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FROM NATURAL HISTORY  
TO HISTORY  
THE SCOPE AND LIMITS  
OF EVOLUTIONARY EPISTEMOLOGY AND  
TELEOSEMANTICS  
AS NATURALIST RESEARCH PROGRAMS

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**ABSTRACT.** This paper examines the feasibility of evolutionary epistemology and teleosemantics as naturalistic accounts of knowledge and intentionality. Both constitute a good example of what is called *Philosophical Naturalism*. After considering queries in both theories, we propose a different account in order to naturalize knowledge and meaning. The argumentative line defended is another kind of naturalization, one based on history and not only in natural history. From this point of view, concept fixation and epistemological justification practices are dependent on historical dynamics, not on natural history by itself.

**KEY WORDS.** Evolutionary epistemology, epistemological justification, history, natural history, Philosophical Naturalism, teleosemantics.

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INTRODUCTION

There are two relevant samples of Philosophical Naturalism. In the field of semantics we find teleosemantics, and in epistemology we locate evolutionary epistemology. The two proposals are grounded in evolutionary theory; the former gives an account of mental representation semantics, the latter is presented as an attempt to naturalize knowledge. Both face similar problems. In the following pages, I am not going to defend neither teleosemantics nor evolutionary epistemology; I will simply point out that their main query is precisely their extreme attempt at naturalization which becomes, in addition, partial. I will hold as a conclusion that a full naturalization of semantics and epistemology needs a serious consideration of the socio-historical dimension.

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# 1. EVOLUTIONARY THEORY AND PHILOSOPHICAL NATURALISM

Evolutionary theory has changed undoubtedly our image of science. Many human disciplines, such as psychology or sociology employ evolutionary concepts. Further, evolutionary theory has been exploited in many ways by cultural studies in order to explain changes in mentality or the differences between cultures. Philosophy and related disciplines like history and philosophy of science have not been insensible to this endeavor. Evolutionary theory has had enormous influence in many different philosophical authors and schools from XIX to XX centuries. W. James and the pragmatist school, Nietzsche or K. Popper, constitute some examples of thinkers who were not insensible to the influence of such theory in philosophy. However, there is a core philosophical topic that has been truly influenced by the aforementioned theory epistemology or theory of knowledge. Since the second half of the past century, new epistemological schools have arisen both in Germany and in Anglo-Saxon countries. These schools have devoted themselves to explore the relationship between epistemology and evolutionary theory. This mixture is due to a philosophical emphasis in that the naturalization of reason is far from implausible scientific explanations. In the realm of continental philosophy, and especially in the German-speaking countries, this road was inaugurated by K. Lorenz and was followed by several authors such as Wuketits (1984), Riedl (1984), Vollmer (1984) or Callebaut (1993). Their background is mainly taken from the Kantian tradition and its problems. They put emphasis in solving the problem of *a priori* knowledge in terms of phylogenesis, and the problem of the realism of our thoughts through a consideration of the fitting relation as a product of biological adaptation. In other words, our knowledge reflects or is related with a high degree of accuracy since it is the result of a selective process. If this was not the case, we probably be dead. In the words of G. G. Simpson (1902), "The monkey who did not have a realistic perception of the tree branch he jumped for was soon a dead monkey—and therefore did not become one of our ancestors." Moreover, there are some authors, such as Popper (1972), Toulmin (1972) or Campbell (1974), who have devoted their work to the study of the dynamics of theories from an evolutionary point of view. This way of doing epistemology has been called by M. Bradie (1986; 1986) "evolutionary epistemology of theories" and must be differentiated from the kind of epistemology mentioned in this paper.

On the other hand, we find teleosemantics, a development of evolutionary theory in the field of philosophy of mind. This philosophical theory has been developed in English language, from an analytical point of view and in relation to the main topics of the subject. Teleosemantics is presented as a theory of mental content whose main problem is its fixation.

