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RETOS ACTUALES
DE LA NEUROÉTICA

CURRENT CHALLENGES
FOR NEUROETHICS



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Epistemological and Anthropological Thoughts on Neurophilosophy: An Initial Framework¹

Reflexiones epistemológicas y antropológicas sobre neurofilosofía: un marco inicial

SONIA PARÍS ALBERT - IRENE COMINS MINGOL

TRADUCIDO POR JAIME RODA BRUC

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Resumen

La neurofilosofía se presenta en los albores del siglo XXI como una rama de la neurociencia. En este artículo nos proponemos hacer una revisión crítica de algunos debates epistemológicos y antropológicos que la neurofilosofía ha traído nuevamente a colación. Para este análisis se tomará como hilo conductor las investigaciones filosóficas que se vienen realizando desde la Cátedra UNESCO de Filosofía para la Paz. El texto se organiza en dos partes, una primera de carácter epistemológico y la segunda de perfil antropológico. Todo ello nos conducirá a cuestionar algunos de los avances significativos que la neurofilosofía puede plantear para una mejor comprensión del ser humano.

Palabras clave: Neurofilosofía, Filosofía para la Paz, Epistemología, Antropología, Conflictos.

Abstract

Neurophilosophy appeared at the dawn of the twenty-first century as a branch of neurosciences. The aim of this article is to review critically some of the epistemological and anthropological debates that neurophilosophy has brought forth. In order to do so, the philosophical research conducted by the UNESCO Chair of Philosophy for Peace will be used as the main thread of the analysis. To accomplish this critical review, the article has been organized into two parts: the first is of epistemological nature, and the second has an anthropological perspective. This analysis will lead us to question the significance of the contributions of neurophilosophy to a better understanding of the human being.

Keywords: Neurophilosophy, Philosophy for Peace, Epistemology, Anthropology, Conflict.

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Introduction

Neuroscience emerges at the beginning of the twenty-first century as a new discipline capable of making important contributions not only to the natural sciences but also—and here is where the critical focus of this article lies—to the social and human sciences, and, more specifically, to the thoughts on practical reason, by way of what is known as *neurophilosophy* or *neuroethics*. Regarding the latter, some recent lines of research have even suggested the possibility of discovering the neural bases of universal ethics or the possibility of unravelling and revealing the workings of free will.² This paper presents a critical view of the potential contributions of neuroscience both to the understanding of critical thinking and to its construction. This critical analysis will draw on the proposals the research group of the UNESCO Chair of Philosophy for Peace has been developing in recent years at the Universitat Jaume I (Martínez Guzmán, 2001; 2005a) centred on various topics of discussion, namely the epistemological status of social and human sciences, the debate between nature and culture—a long-standing debate of Peace Research—and the relationship between culture and conflict. These discussions are developed in the two sections of this paper: the first one deals with these issues from an epistemological point of view, and the second one from the perspective of anthropology.

It is important to note that neuroethics has two distinct lines of work that are known as the *ethics of neuroscience* and the *neuroscience of ethics* (Roskies, 2002: 21; Cortina, 2010a). The first line of work, the ethics of neuroscience, addresses the eminently practical level of the ethical criteria for the application of neuroscience, both in the doctor-patient relationship and in its use with experimental subjects, as well as the impact it may have on the general public, through the introduction of new techniques such as *neuromarketing* or *neuropolitics*, among others. The second line of research, the neuroscience of ethics, works on a more theoretical level, considering questions such as human behaviour and the nature of the human being. Therefore, we could say that the problems of neuroethics can be divided, on the one hand, into ethical issues which arise from the general practice of neuroscience and are in theory shared by many biological disciplines, and, on the other hand, into a category of questions which address the more nuclear dimensions of neural science, having a direct impact on our identity, our freedom, and our actions (Giménez Amaya and Sánchez-Migallón, 2010: 103); in other words, the different aspects of neuroethics, not only as applied ethics, but also as fundamental ethics (Cortina, 2010b). In

² The scientific journal *Nature* devotes one of its monographs to this subject. The article, sensationistically entitled “Neuroscience vs philosophy: Taking aim at free will”, questions whether the rules that apply to the almost automated actions that take place in the laboratory have anything to do with what actually happens in the complex and socially mediated world of real-life choices.

recent years, the neurosciences have raised the question of what we are and who we are, thus penetrating the deepest and most intimate layers of the human being, and providing a scientific view of humankind, which is often almost incompatible with philosophical proposals. This second line of work, the neuroscience of ethics or neurophilosophy, will be the main focus of our critical review.

