems to us quite inaccessible to pain.—Our attitude to what is alive and to what is dead, is not the same. All our reactions are different. […] (*Ivi*: I, Sect. 284).

Wittgenstein writes «reactions» with regard to the pain of others and this is a highly important observation (which, besides, anticipates by many decades the discovery of mirror neurons) A reaction is not learned. It is a form of behaviour specific to the human species: «think of the recognition of facial expressions. Or of the description of facial expressions—which does not consist in giving the measurements of the face! Think, too, how one can imitate a man's face without seeing one's own in a mirror» (*Ivi*: I, Sect. 285). So, without this capacity, which is naturally shared among (normal) members of the *Homo sapiens* species, the «language-game» of the expression of internal states would not be possible:

> now, what about the language which describes my inner experience and which only I myself can understand? How does I use words to stand for my sensations?—As we ordinarily do? Then are my words for sensations tied up with my natural expressions of sensations? In that case my language is not a 'private' one. Someone else might understand it as well as I.—But suppose I didn't have any natural expression for the sensation, but only had the sensation? And now I simply associate names with sensations and use these names in descriptions (*Ivi*: I, Sect. 256).

Let us imagine this case. A child trips and falls to the ground, and feels a certain internal sensation, without, however, this being accompanied by any natural expression. How is it possible for this child to learn to use the linguistic expression, by means of which, in his community, reference is made to that internal state? How is it literally possible for the «language-game» of the expression of internal states to begin? An adult witnesses the episode, and asks him *Does it hurt?* How will the child understand what the adult is talking about? It would be like wanting to teach a cat who is licking a paw hurt in a fight with another cat that what it is feeling in that paw is called, in Germany for example *Schmerz*. How can the child associate the word *Schmerz* with something that he does not even know how to express (notwithstanding it is possible to feel something that one is in no manner capable of expressing). Yet, and this is even more important, the child would not even understand the why of this operation. If it does not come naturally to him to express pain, why should he do it in an artificial manner? What would be the sense of this game? The relation with the other, therefore, does not come about by means of the «language-game», rather, this presupposes a natural relation, not learned and not explicit:

> "what would it be like if human beings showed no outward signs of pain (did not groan, grimace, etc.)? Then it would be impossible to teach a child the use of the word 'tooth-ache'."—Well, let's assume the child is a genius and himself invents a name for the sensation!—But then, of course, he couldn't make himself understood when he used the word.—So does he understand the name, without being able to explain its meaning to anyone?—But what does it mean to say that he has 'named his pain'?—How has he done this naming of pain?! And whatever he did, what was its purpose?—When one says "He gave a name to a sensation" one forgets that a great deal of stage-setting in the language is presupposed if the mere act of naming is to make sense. And when we speak of someone's having given a name to pain, what is presupposed is the existence of the grammar of the word "pain"; it shewes the post were the new word is stationed (*Ivi*: I, Sect. 257).

The «language-game» is not based upon an explicit convention established among its participants because a convention requires the presupposition of something that is not in dispute, and which all preliminarily accept. Otherwise, the discussion could not even begin. Let us suppose that we wish to establish the rule that when pain is felt the English expression *pain* is used. At the same time, it is necessary that everyone knows how to recognize the spontaneous expression of pain on the part of others. Without this natural capacity, it is impossible to be certain that when someone uses the expression *pain*, he is using it in the same manner in which others could use it; for this reason:

> the expression of doubt has no place in the language-game; but if we cut out human behaviour, which is the expression of sensation, it looks as if I might legitimately begin to doubt afresh. My temptation to say that one might take a sensation for something other than what it is arises from this: if I assume the abrogation of the normal language-game with the expression of sensation, I need a criterion of identity for the sensation; and then the possibility of error also exists (*Ivi*: I, Sect. 288).