It can be viewed as a sophistication of indicator or causal semantics, a doctrine that explains mental content in terms of law-like correlation considering intentionality as a natural phenomenon (Dretske 1981; Fodor 1987). This way teleosemantics appears as a solution to the unresolved problems of indicator semantics whose main tool is the notion of biological function, where the responsibility of solving the problems of fixation rests (Neander 2008). This endeavour has been undertaken by Dretske (1988), Millikan (1984; 1993), Neander (1995) and Papineau (1987, 1993).

Both evolutionary epistemology and teleosemantics constitute a good example of what is called *Philosophical Naturalism*: the attempt of doing philosophy in the same way scientists do science (Quine 1969). Since it seems that the philosophers' attempt is stricter than real science, in this endeavour philosophers proceed by following an ideal of science which happens to be far from the real one. In the following two sections, I am going to analyze the main traits of the above-mentioned proposals in order to see if any one of them reaches the intended "naturalization."

## II. EVOLUTIONARY EPISTEMOLOGY AND TELEOSEMANTICS

We will distinguish evolutionary theory of knowledge from evolutionary theory of science. I will refer to the former as evolutionary epistemology (EE), which studies human knowledge under the perspective of evolutionary theory. From the point of view of EE, knowledge is regarded as a biological phenomenon in the same way as any other adaptation and, thus, is studied in the same way as other biological phenomena. EE pretends to explain the representational states of an animal mind as the result of an evolutionary process. It states that our cognitive system is also a product of the biologic evolution of organisms, in the same way that lungs, kidneys or homeostasis are. EE claims are considered under the phylogenetic perspective, an important trait that separates EE from Piaget's genetic epistemology, a different attempt developed from an ontogenetic point of view. EE differs also from other naturalistic accounts of mental representation, such as indicator semantics, teleosemantics or success semantics, which we are going to discuss in the next section. The difference is obvious; while EE explains knowledge as a natural phenomenon, the aforementioned theories explain only mental representation from a similar naturalistic perspective.

The other naturalistic project is teleosemantics. If EE arose mainly in a German philosophical environment—with the notable exception of Campbell, who in addition christened the discipline—teleosemantics grew in analytical seas. Teleosemantics is a naturalistic theory about mental content which explains its fixation through its dependence on biological functions. Being so, fixing content is a question concerning the identifica-

tion of the biological functions of some cognitive devices in which concepts or attitudes are generated. Teleosemantics has been developed from different points of view (Dretske 1981, 1986; Millikan 1984, 1993; Neander 1995, 2006; Papineau 1987, 1993). There are several strategies in the task of fixing mental contents, from the indicator semantics of Dretske to the *top-down* model developed by Papineau. In a nutshell, the core idea is that biological functions determine the mental contents of the many representations held by animals. Furthermore, intentionality is naturalized through the concept of biological function. Hence, there is no special ontological status which situates intentionality out of the natural realm, so it can be studied following the current methods of natural science. Teleofunctionalism holds that representational states are best depicted as states realized in a brain which consumes or produces representations due to a process of *selection for* (Sober 1984). Teleosemantics uses the notion of biological function as the source of the normativity of the systems that produces or consumes representations. Representations are normative only if they perform their function, which are endowed by a selectional process through filogenetic development. To sum up, teleosemantics is proposed as a full naturalized view on content and intentionality. Despite its attractiveness for defendants of Philosophical Naturalism, teleosemantics face problems such as the indeterminacy question or the problem of abstract contents.

Both theories have common elements, both are presented as examples of Philosophical Naturalism, and both understand mind as a product of Mother Nature and, more specifically, they regard knowledge and intentionality as a result of the whole adaptational process of living organisms. Their most important common element is the fact that both theories deal with some kind of representations. Knowledge and meanings share a common currency: concepts. The next section examines the problems they stand to.