1. Neurophilosophy: an Epistemological Review

Since the last decade of the twentieth century we have been witnessing the emergence of a new family of disciplines with the prefix “neuro” as their kinship mark. This has produced the configuration of a new “neuro-terminology” (Mora, 2007: 26) which has been applied to classical humanity disciplines such as philosophy, ethics, sociology, art, economics, or theology itself. These new neuro-disciplines have met mixed and opposing reactions from the scientific community, among which we find a varied range of viewpoints, from those who think it is a mere fad incapable of contributing anything that could change the essence of the classic conception of humanism³—and which may even be misleading—, to those who believe the neuro-disciplines can contribute innovative knowledge to humanities. It is interesting to note that the first group is composed mainly of authors working in the field of social and human sciences, and the second group is formed by authors from the natural sciences. Amongst this wide range of views, there are some authors who recognize the contributions of the neuro-disciplines to the understanding of the human being, and others who, from the perspective of the natural sciences, recognize that, despite its recent advances, neuroscience is still in its infancy and has not yet managed to understand in depth the functioning of the brain (Mora, 2007: 17).

One of these new neuro-disciplines is *neurophilosophy*. Despite its name, more theorising has been carried out in this discipline by scientists—i.e. biologists, physicians, neuroscientists—, than by philosophers themselves. These scientists debated whether neuroscience could eventually, somehow and someday, replace philosophy itself. Patricia Churchland, who first coined the term neurophilosophy in her book *Neurophilosophy: Toward a Unified Science of the Mind-Brain* (1990), responded to this debate with a resounding no, by indicating that philosophy had the best slice of the cake left, in the sense that philosophy was the quintessence, the perfect place to synthesize results and integrate theories coming from different territories, because of its panoramic vision and its inclusive embrace (Mora, 2007: 47). Therefore, it appears

³ Authors such as Lehrer (2010) defend the view that neuroscientists are not discovering anything new, but believe that the findings neuroscientists present are simply conceptions of the human being which philosophers, poets, writers, or artists had already reached by other means.

that, from the point of view of neurophilosophy, the function of philosophy would be reduced to that of synthesis. But what of the critical function of philosophy? Questioning appearances, casting a critical eye over the assumptions at the heart of our society, our culture, and our science is an essential task philosophy cannot, and should not, delegate.

A similar point could be made about neuroethics, a discipline in which the biological bases of values and moral judgments are researched and emphasized. While this is an interesting perspective in so much as it allows us to break away from the excessive social constructionism that has traditionally characterised these disciplines, we should not allow ourselves to be over-influenced by the other extreme and ignore the impact of social interaction and of the context. Some authors present the dilemma as follows: the morals and the standards derived from moral reasoning come either from God or from human beings themselves, from their own biology (Mora, 2007: 66). Where would this leave social interaction, intersubjectivity? Biology would reduce it to an incidental, almost collateral, type of interaction. Other authors take a more cautious approach and note that the brain is an open system which is permanently changing and constantly interacting with its social environment (Mora, 2007: 157); therefore, it cannot be considered deterministic, compared to the degree of predictability of other elements of nature.

Most neuroscientists come from the field of experimental psychology, biology or medicine, that is to say, they belong to the sphere of what is commonly known as the natural sciences. The introduction of a new cycle of thinking that can help us improve our view of the world and of ourselves, more finely tuned to our biological nature (Mora, 2007: 31) is definitely of interest. However, as we noted earlier in this article, in recent years neuroscientists have come to argue, defend and/or challenge theories which had long been held or debated by philosophers and humanists. Had it come from the opposite side, this audacity would never have been tolerated. Would it not be appropriate for neuroscientists to acknowledge at this point the historical and cognitive background, and the peculiarities of the methodology and object of study of social and human sciences? Neuroscientists are increasingly requiring philosophers and humanists to master and apply the knowledge and the latest findings of natural sciences. Would it not be appropriate to request from neuroscientists the gesture of humility and the scientific rigour of acquiring a greater knowledge of human sciences before daring to make certain unwarranted assertions?

Natural sciences, from which neurosciences cannot be dissociated, no matter how many humanistic labels are sought, are based upon and use a reductionist approach, drawn from the model of modern Western science of Galilean tradition used by the natural sciences, which is based on mathematization and experimentation. In the nineteenth century, when social and human sciences were recognized

as explicit sciences, a debate on the epistemological or scientific status of these sciences began. This debate was mainly in relation to its methodological monism or dualism, in other words, whether we need to use a different model of science for the social and human sciences, or we can continue using the same model the natural sciences have been employing since the late Renaissance and Baroque period (Von Wright, 1980: 20). A long tradition of scientific thought, with which we agree, considers that humanities and social sciences should follow a different model of science, of Aristotelian tradition and based on the concept of *understanding*; a model which takes into account the uniqueness of the object of study, the human being, and its methodological implications.

