

Phenomenology and pragmatist conceptions of cognitive science

Introduction

The traditional cognitivist and representationalist approach to perception, action and mind of the early XX century has been challenged by two different philosophical and scientific traditions (continental phenomenology and cognitive science) in the late XX and in the XXI century. Similarly as post-analytic philosophers and cognitive scientists reacted against the cognitivist, formalist and semanticist paradigm of Fodor and the GOFAI theoreticians, phenomenologists in the continental tradition reacted against the intellectualist influence of Husserl, the so-called ‘father of phenomenology’. Husserl’s intellectualism and Fodor’s cognitivism share a common commitment based on the idea that dealing with the world is a fully representational task. Facing this, a new wave of phenomenologists and cognitive scientists endorse an embodied, situated and antirepresentational approach to bring back the embodied-embedded nature of perception and action grounded on the idea that agents start to engage with the world in a non-abstract, practical and dynamical way.

1. Reactions to Husserl: From ‘Noema’ to ‘Life-world’

1.1 Filtering the World

Fodor’s project¹ tries to make sense of meaning, including public meaning, ultimately in terms of the manipulation of language-like representations by our mind. This section looks at

¹ See Fodor (1975, 1987)

a similar attempt launched from a radically different context. Husserl's philosophy proceeds by bracketing the subject and the world in an attempt to recover them in a non-Cartesian form out of the essential or ideal objects that immediately appear to our consciousness.

Parallel to Fodor's difficulties, we will point out that Husserl can, at best, offer insight concerning a certain way of understanding some features of the mind. Or, to phrase it differently, both their philosophies can be used to make sense of some human activities, but they are far from giving an account of world-involving activities, and hence do not stand by themselves. We cannot make sense of practice as taking place *in* the world and experience as being *of* the world if we start from a conception of the mind that understands the dealings between mind and the world as indirect and filtered.

Our discussion of Husserl will be brief. We will start by briefly outlining the problem with which Husserl tries to deal, and with an account of the evolution of his thinking as a response to the difficulties that his model had to face. Then we will highlight the powerful criticisms of Merleau-Ponty, Heidegger and Ortega y Gasset. The following section focuses on yet another perspective on similar problems: the discussion of representationalism within cognitive science.

1.2 Intentionality, the Mark of the Mental

Brentano is famously known for the idea that intentionality is the mark of the mental. Mentality is defined in terms of its being directed at something, in terms of its "aboutness". Nevertheless he fought to avoid the interpretations of his ideas which took him as saying that intentional objects are objects in our mind. The objection to such a reading is clear: when somebody thinks about Tom Waits, she thinks about *Tom Waits*, not about her *idea* of Tom Waits. This objection led him to consider that intentional objects are real, full-fledged, physical objects. Nevertheless, the fact that our thought can fail to be directed to

any particular object, forced him to hold that intentional objects can sometimes have the property of non-existence².

A world populated by objects with such properties is not a nice dish for any philosopher, and Husserl wanted to avoid this Platonism, common to many of his contemporaries, such as Meinong, Brentano and early Frege, while at the same time keeping Brentano's understanding of mentality in terms of its intentionality. He introduced the notion of 'noema', which refers to an intermediate entity between the subject and the object, in order to handle Brentano's problems. The notion of noema helps Husserl to retain the directedness of mental phenomena while solving the difficulty of non-existing objects. This directedness is not accounted for in terms of an object towards which the act is directed, but in terms of a certain structure of our consciousness when we are performing an act. This structure, introduced by Husserl, is the noema and helps him to explain the directedness of mental states without reference to the objects towards which they are directed, given that sometimes there are no such things. But even on these occasions our mind retains its intentionality, because it acts *as if* there were such objects. Husserl appeals to the noema to explain this "as if".

1.3 Husserl's Phenomenology

Phenomenology, for Husserl, is the fundamental philosophical science, the path to recover the access of our consciousness to the things themselves by means of that which is immediately given to consciousness. For this purpose, the phenomenologist should renounce all interpretative violence, all assumptions. Things themselves are won back by eliminating the layers of sense imposed by philosophy and science. Things are stripped of their logico-conceptual clothing, because what we aspire to know of things is not their accidental appearance, but its ideal content, captured in an immediate vision.

We can distinguish three stages in Husserl's phenomenology. The first stage, which can be called 'Phenomenology of essence

² see Føllesdal (1982), pp.31-2

or *eidetic*', emerges as a consequence of Husserl's attack on psychologism (of which he has been guilty in earlier writings). One cannot explain reason in terms of something that is not rational, such as a person's psychical constitution. But the truths of logic are self-evident, and not merely rules of correct thinking. «Psychology, it is said, deals with thinking as it is, logic with thinking as it should be. The former has to do with natural laws, the latter with the normative laws of thinking»³. Psychologism confuses 'evidence' with 'feeling of evidence', and this category confusion can be avoided by distinguishing between the individual "psychical act" of thinking ('noesis') and the "objective content" of the thought ('noema'). The fact that consciousness is always consciousness *of* something is what makes it intentional. For early Husserl, these "somethings" are essences (*Wesen*), and all truths, independently of our knowing them or not, belong in this realm⁴. The transition between *eidetic* phenomenology and 'transcendental phenomenology' happens when Husserl realizes that the object, the essence, has only been shown to exist *in* consciousness, and not *for* consciousness.

The appeal to consciousness in the explanation of the constitution of objects leads Husserl to claim that his philosophy moves into a new ambit, with a new method: the philosophical method is now understood in contrast with the natural method⁵. The philosopher must not ask about the facts, but about their possibility, about how knowledge is possible. The return to consciousness is achieved by means of the 'phenomenological reduction'. This has three phases. The first phenomenological reduction, the 'gnoseological reduction', aims at eliminating naive realism. It puts into question the world of objects, even those of the natural sciences, the ego itself as existing as an entity in the world, and the mental acts of this ego. We are

³ Husserl (1900), p. 92.

⁴ see Husserl (1900), pp. 52ff.