### III. WHAT CAN BE WRONG?

Both EE and teleosemantics are presented as naturalistic theories dealing with mental representation. EE is centered in the epistemical dimension and teleosemantics is occupied in explaining semantical traits. The problem is that while the former reduces knowledge to the mere fact of holding representations, taken as results of adaptative processes, the second establishes a strong dependence between representational mechanism proper functioning and the normativity of semantics. That said, it can be posit that neither EE nor teleosemantics achieve a satisfactory account. In the following pages I am going to examine the reasons why.

EE holds that human knowledge results from biological adaptation. This claim is not strange according to our scientific image of world; it is also linked to the statement that the limits of our knowledge are the limits of our adaptive capacity. Representations produced by the animal cognitive apparatus constitute knowledge in a certain way, in virtue of being produced by some mechanism designed by means of natural selection. Thus, if organic traits are adapted and knowledge is another biological trait, then knowledge is also an adaptation. Therefore, evolutionary epistemologist seems to equate representations with knowledge and, consequently, it seems that truth or justification is subsumed under the label of representation as a product of well-adapted cognitive apparatus. Representations are reliable by virtue of being generated by the same device that generates other adaptations. If bipedism or having feathers is an adaptation, one can ask if representations produced by cognitive apparatus are also adaptations, and following this logic, there is no reason to question the suitability of animal representations. In a more sophisticated manner, the aforementioned relationship is understood through the technical term *mesocosmos*. EE holds that the knowledge possessed by an organism and the knowledge to be explained by such theories is a "mesocosmic" one. Such idea was developed by the German epistemologist G. Vollmer (2005) when stating that cognitive structures fit the world since they were designed by natural selection as an adaptation to the real world, but a world that is presented in medium sized or *mesocosmos*. Then, the known world is a *mesocosmos*, not the microworld of quantum physics or the macroworld of cosmology. *Mesocosmos* is not a bare word, it represents the object of knowledge from the point of view of EE. In fact, EE points to the importance of such kind of knowledge since this is our cognitive niche, the parcel of world to which our cognitive apparatus is adapted. It adds an important consideration in order to understand EE. It is not an epistemology on the scientific reality (macrocosmos and microcosmos); it deals with the reality of our most basic world, a middle-dimensionated world perceived normally by our perceptual organs. Furthermore, animal ordinary experience supervenes on this *mesocosmos*. Ursúa (1993) points out that knowledge is an internal and adequate reconstruction of the subject's external reality. It is an internal reconstruction since knowledge represents an appropriation of a reality external to the subject, it is at the same time a process of interiorization and reconstruction of the order present in the *mesocosmos*. To sum up, this reconstruction depicts an isomorphism between real structures and cognitive ones. It is not a bare reconstruction but an objective one, which can be semantically evaluated in terms of truth or false. In brief, adaptation explains the identity between reality and representation in a way that error seems impossible or accidental.

EE is frequently presented as a descriptive epistemology. Yet since Plato's *Theaetetus* we know that simple perception or simple belief don't constitute knowledge; at least not the kind of knowledge we call "reflective." At best, EE explains animal knowledge, not this last one. Perhaps EE has not realized the well-established distinction between animal and reflective knowledge (Sosa 2007), according to which it is assumed that animals and man know only by virtue of applying a cluster of concepts on the faced perceptual reality. Concerning the mentioned descriptive epistemology, it seems that EE is near to naïf realism, and it seems that it is committed to a rare new variety of the old theory of abstraction. According to this theory, there is no place for epistemic justification nor for skepticism nor for rational doubt. Knowledge is a question of getting forms or representation. We must ask here if it fits into the world in which contemporary humans live. Maybe EE, as an attempt to give an account of animal knowledge, works in a less sophisticated environment than that of human societies. If this theory explains epistemological justification is solely by courtesy, in terms of well-functioning. Thus, EE presents the generation of beliefs as a reliable process which delivers true representations of reality. Despite its suitability within animal knowledge, it seems clear that proper functioning is not the kind of justificatory mechanism we are searching for. Reflective knowledge is the one involved in complex processes such as economic transactions, moral and legal discussions, scientific chores or, to sum up, the kind of things that makes strong differences between animals and humans. Possibly the main reason to refuse proper functioning as a source of epistemological justification are the conceptual instances involved in reflective knowledge. In fact, reflective knowledge is the kind of knowledge that involves reasons or conceptual abilities in order to hold a belief as candidate to be knowledge. Reflective knowledge cannot consider simple beliefs as knowledge. Resources considered by EE are not sufficient to explain reflective knowledge; it explain how we hold representations, but they cannot explain the reason why we can label certain beliefs as knowledge.