Wittgenstein 'proposes' to EC a radical shift from the focus on internal mind which was the hallmark of classical cognitive science to a completely externalist model of language and cognition, that is, of human "form of life". One should not to confuse such an approach with behaviorism. Wittgenstein did not refute the very existence of internal states. The point is that according to him such states have no role in explaining the 'functioning' of human cognition and action. A radical EC approach is radically social and situated.

> If I say of myself that it is only from my own case that I know what the word "pain" means - must I not say *that* of other people too? And how can I generalize the one case so irresponsibly? Well, everyone tells me that he knows what pain is only from his own case! —— Suppose that everyone had a box with something in it which we call a "beetle". No one can ever look into anyone else's box, and everyone says he knows what a beetle is only by looking at his beetle. Here it would be quite possible for everyone to have something different in his box. One might even imagine such a thing constantly changing. - But what if these people's word "beetle" had a use nonetheless? - If so, it would not be as the name of a thing. The thing in the box doesn't belong to the language-game at all; not even as a *Something*: for the box might even be empty. - No, one can 'divide through' by the thing in the box; it cancels out, whatever it is (*Ivi*: I, sect. 293).

Wittgenstein naturalistic stance helps us to find a way out from the two problems EC inadvertently inherits from classical cognitive science, individualism and dualism. The basic notion for understanding human language is «language-game», a behavior which is part of human «natural history» and which is naturally social. If we want to understand human language we have to look for in ethology more than in psychology.

5. What is a Word?

The same logical relation holds between an hammer and a nail I want to stick into a wall, and the utterance *I love you* said to the man someone wants to live together. In both cases what the subject have to do requires the necessary mediation of a tool, a physical one in the first case, a linguistic one in the second case. A tool that one has to use according to the social norms that regulate it: as someone has to grab the hammer by its wooden handle, so she/he has to use the linguistic tool *I love you* respecting its use rules and appropriate contexts of use. A tool is not an entity whose use could be arbitrarily established by anyone. A tool is a normative entity: «think of the tools in a tool-box: there is a hammer, pliers, a saw, a screw-driver, a rule, a glue-pot, nails and screws.— The functions of words are as diverse as the functions of these objects. (And in both cases there are similarities)» (*Ivi*: I, Sect. 11). This not so much a new definition of linguistic meaning as a completely different way to conceive language as a way of living: according to Wittgenstein language is neither a cognitive instrument (a way of thinking) nor a means for communicating (a way to express thoughts): it is the peculiar way of living of human beings. As birds fly and fishes swim we talk to each other.

It is still a very unusual way of defining language, but a way that should be very liked by EC theorists. Wittgenstein definition is an anthropological one rather than a linguistic or cognitive one: «I shall […] call the whole, consisting of language and the actions into which it is woven, a "language-game"» (*Ivi*: I, Sect. 7). There is no way, in Wittgenstein analysis, of dividing language from what humans do with it.

In this sense language is the peculiarly human way of acting in the world: «here the term "language-game" is meant to bring into prominence the fact that the speaking of language is part of an activity, or of a life-form» (*Ivi*: I, Sect. 23). The traditional view separates language as set of expressions from the set of things or thoughts these expressions denotate. After Wittgenstein such a separation does not hold any more and the implicit dualism of semantics (mind) and pragmatics (body) fails. For this reason defining language as a means of communicating is so misleading, because it is an unaware reproduction of classical dualism. The traditional view holds that for each word a corresponding thing or thought has to exist, otherwise the word would be meaningless: as one of the main EC theorists asserts «linguistic system» does not «contain […] its own semantics» (Barsalou *et al.* 2008: 250). This is, as we have previously seen, the explicit EC model of language. But such a model simply does not apply to actual uses of language:

> let us first discuss this point of the argument: that a word has no meaning if nothing corresponds to it.— It is important to note that the word "meaning" is being used illicitly if it is used to signify the thing that 'corresponds' to the word. That is to confound the meaning of a name with the bearer of the name. When Mr. N.N. dies one says that the bearer of the name dies, not that the meaning dies. And it would be nonsensical to say that, for if the name ceased to have meaning it would make no sense to say "Mr. N.N. is dead" (Wittgenstein 1953, Eng. Transl.: I, Sect. 40).