⁵ see Husserl (1907), pp. 14-15.

searching for what is gnoseologically valid, and we only keep what is immanent to knowledge, the pure phenomenon⁶.

The second phase of the phenomenological reduction, the eidetic reduction, brackets not only what is transcendent with respect to the cogito, but also all that is not “absolutely given” to “the pure intuition of essences”. If phenomenology is a science of essences, it cannot allow for understanding to fall into mistake, and it should convert it into pure intuition. That is, according to Husserl, the possibility of knowledge has to be reconstructed using as an starting point «as little interpretation as possible, but as pure an intuition as possible (*intuitio sine comprehensione*). In fact, we will hold back to the speech of the mystics when they describe the intellectual seeing which is supposed not to be a discursive knowledge»⁷. This last statement could be misleading. In trying to rebuild the relationship between our knowledge and the world, Husserl avoids starting from discursive knowledge. Nevertheless, its non-discursive character does not make it less abstract and formal. This will be the ultimate cause for the failure of Husserl’s program: the impossibility of recovering the concreteness and practical openness to the world of our experience.

This difficulty is particularly manifest in Husserl’s problems in dealing with the correlation between noesis and noema. In order to achieve this, a third (transcendental) reduction is needed. Here noesis and noema are reduced to their ultimate, absolute and atemporal grounding; pure consciousness. The task of phenomenology is, after these successive reductions, to show how the world emerges from this consciousness. This task opens the second phase of Husserl’s philosophy, which can be called transcendental phenomenology.

What we are left with after the suspension achieved through the three phenomenological reductions is consciousness, which has its being independently of the things which are understood in reference to it. Consciousness is unique in not being reached

⁶ see Husserl (1907), p. 34.

⁷ Ivi, p. 50

by the phenomenological exclusion. It is 'intentional consciousness' and in it and by means of it is the world always present. The world of objects is no more than the intentional correlate of consciousness. Its being consists of being constructed and unified by consciousness on the basis of the multiplicity of its appearances.

The intentional character of consciousness implies that there is something which is different to it, something which is given to us in consciousness as being. Objects do not appear in isolation, but integrated in one medium. Prior to any concrete knowledge the world announces itself as the ground on which our passive and universal belief in its existence rests. However, the certainty of its existence has a merely presumptive character. The world as the horizon of all objects of experience is a necessary counterpart to consciousness and it enjoys the latter's apodictic certainty. This certainty has the character of a belief because it cannot explicitly be the object of knowledge. This proto-transcendental distinction between explicit knowledge and necessary prior belief characterizes the last stage of Husserl's philosophy, the 'existential phenomenology' which he developed in the thirties as a response to Heidegger's criticisms of his earlier ideas. Husserl distinguishes between the realm of things, i.e., of essences intelligible in themselves, with respect to which our acts of knowing are true inasmuch as they capture those essences, and the realm of truths in themselves. We know that we grasp a truth in itself through evidence, i.e., when the object is given to us, when there is correspondence between what is given and what is thought. Evidence comes down, ultimately, to the presence of the object. This object is not necessarily the state of affairs expressed in a judgement. Judgement ceases to be the only place of truth. In the final phase of his thinking, Husserl sees the problem of truth as transcending the spheres of logic and the theory of knowledge. The notion of presence cannot now be reduced to mere discursive knowledge, which defines only one of the modalities of presence. The notion of "antepredicative evidence" captures

the idea that judgement presupposes a given object prior to judgement.

Husserl opposes 'objectivism' to 'transcendentalism'⁸. The former attitude rests on that which is already given in experience and asks for what is unconditionally valid, for objective truth, for the world in itself. In contrast, transcendentalism searches for the essence of what is given, rather than taking it for granted, and sees it as a subjective configuration, a product of the life of experience, of the pre-scientific life. Objectivism is the counterpart of the philosophical attitude, and transcendentalism of the natural attitude, but now the duality of attitudes is not seen, as in his earlier work, as a duality between objects already embraced by our cognitive structure versus an attitude which tries to unclothe objects of such imposed structure, but rather as a duality between a perspective which places objects in the nets of theoretical, propositional judgements, and a perspective which takes them to be primordially involved by our practical encounter with them. The objectively true world of science is already grounded in the prescientific life. Science is a human enterprise which, both historically and as individually learned, takes for granted the surrounding life-world (*Lebenswelt*), given previously as being for everyone in common⁹. The life-world is already there always for us, and operates as the ground which makes all practice possible, be it theoretical or not. Living, for us, is always living in the certainty of the world, which is given to us as a necessary horizon¹⁰.

1.4 Reactions to Husserl

Heidegger and Merleau-Ponty develop their philosophy in explicit opposition to the Husserlian insistence on the philosophical priority of the analysis of the representational content of isolated intentional states. After a long period trying to analyse the components of the noemata of everyday objects,

⁸ cfr. Husserl (1934-37), pp. 68-69.

⁹ cfr. Husserl (1934-37), pp. 128-130.

¹⁰ cfr. *ivi.* pp. 150 and 155ff.

Husserl found himself having to include more and more of the commonsensical understanding of this everyday world by the subject. Phenomenology, he concluded by the end of his life, was an infinite task¹¹. Merleau-Ponty is particularly sharp in pointing out the tension between Husserl's essentialist aspirations and his realization, in the final period of his work, of the irreducibility of the world as it is lived.

Phenomenology is the study of essences; and according to it, all problems amount to finding definitions of essences: the essence of perception, or the essence of consciousness, for example. But phenomenology is also a philosophy which puts essences back into existence, and does not expect to arrive at an understanding of man and the world from any starting point other than that of their 'facticity'. It is a transcendental philosophy which places in abeyance the assertions arising out of the natural attitude, the better to understand them; but it is also a philosophy for which the world is always 'already there' before reflection begins—as an inalienable presence; and all its efforts are concentrated upon reaching a direct and primitive contact with the world, and endowing that contact with a philosophical status. (...) One may try to do away with these contradictions by making a distinction between Husserl's and Heidegger's phenomenologies; the whole of *Sein und Zeit* springs from an indication given by Husserl and amounts to no more than an explicit account of the 'natürlichen Weltbegriff' or the 'Lebenswelt' which Husserl, towards the end of his life, identified as the central theme of phenomenology, with the result that the contradiction reappears in Husserl's own philosophy¹².