From its side, teleosemantics appears as a complicated theory on mental representation that accounts for content normativity by appealing to a theory of biological functions (Millikan 1984; Neander 1991). The main charge is not the theory of functions deployed, but the problems of indeterminacy that hover around teleosemantic theories. Fodor may be the main critic of teleosemantics. In fact, Fodor (1987; 1990) points out that teleosemantics lacks the necessary resources to face the kind of disjunctive cases he considers. A disjunctive case is an erroneous one. It occurs when we cannot distinguish selectively tokens of a symbol X that are produced by no-X, say Y, as it happens for example when we confuse a dog with a black cat in a dark night. The same token is produced in the presence of

two distinct stimuli, so token R (representation) is produced in presence of dogs D and cats C and obviously dogs and cats are not the same things. DOGS must be produced by dog-things and not by cat ones. So DOGS are the wild meaning of dogs. Fodor's (1987) attack is directed to Dretske as one of the main proponents of causal semantics, and it can be easily extrapolated to the other varieties of teleological accounts. In fact, Fodor addresses teleosemantics by reference to optimality as the core idea of the so called "teleological solution." As we have seen, teleosemantics considers the proper functioning under optimal circumstances of the producer or consumer representational mechanism as the key point to give an account of normativity. A mechanism M produces tokens T of type Y of a thing or reference class only under the optimal circumstances in which M is proper functioning. Then, how to determine the proper functioning of M? And what about the warrant of proper functioning delivering only truths and not truths and falsities? As a matter of fact, Fodor's central question is how to equate optimality of representation production circumstances with truth. It is worth recalling that on some occasions proper functioning mechanisms deliver false representations. Following the well-known Fodor's frog example, it is evident that frog visual systems is properly functioning with independence of the existence of flies or black pellets in the frog's external environment. Despite the proper functioning of the frog's visual system, disjunction between flies or black pellets persists. Fodor's argument that optimality in the device's functioning is not to be equated with true conditions stands with considerable interest to criticize the teleosemantical endeavour. Anyhow, the most important fact is the absolute lack of any warrant to equate semantical notions with biological facts. Fodor's solution to the disjunction cases is the asymmetrical dependence theory. The core idea is that falsity is parasitic on truth. Thus, a man can only hold false belief if he can hold true ones. Normally people see cats only on presence of cats, so I can state or represent CAT only in presence of cats, but it can happen that I represent CAT under certain circumstances when there aren't in fact any cats but only dogs. Then the causal relation between dogs and CAT representations is asymmetrically dependent upon the causal connection between cats and CAT tokenings. Asymmetrical dependence can explain the disjunction cases without any reference to proper functioning mechanisms under optimal circumstances. It is, despite its abstractness, a more parsimonious explanation than the teleosemantical ones. I agree essentially with Fodor's diagnostic in pointing out that teleosemantics does not work. An examination of Neander's (1995; 1996; 2006) or Papineau's (1987; 1993) contributions to teleosemantics, that differ from those of Millikan's, does not seem to offer a definitive argument in order to explain biologically content fixation (Jaume 2011). It seems that biology lacks the necessary resources in order to explain content fixation.