A word simply it is not significant because a thing it is attached to it; the dualistic relation of reference does not explain the meaning of a word. The whole semantic value of a linguistic entity coincides with its anthropological value, that is, its use into a community: «every sign by itself seems dead. What gives it life?—In use it is alive. Is life breathed into it there?—Or is the use its life?» (*Ivi*: I, Sect. 432). Wittgenstein proposes a radical de-psychologization (in the sense that 'psychological' entities are not entities 'inside' the mind, but are always external and social actions) of the notion of meaning, that is, he proposes to consider meaning as not separable by what we do when we use language in everyday life: «for there isn't anything hidden—don't we see the whole sentence? The function must come out in operating with the word. [(Meaning-body.)]» (*Ivi*: I, Sect. 559). There is no more meaning on one side (the mental or psychological one), and use on the other, and other similar couples as signal and content, inner and outer, semantics and pragmatics: there is only «meaning-body», that is, language in action. As we have previously seen this is a view of language that is more similar to an ethological than a psychological one.

From this premise Wittgenstein arrives at a strong conclusion: «for a large class of cases—though not for all—in which we employ the word "meaning" it can be defined thus: the meaning of a word is its use in the language. And the meaning of a name is sometimes explained by pointing to its bearer» (*Ivi*: I, Sect. 43). This is not a new conception of semantics rather the elimination of the very notion of meaning as an autonomous mental/internal entity: from now on there is no more place for the independent existence of semantics as a distinct component of human cognitive architecture. A view that is very sympathetic to EC theory, because it highlights the basic idea that language is an action that is, that there is not such a difference between linguistic meaning and linguistic deed.

6. For a social EC

Wittgenstein proposes a radical changing in our way of conceiving language. According to him language is neither a means of communicating nor a cognitive tool (Mirolli, Parisi 2009). It is obviously true that language is both of them but its very nature is neither the first nor the latter one. Wittgenstein tries to see language with a fresh look, getting rid of the traditional categories through which we used to conceive it. In particular Wittgenstein doesn't want to see language through the glasses of communication. If we stop thinking to language as an expressive tool we are forced to find completely new categories to conceive it. EC is on the road of such a change, but its cognitivist inheritance prevents it to fully realize it.

Wittgenstein proposes a radical shift in respect to the classical way cognitive science considers language. Usually language is seen as an expressive phenomenon, that is as a vehicle for communicating outside the mind its internal thoughts. In such a conception, language is nothing but a useful external device. The other usual conception considers language as an internal cognitive device, that is as a means for thinking more than communicating (Nelson 1998, Gentner, Goldin-Meadow 2003, Majid 2018). Both views are somewhat adequate, however they both underestimate the role of language as the species-specific human "form of life". There is not the human mind on one side, and language on the other side. From the very beginning of human development the human animal lives deep inside a linguistic environment (Lo Piparo 2003) which more or less directly pervades all its mental and bodily capacities. Therefore the basic EC idea that language is an action should be interpreted as a way to neutralize the usual distinction between mind and body, that is, between the internal and the external:

> Our mistake is to look for an explanation where we ought to regard the facts as 'proto-phenomena'. That is, where we ought to say: *this is the language-game that is being played*.
> The point is not to explain a language-game by means of our experiences, but to take account of a language-game (Wittgenstein 1953, Eng. Transl.: I, sects. 654-655).