Heidegger's efforts in *Being and Time* are directed towards showing that the only basis on which abstract signification (such as Husserl's noemata or the objects of science) can be understood is the interconnected totality of abilities and social practices. Merleau-Ponty also aims at showing that the scientific approach to explaining and analysing man and his place in the world depends on, and cannot challenge, the world as

¹¹ see Dreyfus and Hall (1982^b), pp. 20ff.

¹² Merleau-Ponty (1945), p. VII

immediately lived and experienced. Science, and with it philosophy such as it is understood by Husserl, cannot have the same status as our direct encounter with the world, because ultimately its aim is explaining that world that we encounter.

The reality of the world cannot only depend on the internal coherence of the “representations” of the world by the subject of experience. Otherwise we would have to face a constantly changing world, and we would be forced to reconstitute to reality the phenomena that we have previously excluded from it. In short, the world we lose through phenomenological reduction cannot be regained. As Husserl recognized (1934-7) the *cogito* can only discover itself as situated, and only *en situation* can the transcendental subject have access to intersubjectivity. The subject is not defined by the consciousness of her existence (the certainty of the world is not a certainty of the thinking of the world—*de la pensée du monde*) but by her living her existence. In parallel to this «[t]he world is not what I think, but what I live through (*c'est que je vis*)»¹³.

The most important lesson from Husserl's reduction, as he admitted late in his life¹⁴ is the impossibility of its completion¹⁵. A complete reduction would be possible only if we were originally separated from the world; if we, in Merleau-Ponty's words, were only mind. But given that we are in the world, no thought can embrace all our thought without accepting the reality of such a reference to the world. Husserl's eidetic reduction aims at making the world appear such as it is before we return to ourselves, and at equating reflection with the irreflective life of consciousness. But any attempt to give a foundation to this evidence in terms of the absolute clarity and evidence of thoughts would be unfaithful to our experience of the world. The evidence of perception is not the evidence of *adequatio*, apodictic evidence. The world as we think it cannot be considered to be metaphysically prior, on pains of not making

¹³ Merleau-Ponty (1945), pp. XVI-XVII

¹⁴ see Husserl (1934-37)

¹⁵ see Merleau-Ponty (1945), p. XIV.

sense of the world as we live it. Merleau-Ponty puts it by saying that we are open to the world, but that we do not possess it; it is inexhaustible, and we experience it as such.

Merleau-Ponty's rejection of the idea of pure, uncontaminated thought, is based not only on the problem of recovering the world once we have detached our thought from it, but more importantly on the realization that a separation of thought from its history and its body is in many senses counterintuitive. A theory which both goes against our primitive intuitions and has such undesired consequences is, certainly, in need of being reconsidered¹⁶.

For intellectualism, reflecting is distancing or objectivising sensation and confronting it with a subject without content [...]. In so far as intellectualism purifies consciousness by delivering it of all opacity, it makes a genuine thing out of the *hylé*, and the apprehension of any concrete contents, the coming together of the thing and the mind, becomes inconceivable¹⁷.

Husserl's influence on Ortega y Gasset was as powerful as it was on Merleau-Ponty. However, Ortega thinks that Husserl cannot avoid idealism when he reduces phenomenological analysis to a *pure* transcendental analysis of the constitution of objectivity. The pureness and isolation to which Husserl condemns consciousness means not only that it is separated from activity, the corporality which gives it sense, and is made merely contemplative, but also that in fact what it contemplates is not reality, «but only a spectacle [...]. Pure consciousness, “*Bewusstsein von*”, makes a ghost of the world, transforms it into mere *meaning* [...] reduces reality to pure *intelligibility*»¹⁸.

Ortega argues that reflection should start from ‘living thought’, thought which is already established in the world and acquires its being through its activity in it. But it is precisely this thinking located in the world that Husserl suspends. This natural

¹⁶ see Merleau-Ponty (1962), pp. 5-6.

¹⁷ Merleau-Ponty (1945), p. 241.

¹⁸ Ortega y Gasset (1932), p. 62.

or vital character is at the same time the starting point of philosophy and what philosophy aims to explicate. This is why bracketing such a character leads Husserl's philosophy to idealism and prevents it from overcoming Cartesianism as Husserl attempts.¹⁹ Ultimately, in Husserl, reality is constituted

¹⁹ Although in this paper we stress the ideas that Husserl shares with Descartes, it would be just fair to outline the arguments that Husserl developed against certain features of Descartes' approach to knowledge and the ontology of mind. Husserl is sympathetic to the role that the *cogito* plays in Cartesian philosophy, but he also claimed that Descartes himself didn't apply the skeptical method properly; instead, he defended a sort of radical (but arbitrary) *epoché*.

Descartes' conclusion is well-known: while I am doubting about everything, I can reach the conclusion that I can only be sure that *I* am doubting, so that my only certainty is that 'I am'. But this conclusion leads to unsatisfactory consequences (Husserl 1910, 79). The first is epistemological: by degrading experience as mere shadowy and futile knowledge, Descartes separates perceptual knowledge from pure, intellectual knowledge. In doing so, intellectual knowledge would need to have its foundations in the *cogito*, so this kind of knowledge (which starts from the only certainty Descartes possesses) would be the guide for all empirical sciences. If that certainty becomes the foundation of knowledge, we gain a way of building pure knowledge in a world of doubts. But Husserl's critique to Descartes at this point is that he was not taking the skeptical method seriously: doing that would be applying this method to the *cogito* itself. Thus, Descartes just wanted to justify its own personal views on science rather than fully developing a new method and taking it to its own limits.