The main reason is the fine-grained character of content that cannot be reduced to mere references through proper functioning. In other words, mere proper functioning, in the terms stated by natural history, seems powerless to fix content. The frog's example illustrates it. Even so, against Fodor, asymmetrical causation is perhaps too general. In a nutshell, he states that content fixation is dependent on asymmetrical causation, but this is a general claim in need of some accuracy; we need to identify the concrete situations in which asymmetrical causation occurs and I suspect they are best depicted through history than through natural history. Other accounts more fine grained are capable to explain the diversity of mental content and its fixation. An interesting fact is that content changes through time. The birth of new concepts and conceptual change occur in temporal periods shorter than those of natural history. The task of explaining content fixation cannot obliterate this fact. Historians and philologists are familiarized with conceptual changes through time. In fact, historical philology and history of mentalities, a particular branch of history, are devoted to study conceptual changes or the birth and death of ideas. In addition, some arguments focused on content externalism, such as Tyler Burge's (1979), seem to support this argumentative line. From a different point of view, which will be developed in the next section, some psychologists of development such as Vigotski or Tomasello emphasize the role of socio-historical factors in the development of conceptual activities and, consequently in the fixation of concepts. We can say that content is mainly sensible to social and historical forces, as conceptual change and creation of new contents seems to show. There are other problems for teleosemantics, such as abstract and useless content that generate some queries for such theory, but we will not deal with them in this paper. If we cannot find the mentioned resources in order to naturalize content in biology, possibly we can find them in history.

To recapitulate, neither EE nor teleosemantics seems to provide the adequate resources to a full naturalization of the different dimensions of mental representation. The next section presents a different approach.

#### IV. FROM NATURAL HISTORY TO *HISTORY*

Both teleosemantics and evolutionary epistemology are theories based on considering that a possible natural history can explain semantics and knowledge, respectively. I am going to provide a different picture. I will sustain that naturalization is not wrong but incomplete. If Philosophical Naturalism means that methods of science are in essence not different from philosophy, it is obvious that we have not followed the moral. Science is a many-faced endeavour with a manifold of methods. There is not only one scientific method but many, according to the different



disciplines and interests. I think there is a load of the old fashioned positivism in EE and teleosemantics; the unified science ideal is a deep-rooted prejudice that maybe must be changed. The image of a pyramid of science which places as its foundations an idealized super-physics is definitively far from the local explanations different sciences provide for distinct fragments of reality. I suggest that the two referred projects try to naturalize representations in a partial way, so that paying attention to biological science is the first step in a long stair. Therefore, a complete naturalization will not come from an isolated science as biology, which is the case in EE or teleosemantics, but from a view on the other steps of the same stair. Natural history is a story that can be told, but not the only tale; it is an amazing and undoubtedly interesting story, but it does not tell us what we would like to know. Other narratives are possible, and surely interesting to the task of giving an account on knowledge and semantics. They could constitute a different way of naturalization, inasmuch as they do not consider that a privileged kind of cognition exists which is autonomous and separate from the whole of knowledge. If by Philosophical Naturalism we understand the idea that there is not a foundational or privileged knowledge separate from the whole, we have to include under the broad label of "Philosophical Naturalism" not only biology or physical science, but history, sociology or philology. I think that this extended Philosophical Naturalism is more successful than a thin version that forces biology to talk about what it cannot speak.

In spite of focusing in a biological naturalization, I propose a different procedure, one centered in history as opposite to a natural history approach. From this point of view, biological explanation ends where history starts. Historians have a manifold of criteria to define their own realm, and maybe we need a dose of fiction; we do not know in fact the exact point when natural history ends and history starts, despite the fact that we can differentiate having feathers as a subject of natural history while being capable of reporting World War II through writing as clearly a subject of history. Anyway, I propose a tentative and general definition which supposes that history is the opposite of biological evolution through natural selection process. History promotes evolution in a different way than natural history. Historical change or evolution is not driven by a random change in the genetic frequencies in a population but a change in the different adaptational roles promoted by the different kinds of learning and transmitted by a cultural process. Perhaps many of the different kinds of concepts fix their contents through the aforementioned process, mainly when these concepts refers to abstract entities and are formulated in a particular language, a historical one and not the Adamic ideal language which designates things in their own essence, if such thing exists. So, we can say that concepts, in the strongest sense of the word, emerge in