Mirror neurons discovery pave the way for this completely different approach to the comprehension of language. In many nonhuman animals mirror neurons system allows the establishing of mutual relations between them. The idea is that language is the human transformation of such a system which establishes a species-specific sharable space between us: language is based on a «intercorporeity» system, a «mandatory, pre-rational, non-introspectionist functional mechanism» which permits to each of us of establishing a relation with others, a common space that «is therefore not necessarily the result of a willed and conscious cognitive effort, aimed at interpreting the intentions hidden in the overt—and supposedly intentionally opaque—behavior of others, but rather a basic functional mechanism of our brain» (Gallese 2009: 493). If language is not a simply means of communicating, the dualism of mind and body, semantics and pragmatics, content and vehicle vanishes. Words are no more intended as mere signals of internal and private entities, rather as gestures, that is, a unitary entity. The point at issue is to develop an EC where the social and normative nature of language is not the result of a simple sum of the individual bodies/minds. This is the main problem of EC theories in respect to language: the *normative* character of a linguistic entity is independent from the embodied schema that represents it in the individual mind. Such a gap between the individual body and the radically social nature of language is where Wittgenstein can help EC to develop a better theory of language (Borghi, Binkofski 2014).
From this point of view the classical distinction between the so-called concrete and abstract concepts also could be abandoned or at least redefined (Barsalou *et al.* 2018). According to the received view a concept is abstract whether it is not connected to some previous embodied experience; it is concrete in the other case. Such a distinction seems natural if one considers only the individual bodily experience: in fact is very different to make experience of a bottle in respect of the experience of being free. However, from the language point of view, the meanings of the English words "bottle" and "freedom" are both normative and intersubjective entities. That is, they are both 'abstract', because their meaning do not rely on the individual experiences of the speakers who use them (Borghi, Cimatti 2012, Borghi *et al.* 2013). One has to keep separate the individual and bodily process of acquisition of words, from the social and normative character of their linguistic meanings.
This is a widespread EC's idea on language: «attempting to perform symbolic operations on linguistic forms alone would be like manipulating symbols in an unfamiliar language, with no true comprehension» (Barsalou *et al.* 2008: 251). This is the major theoretical limit of EC: by itself a word is just an empty envelope for conceptual meaning. But if all words are intended as bodily tools, as particular way of acting in the world, then there is no more theoretical reason to distinguish between abstract and concrete concepts. Each linguistic act is a meaningful gesture:

> it is like looking into the cabin of a locomotive. We see handles all looking more or less alike. (Naturally, since they are all supposed to be handled.) But one is the handle of a crank which can be moved continuously (it regulates the opening of a valve); another is the handle of a switch, which has only two effective positions, it is either off or on; a third is the handle of a brake-lever, the harder one pulls on it,

> the harder it brakes; a fourth, the handle of a pump: it has an effect only so long as it is moved to and fro (Wittgenstein 1953, Eng. Transl.: I, Sect. 12).

As there is no intrinsic reason to distinguish between abstract and concrete tools, the same holds for gesture-words: there are tools that directly affect the world, and there are tools that require a longer path to reach their goal. In this perspective language becomes a form of social action: «to imagine a language means to imagine a life-form» (*Ivi*: I, Sect. 19). Understanding a language does not require referring to a particular psychology or semantics, rather to live in a certain way. This is not equivalent to sustain that we should prefer pragmatics over semantics, but that we should give up in separating human mind from its behavior. The very distinction between semantics and pragmatics it is nothing more that a semiotics variant of the classical metaphysical distinction between mind and body. Wittgenstein pushes us to come out from this tradition, when he compares the process of language comprehension to that of music comprehension:

> understanding a sentence is much more akin to understanding a theme in music than one may think. What I mean is that understanding a sentence lies nearer than one thinks to what is ordinarily called understanding a musical theme. Why is just this the pattern of variation in loudness and tempo? One would like to say "Because I know what it's all about." But what is it all about? I should not be able to say. In order to 'explain' I could only compare it with something else which has the same rhythm (I mean the same pattern). (One says "Don't you see, this is as if a conclusion were being drawn" or "This is as it were a parenthesis", etc. How does one justify such comparisons?—There are very different kinds of justifications here.) (*Ivi*: I, Sect. 527).

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