This idea connects with the ontological conclusion of the *cogito*: there is a substance dualism that exhausts our ontology, the mind is different from the body (and from the rest of the nature). But Husserl (*ibid.*) claims that when Descartes reaches this substance dualism he is separating our minds from our bodies, without any real support for the view. Experience is the way in which the world is shown to the agent *as a whole*, not merely to some special parts of it; this agential perspective of Husserl's is the main insight in favour of rejecting substance dualism. When I face the environment, I do it fully aware of what I am sensing; so it seems that exercising *epoché* implies the presence of the body, not just of the mind. In conclusion, it is not clear at all how separating mind from body can be possible when the world supposedly affects the whole agent and not only its mind.

However, even though Husserl criticized some points of Descartes' philosophy, he also kept some Modern views on experience that can be seen as Cartesian. First, the very idea of *epoché* presupposes certain intellectualist

in consciousness, while, Ortega claims, what is real is my effective encounter with something 'lived', and in this encounter there is no room for reduction or suspension. Intellectual reflection, which in Husserl has a primary character, is dependent, for Ortega, on 'performing / executant consciousness' (*conciencia ejecutiva*) which already "counts on" the world. Intellectual reflection is an extension of the natural world, one of the possible ways of confronting it, and relies on the primordial way, "living" it.

Separating the content of mental states from the surrounding world will lead to an insuperable dualism between thought and the world about which thought is supposed to be. Unless we start our inquiry from the intimate belonging of thought in the world, in life, i.e., unless we think of reason as 'vital reason' rather than as pure, intellectual, reason, we will find our conception of the mind, of consciousness, isolated from what gives it sense. This interdependence between the thinker (a living creature whose life is to be understood historically, as possessed by narratives rather than by substances²⁰) and the world was captured by Ortega's often quoted «I am myself and my circumstances»²¹. Husserl himself, as we have seen, moved in this direction with the introduction in his late work of the notion of *Lebenswelt*.

Ortega's idea that the appropriation of one's circumstances is a precondition for the understanding of oneself (echoing the Kantian understanding of self-consciousness as dependent on consciousness of the world) highlights that the relationship to objects is primarily not one of detached perception, or of detached conception, but a practical one. «[T]hings' were not

assumption (that dealing with the world is an intellectual task), so then there is an extremely *cognitive* way of connecting with the outer world. Second, and more important, we cannot forget that *epoché* is a way of *filtering* the world through the experience, not a way of dealing with the world *in* the world. And an intellectual filter is essentially Cartesian, even within an agential perspective.

²⁰ see Cooper (1990), p. 74.

²¹ Ortega y Gasset (1914), p. 322.

primarily things, but *prágmata*, facilities and obstacles, precisely because the basis of ‘life’ was its *potentia apetitiva*»²². Vital or life-reason is not merely an adaptation, a correspondence to the environment, but it is a complex, dynamical system which includes the environment. The essence of life as narrative (i.e., of human life) is change, assimilation and opening of horizons, and as a consequence he thinks that this is also the way to understand ‘being’, rejecting the “solid”, Parmenidian conception of being which has pervaded the history of philosophy.

An opposition to Husserl’s intellectualist options, together with a deep respect for the method inaugurated by him, characterizes Heidegger’s thought as much as the thought of Ortega and Merleau-Ponty. Heidegger shares with Husserl the central idea that we relate to the world intentionally. However, he thinks that his teacher subjectivizes intentionality by making meanings the components of intentional, inner, mental acts: «The idea of a subject which has intentional experiences merely inside its own sphere and is not yet outside it [...] is an absurdity»²³. While Husserl sees man as an entity defined by its consciousness, Heidegger thinks of human consciousness as one man’s activities, i.e., consciousness is constituted by human practice rather than the other way around. Compare the following quotes: «The wonder of all wonders is the pure ego and pure subjectivity»²⁴; «Man alone of all existing things (...) experiences the wonder of all wonders: *that there is being*»²⁵. On the other hand, Heidegger criticizes Husserl for conceiving of objects as correlates of consciousness²⁶. The problem is that Husserl retains the dualism of subject and object which Hegel started to overcome. He accounts for intentionality mainly in

²² Silver (1978), p. 85.

²³ Heidegger (1927^b), p. 64.

²⁴ Husserl, “The London Lectures 1922”, quoted in Spiegelberg (1994), p.151.

²⁵ Heidegger, “1934 Postscript to *What is Metaphysics*”, quoted in Spiegelberg (1994), p.347.

²⁶ Heidegger (1927^b), p. 21.

terms of this dualism²⁷, and, as a consequence, thinks of knowledge in terms of assertive, objective judgement and of things as the objects of true judgements²⁸.

According to Heidegger, traditional metaphysics, ‘metaphysics of presence’, has tried to analyse the intimate relationship between man and the world on the basis of thinking of them as separated. However, even from the theoretical perspective of the positive sciences which deals with entities, it is patent that there is a pre-eminent being, man, the inquirer (*Dasein*, in Heidegger’s vocabulary)²⁹. According to Heidegger, man relates to the world in a dynamical manner, and not like a mirror which reflects or represents the world. Man is always in the world because the world presents itself to him (or her, of course) in his ‘facticity’, in practice, in activity. The world as it presents itself in praxis is ‘mundane’ (i.e., it presents itself primarily as equipment, available for activity³⁰). Only when the world ceases to present itself as “ready-to-hand” (*Zuhandensein*), i.e., only when the practical flow between our activities and the environment where they take place is broken and the world appears detached from us, or “present-at-hand” (*Vorhandensein*) as Heidegger calls it, the pair human-world seems to coincide with the traditional pair subject-object. But even this partial coincidence is not real. Heidegger argues that consciousness is not fully torn, because it is “always already in the world”. The representationalist or intellectualist myth, the metaphysics of presence, makes the mistake of taking a derivative attitude as the starting point for understanding of our place in the world. This is also the mistake of Husserl, who understands man (*Dasein*) primarily as present-at-hand. The basic understanding of man, Heidegger claims, cannot be that of a “natural” thing, of a thing

²⁷ Ivi, p. 124.

²⁸ Ivi, p. 201.

²⁹ Heidegger (1927^b), p. 32.