complex environments where culture plays a role. Tomasello (1999), a psychologist of development, proposes that cultural evolution completes natural evolution. Tomasello's account posits against a dominant nativist trend in cognitive psychology which frequently forgets the role of ontogenetic development, following in a most original way the master lines of the Russian Socio-Historical School, emphasizing the role of culture and society in the development of mind. His argumentation is based on the fact that the *tempus* which separates humankind from other apes is not sufficient to explain the appearance of each one of our cognitive abilities—mainly language and mathematics as examples of higher order cognitive resources. Even most important is his focusing in the fact that normal processes of biological evolution in terms of natural history are not sufficient to explain the rise of modern mind. Thus, genetic variation and natural selection, the two forces that explain biological evolution, are usually slower than the six million years which separate us from other apes. We need to appeal to history as a complementary process which does the work that natural history cannot do. It can be said that Tomasello's strategy is based in inference to the best explanation. In fact, it is based on two evidences. In the first place, humankind does not show any distinctive ability from anthropoid apes in the referred last six millions years. In the second, the elder properly human cognitive abilities are only verified in the last 25 000 years. From these two facts he concludes that there is an informational transmission mechanism different from genetics, one that acted in a small temporal scale. He identifies this mechanism in cultural evolution. Being so, how cultural evolution runs? How information is transmitted without genetic resources?

When I defined the special traits of history, I suggested that its peculiarity was nested in a distinct mechanism of information and indicated its learning processes. This is not fully exact, although it has a grain of truth. In fact, I referred to the three different types of learning that psychologists distinguish. I mentioned the classical (Pavlov), operative (Skinner) and social (Bandura) ones, which can explain the different acquisition of conduct and abilities. However, it should be noted that neither classical nor operational learning need to posit the existence of concepts. Furthermore, they were proposed by Soviet reflexology and behaviorism as alternatives to the mentalist approaches to mind. For them it is only necessary to locate the different stimuli that elicit observational responses, where there is no place for concepts between stimuli and responses. Both kinds of learning can be performed individually, as they do not demand social collaboration as imitative learning does. Moreover, cultural learning involves social collaboration; possibly the most basic kind is imitative or observational learning as it was depicted by Bandura. We can also add the processes of instruction and collaborative action to explain the transmis-

sion of cultural information and, all in all, to explain the rise of history in the sense formerly defined. Tomasello concludes that cultural learning is an adaptation constructed on pre-existent and more basically cognitive activities that are possessed individually. In cultural evolution we have a theory that explains the emergence of conceptual abilities and the spreading of different and progressive concepts from pre-existent individual mechanisms. The most important fact is that we don't need pure biological mechanism in order to explain, even if they clearly have a biological value as a special kind of adaptations.