³⁰ cfr. ivi., p. 93 and 97-98.

whose essence is to be explicated by its place in objective, theoretical judgements³¹.

As Brandom puts it: «the category of present-at-hand consists of ready-to-hand things which are appropriately responded to [...] *only* [...] [by] assertion»³². And «assertion is derived from interpretation and understanding»³³. Interpretation is to be understood as a practical rather than theoretical activity, but even assertion finds its central significance in communication: «As something communicated, that which has been put forward in the assertion is something that Others can ‘share’ with the person making the assertion»³⁴.

Computation: Syntax and Semantics

Two interrelated themes—syntactic theories of mind and understandings of intelligence which focus on explicit knowledge—have come increasingly under fire. Here we will point out difficulties within a specific field of much contemporary relevance (the theory of computation and its relation to philosophy of mind) which are connected to problems of representationalism. We will review Dreyfus’s criticism of representational theories of mind and their counterpart “GOFAI” (good old fashioned artificial intelligence), which stems directly from the reactions to Husserl which we explained in the previous section. Parallel to this criticism is Brian Smith’s insistence that a theory of computation should give priority to semantics with respect to syntax, and his reaction against computation understood as explicit-rule following. We will briefly look at his work and relate it to the idea that logic should be thought of as an area of pragmatics and not as a syntactic study. We will finish by looking at a more recent paradigm in theories of computation, Artificial Life, which does not share the

³¹ Heidegger (1927^b), p. 28.

³² Brandom (1983), p. 55.

³³ Heidegger (1927), p. 203.

³⁴ Ivi, p. 197.

theoretical commitments of traditional AI, and has proved more promising in areas where the latter was at a standstill.

Dreyfus, in his crusade against the idea that a representationalist understanding of thought can offer a complete account of the mind, has compared Husserl's phenomenology with Fodor's language of thought hypothesis and with traditional artificial intelligence. Western Philosophy stands behind a symbolic information-processing explanation of the mind and some very influential philosophers, such as Wittgenstein and Heidegger, have questioned this tradition and embrace holism while stressing the importance of everyday practices. Traditional philosophy, of which both Husserl and Fodor are part, has focused «on facts of the world while 'passing over' the world as such»³⁵. The main consequence of this passing over the world has been a distortion of the everyday context of human activity.

We have seen in the previous section that, while Husserl conceives of things mainly as objects defined by a set of predicates, Heidegger has explored other ways of 'encountering' them. Comparably, attempts at approaching real-world understanding by means of combining representational 'micro-worlds' (such as Terry Winograd's famous SHRDLU³⁶) presume that a world reduces to a set of interrelated facts. Interrelated facts only acquire meaning, i.e., become a world, in the context of our practices and their cultural settings. A classic example of this difficulty appears in the much discussed 'frame problem' of artificial intelligence. The frame problem is the difficulty of incorporating into a program the huge background of commonsensical, mostly implicit, knowledge about the relevance of certain aspects of the environment that is necessary to execute even simple tasks. An example will do better than more rhetoric: a few years ago one of us found himself in the streets of Galway without the key for his house. He knew that the people that lived with him would not be there by the time he

³⁵ Dreyfus and Hall (1992), p. 318.

³⁶ see Winograd (1972)

went back, so he phoned to ask them to leave a key for him. He talked to a German flatmate whose English was not much better than his at the time and told her “Could someone leave the house key under the mattress”. She left a note for our other flatmates, transcribing literally what he told her. When the other people living in the house, all of them Irish and humourous, read it they laughed and left the key under the *mat*. Practically any English speaker would have done the same. Keys to enter a house are of no use when they are locked inside the house. Speakers, and especially non-native ones, sometimes do not say what they mean, and occasionally do not even know the meaning of what they say. Great efforts have to be made to disentangle what is said from what someone wants to say, and all sorts of presuppositions are at play. But most of them are not explicitly learned, and we know little about how it is that we have them. The frame problem points out that the number of difficulties is indefinite, given that, ultimately, programs have to be endowed with “common sense” and we do not have a clue as to how to encode it. In some particularly restricted cases, normally dealing with “higher” cognitive abilities such as chess-playing, serious success has been achieved, albeit only recently. Chess-playing machines perform at top level by means of an enormous, but limited, number of rules, and, precisely because of the narrowness of their context-sensitivity and their abilities (they are no use at anything else), they escape the frame problem.

The initial optimism in the field of AI, which spread to philosophy of mind by re-legitimizing a mind/body dualism inspired by the software/hardware dualism, itself inspired by Cartesian dualism, is hard to find anymore. Syntactic approaches gave way to (explicit) knowledge-based systems which did not fare much better. Dreyfus, amongst others, has opposed all attempts at reducing “everyday know-how” to “procedural rules”³⁷: if common sense is a skill and skills are based on whole patterns of perception-action relationships and

³⁷ Ivi, p. 325.

not on rules, symbolic representation must be expected to fail in capturing it.

In his Dreyfus and Hall 1982^a, they points out a close relationship between Husserl's early account of intentionality (which I called 'eidetic phenomenology' in the previous section), Searle's claim that language is derived from a more primordial Intentionality, and also the conviction that the phenomenological reduction provides apodictic evidence of the content of present intentional states. Content itself does not have a function to play in making intentionality possible³⁸. However, in the second phase of his phenomenological work ('transcendental phenomenology'), Husserl moves in the direction of a stronger view on intentional content: now, the intentionality of an act cannot be accounted for merely in terms of the act ('noesis') but especially by reference to its content, to the 'noema' associated with the act. The representational content, individually conceived, has a difficult set of aims to reach: to refer, describe and synthesize. This is done by understanding the noema as a hierarchy of rules which allows us to select the ordered set of predicates which determine the appearance of the object.

The job of the phenomenological psychologist is to examine the activity that makes reference *possible* while remaining uncommitted as to whether, in any given case, or even in general, reference is in fact achieved. This abstention, which Husserl calls the *phenomenological epoche* or the bracketing of existence, has, he insists, important methodological implications for psychology³⁹.