Still, it can be asked, what about knowledge? In fact we have only told a story on the development of cognitive abilities and perhaps on the rise of concepts as social products, but not a narrative on knowledge, not in the way many epistemologist understand their discipline. Concept possession is a primitive and fundamental way of knowing; at least in a basic and vague sense of "knowledge", where it means that knowledge is an appropriation process of the surrounding reality. Animals that held concepts are said to know in some way their environment, a concept being some mode of appropriation of the animal's reality. I think this is the kind of explanation evolutionary epistemologists search for. As we have seen, their proposal is that the conceptual furniture that allows knowledge in different species results from biological evolution. This is surely true for a basic kind of knowledge that I shall designate "animal knowledge." Animal knowledge is the way in which many animals represent their environments without a patent presence of culture in what they do. I can say that my cat *Leo* knows animally when he is applying its concepts and its action is successful. *Leo* knows because of his concepts, if it is true he has them! Even so, in *Leo's* knowledge there is not vestiges of culture, at least not in the sense humans have culture. It has a behavior repertoire and probably its genetically inherited cognitive capacities have been enhanced by its mum and by me. We can say at best that *Leo's* concept possession is reduced to perceptual concepts, since there is a strong dependence on actual and concrete surrounding. Researchers suggest that doves and other birds may possess perceptual concepts (Herrnstein, Loveland and Cable 1976). The question of concept possession is a delicate one in psychology and in the behaviorist and postbehaviorist intellectual world. Anyway, I shall assume that knowledge involves concepts and that there is a kind of knowledge called "animal knowledge." Consequently, an animal who knows is one who possesses concepts, despite what a concept is and surely with weak concept possession conditions. The question here is not the concepts of *Leo's* mind, but the concepts fixed through cultural devices that furnish our whole mental life as humans. Following Tomasello, they are classified in two groups, linguistic and mathematical, and as a general trait they are abstract concepts, not linked to immediate surroundings.

Both kinds of concepts are neither merely perceptual ones, nor can be fixed through simple individual mechanisms nor emerge through biological functions as suggested by teleosemantics. Even more, concepts generated by cultural evolution supervene within a complex environment where social interaction occurs.

In the field of semantics we have find a source different from natural history in order to fix content. Against teleosemantics, a better option may be completing proper functioning within the socio-historical dynamics that emerges from human groups and societies. If teleosemantics admits other processes different from biological ones, we may obtain a richer theory of mental content capable to resist the disjunction problem. In the same manner that we ascribe functions to biological traits and to cognitive mechanisms we can ascribe them to socio-historical reality. These functions fix content as teleosemanticists suppose biological content is fixed. We have solely extended the field of application of functions, and this extension is important since it allow us to delimitate the real field of concepts. Following the moral of teleosemantics, we can ascribe proper functions to mechanisms that generate and consume representations, and we can locate this mechanism not only in the biological realm. Moreover, the normativity of their functioning is considered to supervene on the socio-historical realm in which they are nested, and not solely on biological traits. Concept generation, and conceptual changes and generation of new linguistic concepts illustrate the dynamics in which we can ascribe normativity and functions. It is clear that we have travelled far away from the secure realms of indication relation or natural signs, yet it is no less obvious that the space of genuine concepts in opposition to mere indicator relation or natural signs is closer to *polis* than to *physis*. From this point of view, a solution to disjunction, if not adequate is not so far and, most important for the project, we are not forced to abandon the core idea that suggest that functions fix contents.

Despite the advance in naturalizing semantics in a richer way than the teleosemantical proposal, we still don't have a full epistemology. Simple concept possession perhaps justifies animal knowledge in the sense depicted formerly, but does not explain the complexity of our epistemical practices. The chief reason is that reflective knowledge is different from mere belief. We have given an account of the historical contributions to mental furnishment, yet mere furnishment does not makes a home. Concepts and beliefs as relation of concepts do not constitute by themselves knowledge in its reflective dimension. Reflective knowledge, which is probably unique to humans, needs justificational standards, which are not limited to proper-functioning cognitive mechanisms, but depend as well on cultural practices developed in a complex historical processes. Reflective knowledge is involved within historical dynamics that results from an