Dreyfus and Hall compare the problems that Husserl found in trying to make explicit the components of the noemata of everyday objects with the frame problem⁴⁰. Similarly, Fodor

³⁸ cfr. Searle (1983)

³⁹ Dreyfus and Hall (1982^b), p. 14.

⁴⁰ cfr. above

struggles with the difficulties of relating mental representations (narrowly and then widely individuated) with the world they are supposed to represent.

In his debate with Lenat and Feigenbaum, Brian Smith offers an outline of his conception of computation in contrast to the traditional approach which combines formal symbol manipulation with the presumption that all knowledge, including commonsensical knowledge and *know-how*, can be made explicit. They believe that domain-specific knowledge can be made declaratively explicit and this, complemented with “a little” meta-knowledge, would suffice to move from expert systems to genuine artificial *intelligence*. This project shares essentials with Husserl’s program as outlined in the previous section, and we will argue, with Smith and Dreyfus, that it is destined to suffer a similar breakdown.

We need to analyse the sense in which knowledge (i.e., explicit knowledge) boosts competence⁴¹. By making competence depend on propositional knowledge they are already opposing a very respected tradition of thought which highlights the priority of practice over theory, a tradition which would rather analyse in what sense does knowledge depend on competence. In their view «[the] digital computer has sufficient means for intelligent action; to wit: representing real-world objects, actions, and relationships internally as interconnected structures of symbols, and applying symbol manipulation procedures to those structures»⁴². But, as it is stated by many authors in the previous sections, an account of intelligence or language in merely representational and symbol-manipulation terms cannot make sense of the directedness of thought at the world, and leaves the gates wide open for scepticism. «I worry that a system comprised only of explicit representations would be fatally disconnected from the world its representations are about»⁴³.

⁴¹ see Lenat and Feigenbaum (1991), p. 192.

⁴² Ivi, pp. 193-194.

⁴³ Smith (1991), p. 262.

As we have seen, they assume that the “consensus reality” knowledge can be made explicit by means of a relatively small amount of propositions which the intelligent mechanisms knows. A further assumption is that, given a critical mass of such knowledge, the digital computer (the brain? the person?) can then increase its learning rhythm exponentially and, what is more, develop a method of thinking by analogy, which we could call fuzzy thinking. The thinker would be capable of spotting unexplained similarities across domains and going on to explore further common properties between objects or events⁴⁴. The obvious problem is in the assumption that any number of propositions would be enough to tell apart *relevant* from *irrelevant* similarities⁴⁵. Using a classic example from philosophy of science, no one teaches a lab researcher that the colour of her socks is not a variable which needs taking into account when evaluating an experiment, and if someone did they might be making a mistake because the dye on the socks could, in some peculiar circumstances, affect the outcome of, say, a chemical reaction.

Smith rejects Lenat and Feigenbaum’s understanding of computation on two grounds: their stress on explicit representation, and their syntactic, formal account. We fundamentally agree with Smith’s criticisms of formalism in the theory of intelligence. Both formalist and knowledge-based stories about intelligence share the premise that offering a proper theory of computation will yield a general theory of mind as well as of meaning. Smith, on the other hand, thinks that a proper reckoning of intentionality is needed in order to start the endeavour of rendering an account of computation. Only such a theory of computation, already grounded on semantics, can be of any use to explain the mind⁴⁶.

⁴⁴ see *ivi*, p. 198.

⁴⁵ see also Smith (1991), p.254 for a different statement of the same criticism.

⁴⁶ see Smith (1996), especially pp. 4-13 and 27-76.

Smith highlights the points of departure which his conception of computation has with respect to formalist and knowledge-based conceptions: to mention just a few, Smith rejects the primacy of explicit representations⁴⁷, highlights the use-dependence of meaning and consequentially its holistic character (p.266), and points out the importance of agency and embodiment for cognition (pp.278-81).

The suggestion that we cannot do justice to logic if we think of it as the syntactic manipulation of symbols whose content and use are irrelevant is as refreshing as the insistence that computation cannot be explained in merely syntactic terms. Of course, logical calculi are formal constructions that aim at capturing logical relationships, but logical relationships themselves are not formal. Logic, as opposed to artificial calculi, is the science of implication, which is a relationship between propositions (or between sentences). When we say that “ p implies q ” or that “ q follows from p ” we mean that “if p is true, then q is necessarily true”. The basic notion of logic, implication, is defined in terms of truth and necessity, which are both semantic notions.

It can be replied that the relationship of implication can be alternatively defined in terms of adequacy to the rules of formal calculi. So, we could say that p implies q if there is a rule according to which we can deduce q from p . For instance, $(p \ \& \ q)$ implies q because q can be deduced from $(p \ \& \ q)$ by application of the rule of elimination of conjunction. No mention has been made of truth preservation, nor of necessity. However, the validity of this rule is not established because of its form or syntax but because of its correctness, and correctness is defined in terms of truth preservation: a rule is correct if and only if when applied to true premises, the result is true.

As in the case of computation, it can be argued that abstract models aim to systematize *actual* rational processes (or computational processes), rather than the other way around. A system of logical rules aims at capturing and systematizing what

⁴⁷ Smith (1991), pp. 260-262.

is common to practices of deduction. The idea that practices are answerable to calculi does not do full justice to our intuitions. We heard once a riddle which has impressed us ever since. A boy and his father are travelling by car and have an accident. The father dies and the child is taken to hospital. Once everything is ready in the operating room, the surgeon sees the child's face and says: "I cannot operate, this child is my son". When we heard it first, we could not make sense of it. When we realized that the doctor was his mother, we felt quite embarrassed about our sexist prejudices (we have tried it on women, and some have also failed to overcome such prejudices). However, our point is not confessing sins against feminism, but to claim that one should deduce from the story that the doctor is a woman. This is a perfectly correct deduction, though a pragmatic one. One could talk about hidden premises: everyone has two biological parents, one is female and one male, both can be doctors, most people would prefer not to operate on someone to whom they are emotionally committed, if one of your biological parents dies the surviving one is of a different gender than the one who died, etc. But the fact is that we do not need to appeal to any of these "premises" in order to understand the riddle. We only need to make them explicit in our attempt at formalizing the deduction, not in making the deduction itself.

Philosophy of mind has taken much inspiration from the development of AI. The likening of mind to software and of brain to hardware regained a sort of methodological dualism for post-behaviourists. The syntactic approach to the mind, i.e., the computational theory of mind (but see section II.3.1 above), which was the founding stone of functionalism obtained its legitimacy from the initial success of AI. However, the limitations of these theoretical commitments have made themselves clear not just in the philosophy of mind, but in the field of AI itself. Traditional AI tends to assume that intelligence is to be accounted for in terms of higher cognition, and that higher cognition necessarily uses representations of the world. The programmer is an omnipotent being who stipulates ends and

creates formal abstract models of behaviour such that the program will achieve those ends by means of explicit rules (or more recently, of explicit, propositional knowledge). The ‘artificial life’ (ALife) researcher, on the other hand, normally plays the role of a “teleological natural selector”: from a set of randomly generated programs, those that get closer to performing the given task are selected. For instance, if we want to simulate a robot that has to avoid obstacles while crossing a room in search of a light-source, the programs that would lead the robot closer to its aim are selected, and a new generation of programs is produced by means of mixing the most successful ones and including mutations. The same operation is repeated generation after generation and eventually the programs succeed. Even for the simpler jobs it is extremely difficult, or impossible, to determine how they are performed. However, this method, which does not use representations or maps of the “world”, reaches the apparently easiest goals that have resisted for a long time the attempts of traditional AI. It is interesting that among our actions, those which go unnoticed (to climb stairs, to tie one’s shoelaces, to avoid an object, to walk) are the most difficult to formalize⁴⁸.

The study of intelligence within ALife does not follow the top-down approach of intellectualism. As Rodney Brooks, one of the pioneers of ‘evolutionary robotics’, points out, human intelligence is too complex to break down correctly. Scientific research on cognition should concentrate on simpler forms. When we do this we realize that representations and models of the world are an obstacle rather than an advantage, and that it pays to think of the world as its own model⁴⁹. Skilful movement, acute vision and other abilities that seem enabling conditions for the emergence of intelligence can be studied without any need to postulate representations. Rather than analysing the organism or the robot in terms of a central controller and a series of peripheral systems which depend on the former (such that the

⁴⁸ see Langton (1992) and Wheeler (1996).

⁴⁹ see Brooks (1991)

central system “perceives” and “acts” by means of the latter), Brooks proposes to work on a model in which different layers of perception-action subsystems interact in a complex manner. The account of cognition that this model attempts, unlike the traditional intellectualist one, suggests that behaviour is better understood in terms of differentiated abilities and activities oriented towards particular tasks. Each of them has its own control and sensory prerequisites, and they work in parallel. The world acts as memory, and together with the control mechanisms which co-ordinate the different skills, determines which one(s) of them are executed.

Like behaviourism, Brooks’s program negates the existence of a “ghost in the machine”. But unlike it, he is not afraid of postulating internal structures. An account of cognition in terms of the pair agent/environment escapes the difficulties of explaining how representations hook onto the world. The agent cannot be detached from its embodiment and embeddedness. Taking such detachment as a theoretical starting point is disastrous. «Absolute solitude is on this showing the ineluctable destiny of the soul. Only bodies can meet»⁵⁰.

Conclusion

In the previous sections we argued in favour of showing how the reasoning of post-Husserlian phenomenology is similar in essence to the strategy of A-Life and embedded computation. These similar (and even complementary) advances in both disciplines are useful in order to emphasize the situated and embodied character of experience.⁵¹ Some philosophical

⁵⁰ Ryle (1949), p. 16.

⁵¹ The concept of ‘experience’ is reinforced by an embodied conception of cognition. Embodied cognition or embodiment is a thesis that can be summarized as follows: we need to appeal to our whole body, and not just to our brain, in order to understand our cognitive life (Calvo and Gomila 2008). As we can see, this thesis goes against those views according to which we just need to describe the activity of our brains if we want to describe mental features (Churchland 1986, Bickle 2003). Following embodiment, our mental

projects for re-constructing the foundations of our mental abilities⁵² join the conceptual explanations of post-Husserlian phenomenology with the results and methodology of embedded cognitive science under the same explanatory paradigm. We are sure that this is step in the right direction in order to clarify the nature of our cognitive life.

References

- Bennett, M. & Hacker, P. M. S. (2003). *Philosophical Foundations of Neuroscience*, Malden: Blackwell.
- Bickle, J. (2003). *Philosophy and Neuroscience*, Dordrecht: Kluwer.
- Boden, M. (1996). *The Philosophy of Artificial Life*, Oxford: Oxford University Press.
- Brandom, R. (1983). "Heidegger's Categories in Being and Time", in Dreyfus and Hall (1992), pp.45-64.
- Brooks, R. (1991). "Intelligence Without Representation", *Artificial Intelligence*, 47, 139–159.

states would be attributed not just to our brains alone, but also to the rest of our bodies (this is, to agents *as a whole*). For example, we do not claim that the property of being hungry is just a property of brains or stomachs alone. Of course, without those organs we would certainly not be in a state of hunger (they play the role of a necessary or enabling condition for being in those states), but that differs from saying that being hungry is an exclusive property of those organs (it is not sufficient to possess those organs in order to attribute that estate or property). Thus, our experience of being hungry affects us (agents) as a whole, not just some parts of ourselves. Our brains do not have experiences, *we do*. In this sense, the embodiment thesis would underline the agential and personal perspective that was defended by Ryle (1949) or Wittgenstein (1953) in order to understand experience, and that has been recently vindicated by some authors (Bennett and Hacker 2003) against a purely brain-centered view of understanding cognition. The recent literature on the role of the body and the environment in a proper understanding of experience is vast (for especially influential proposals, see Clark 2008, Gallagher 2005 and 2009, Gallagher and Zahavi 2008, Gibson 1979, Hurley 1998, Lakoff and Johnson 1999, Noë 2004, Noë and O'Regan 2002, Port and van Gelder 1995, Shapiro 2010 or van Gelder 1992).