exchange of ideas and values. Natural history may guarantee the proper functioning of cognitive mechanisms, but does not provide reason enough to justify beliefs. We need more than mere well-functioning or reliable processes of cognition. Epistemological justification is similar to a Machiavellian process in which we have skills in order to put limits to error and chance. The tools are given by the concepts in the trait stated before, yet the user's instructions are developed historically. A good portion of our knowledge is related to justification processes rooted in social practices. What could be procedural guarantees in the age of Inquisition are far from those in the contemporary civilized world. Torture and other methods of obtaining true declarations are not solely considered as manifest injustices but inaccurate ways of obtaining reliable declarations. The same occurs in the history of sciences. Renaissance theories of signatures or sympathetic magic are not reliable processes to state true propositions about the natural world. Since the Scientific Revolution we realize that, from an ideal point of view, justification comes from experimental analysis and discussion about well obtained clusters of data. There are many criteria that keep us away from naïf realism or abstraction theory in an Aristotelian sense. The central idea that moves scientific progress since the Modern Age is that it results from an intervention or manipulation of natural reality. History incorporates a necessary dose of criticism within the naturalist view of knowledge that cannot be ignored in the analysis of reflective knowledge. In addition, it constitutes a different scheme of accomplishing the idea of a Naturalized Philosophy in opposition to foundationalist traits.

#### CONCLUSIONS

Evolutionary epistemology and teleosemantics share both a core idea, that knowledge and concepts are constituted by processes shaped by means of natural selection. They arrange their accounts according to such paradigm of natural history. One of them is centered in explaining through these means the constitution and fixation of concept content—teleosemantics—while the other is devoted to explain how knowledge is possible. We have attempted to raise objections to evolutionary epistemology and teleosemantics. The principal query for EE was the non-distinction between animal and reflective knowledge. We concluded that EE could be a theory apt to explain animal knowledge, in other words, the fact that animal and man hold representations, which are produced as a result of natural selection and consequently are allegedly adaptative. Anyhow, adaptation is not the same as truth, justification or, to summarize, knowledge, at least if we understand knowledge in the reflective way, the specifically human way which explain precisely the cluster of conceptual abilities such as language, mathematics, scientific notions or moral and

juridical ones, those that make us human. These can be accounted for as the result of cultural evolution or history, not solely in terms of natural history. For teleosemantics the diagnostic is not different. If the main problem for this semantical theory is indeterminacy, it seems that the resources used to deal with have been insufficient. As stated, I agree with Fodor's conclusions, adding that the modifications of Neander (1995) or Papineau (1997) are inconclusive attempts to maintain teleosemantics. On balance, we can say that both EE and teleosemantics face troubles that can hardly be solved with the means supplied solely by natural history.

The argumentative line defended is another kind of naturalization, one based on history and not just natural history. From this point of view, concept fixation and justification practices are dependent of historical dynamics. In the field of semantics we can find a solution to the disjunction problem without appealing to biological functions. Hence, we can ascribe proper functions to mechanisms that generate and consume functions not only in the biological realm, but in the socio-cultural one. The normativity of their functioning supervenes on the referred socio-cultural realm in which they are nested. One must realize that we are not forced to abandon the core idea of teleosemantics, that function fixes content, as far as we amplify the scope of functions in such a way that they are not restricted to biology. From this perspective, contents are fixed in a cultural environment where they perform a determinate function in the full economy of a system of belief, understood as a cultural, and not only natural, product. In this sense, I am indebted to Dretske's (1986, 1988) classification of representational systems and his refusal to confine representations only to natural signs, accepting that they can be based on conventional relations (see Jaume 2011). On the other hand, I sustain that knowledge cannot be exhausted in what I have called animal knowledge, and that reflective knowledge develops and important role. Furthermore, I have stated that simple concept possession perhaps justifies animal knowledge, although hardly explains the complexity of our epistemological practices. In this sense, I have suggested that reflective knowledge is involved in a historical dynamics that results from an exchange of ideas and values. Natural history may be the best option in order to guarantee the proper functioning of cognitive mechanisms yet could scarcely give any reason to justify beliefs. Thus, following Sellars' epistemology, only a belief can justify another belief. In this terms, history plays a deeper role than natural history in epistemology. To summarize, any naturalization based only in natural history results unsuccessful. History, as it is understood within the humanistic tradition has an important role in explaining philosophically this interesting phenomena.

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