⁵² Wheeler (2005); Chemero (2009)

- Calvo, P. and Gomila, T. (2008). *Handbook of cognitive Science: an Embodied Approach*, Elsevier Publishers Limited.
- Chemero, A. (2009). *Radical Embodied Cognitive Science*, Cambridge: The MIT Press.
- Churchland, P. (1986). *Neurophilosophy*, Cambridge: The MIT Press.
- Clark, A. (2008). *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, New York: Oxford University Press.
- Cooper, D.E. (1990). *Existentialism*, Oxford: Blackwell.
- Dreyfus, H. and Hall, H. (eds.) (1982). *Husserl, Intentionality, and Cognitive Science*, Cambridge: The MIT Press.
- Dreyfus, H. and Hall, H. (eds.) (1992). *Heidegger: A Critical Reader*, Oxford: Blackwell.
- Dreyfus, H. and Hall, H. (1982b), "Introduction", in Dreyfus and Hall (1982), pp.1-27.
- Fodor, J. (1975). *The Language of Thought*, New York: Thomas Y. Crowell.
- Fodor, J. (1987). *Psychosemantics*, Cambridge: The MIT Press.
- Føllesdal, D. (1982). "Brentano and Husserl on Intentional Objects and Perception", in Dreyfus and Hall (1982), pp.31-41.
- Gallagher, S. (2005). *How the Body Shapes the Mind*, Oxford: Oxford University Press.
- Gallagher, S. (2009). "Philosophical Antecedents of Situated Cognition," in *The Cambridge Handbook of Situated Cognition*, P. Robbins and M. Aydede (eds.) Cambridge University Press, pp. 35–51.
- Gallagher, S. and Zahavi, D. (2008). *The Phenomenological Mind: An Introduction to Philosophy of Mind and Cognitive Science*, New York: Routledge.
- Gibson, J.J. (1979). *The Ecological Approach to Visual Perception*, Boston: Houghton Mifflin.
- Heidegger, M. (1927/1962). *Being and Time*, New York: Harper and Row.
- Heidegger, M. (1927b/1982). *The Basic Problems of Phenomenology*, Bloomington: Indiana University Press.
- Hurley, S. (1998). *Consciousness in Action*, London: Harvard

University Press.

Husserl, E. (1900/1970). *Logical Investigations*, London: Routledge, 1970.

Husserl, E. (1907/1973), *The Idea of Phenomenology*, The Hague: Nijhoff.

Husserl, E. (1934-7/1970). *The Crisis of the European Sciences and Transcendental Phenomenology*, Evanston: Northwestern University Press.

Lakoff, G., and M. Johnson (1999). *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*, New York: Basic Books.

Langton, C. (1992). "Artificial Life", in Boden, pp.39-94.

Lenat, D. B. and Feigenbaum, E. A. (1991). "On the Thresholds of Knowledge", *Artificial Intelligence*, 47, 185-250.

Merleau-Ponty, M. (1945/1962). *Phenomenology of Perception*, London: Routledge.

Merleau-Ponty, M. (1962/1964). "An Unpublished Text by Merleau-Ponty", in Merleau-Ponty, M. (1964). *The Primacy of Perception*, Evanston, Northwestern University Press (pp.1-11).

Noë, A. (2004). *Action in Perception*, Cambridge, MA: MIT Press.

Noë, A., and O'Regan, K. (2002). "On the Brain-basis of Visual Consciousness: A Sensorimotor Account", in *Vision and Mind: Selected Readings in the Philosophy of Perception*, A. Noë and E. Thompson (eds.) Cambridge, MA: MIT Press.

Ortega y Gasset, J. (1914). *Meditaciones del Quijote*, Madrid: Revista de Occidente, 1957 (Obras Completas, vol. I).

Ortega y Gasset, J. (1932). "Preface for Germans", in (1975) *Phenomenology and Art*, New York: W.W.Norton.

Port, R., and van Gelder, T. (1995). *Mind as Motion*, Cambridge, MA: MIT Press.

Ryle, G. (1949/1963). *The Concept of Mind*, New York: Penguin.

Searle, J. (1983). *Intentionality*, Cambridge: Cambridge University Press.

Shapiro, L. (2010). "Embodied Cognition," in *Oxford Handbook*

- of Philosophy and Cognitive Science*, E. Margolis, R. Samuels, and S. Stich (eds.), Oxford University Press.
- Silver, P.W. (1978). *Ortega as Phenomenologist*, New York: Columbia University Press.
- Smith, B. C. (1991). "On the Owl and the Electric Encyclopedia", *Artificial Intelligence*, 47 (1-3), 251-88.
- Smith, B. C. (1996). *On the Origin of Objects*, Cambridge: The MIT Press.
- Spiegelberg, H. (1994). *The Phenomenological Movement*, Dordrecht: Kluwer (3rd edition).
- van Gelder, T. (1992). "What might cognition be if not computation?" *Indiana University, Cognitive Science Research Report*, 75.
- Wheeler, M. (1996). "From Robots to Rothko: the Bringing Forth of Worlds" in Boden (1996), pp.209-36.
- Wheeler, M. (2005). *Reconstructing the Cognitive World*, Cambridge: The MIT Press.
- Winograd, T. (1972). *Understanding Natural Language*, Edinburgh: Edinburgh University Press.
- Wittgenstein (1953). *Philosophical Investigations*, Oxford: Blackwell.

Abstract

In this paper I argue that there is a parallelism between, on the one hand, the reactions of some phenomenologists to the philosophy of Husserl (in particular, Heidegger, Merleau-Ponty and Ortega y Gasset) and, on the other, some recent pragmatist conceptions within the philosophy of logic and the philosophy of the cognitive sciences. Against syntactical, and ultimately Cartesian, understandings of cognition, both fields highlight the intrinsically pragmatic, embedded and embodied character of mind and language.

Keywords: Phenomenology, Pragmatism, Cognitive science, A-Life, Empathy