Neuroscientists have disregarded this debate, clearly taking a scientific conception of methodological monism as their starting point, and using it to transfer their physiological findings of the human being to a more holistic understanding of the feelings, thoughts and behaviour of the human being. For many neuroscientists, their discipline is the bridge capable of covering the existing gap between science and humanities (Mora, 2007: 15, 24). It has even been defined as a discipline in which the two great universes of knowledge, science and humanities, converge (Mora, 2007: 16). However, the use of an essentially reductionist method, the Galilean tradition, for the analysis of an essentially complex reality such as the human being, will lead to understandings of the human being, and of the world and the life of the human species, which will not be holistic, but unavoidably partial.

On the other hand, the use of moral dilemmas as a tool for work and analysis is not exempt from controversy. Adela Cortina, as well as other experts, questions the validity of dilemmas as key for moral interpretation (Cortina, 2010a: 144). According to Jesús Conill (2006 in Cortina, 2010a: 144), moral life does not consist in facing dilemmas, but in projecting a good life; the *experiential richness* of human life cannot be straitjacketed by dilemmas. Marc Hauser (2008), like other neuroscientists, bases his studies on the analysis of moral dilemmas. However, we cannot ignore the problems entailed in this approach, since solving hypothetical moral dilemmas is not the same as dealing with them in real life, something Carol Gilligan (1986) had already stated in her classic debate with Kohlberg. Other neuroscientists, among them Hauser (2008: 61-62), have argued against the criticism that hypothetical dilemmas are artificial, detached from everyday experience, and designed only for ivory tower dwellers. According to Hauser, by using artificiality and avoiding any kind of familiarity, we prevent judgments based on pure emotions; we eliminate bias and guarantee impartiality. Hauser tries thus to justify the use of hypothetical dilemmas, although he does say that only by examining artificial examples alongside real-life cases will important aspects of the nature of our judgements be discovered (2008: 62).

Besides disregarding the body of knowledge of social and human sciences, neuroscientists base their research on an epistemological approach which is exclusive

in another sense: they are markedly ethnocentric. They hardly take cultural diversity into account in their methodology or in their aims. Neuroscientists focus their analyses, above all on the world of experience of Western culture, disregarding that of any other culture. And this can be observed in two aspects: *a. In the methodology.* The hypothetical dilemmas raised have a distinctly Western character. The individuals on whom studies and experiments are performed live in the Western world. *b. In the priorities of their object of study.* Problems associated with longevity—such as Alzheimer—or with depression, for example, are typical of the affluent societies of the wealthy Northern countries. Unfortunately, in most parts of the world these problems are not priority concerns. It should not be forgotten that, according to the United Nations Development Program, 80% of the world population survives on 20% of the planet's resources, while 20% of the population of the enriched countries enjoys 80% of these resources.

According to Javier San Martín (2012), human sciences have natural sciences among their objects of study: they study their history, their establishment, their influence on society, on history and on the lives of individuals. However, what is most studied, especially in the case of philosophy, is their rules and structure as knowledge disciplines. A very interesting contribution of Javier San Martín is his acknowledgment of the unavoidable dependence of natural sciences on human sciences, as the latter are responsible for revealing the goals of life, our possibilities, and the rationality of our objectives (San Martín, 2012). We can question, for example, if neuroscience is really capable of giving answers to the main challenges humanity will be facing in the twenty-first century, or if it is simply allowing itself to be over-zealous because of recent technical findings that have occurred in its field of study. While our telescopes and microscopes are carefully scrutinizing the mysteries of the universe and of life itself, we are facing the destruction of life to extremes never seen before in written history (Macy, 2003: 117). Returning to Husserl's concept of the life-world, Giménez Amaya and Sanchez-Migallón point out that philosophy needs to develop a more satisfying theory of human praxis for the new experimental sciences.

La Ciencia crea y sólo se mueve entre símbolos, y sólo el mundo de la vida, el mundo precientífico, puede ser su última confirmación. Cuando la Ciencia se erige en un conocimiento que está sobre el conocimiento intuitivo precientífico, cuando el positivismo científico aparta su vista de la Historia olvida que sus símbolos son sólo símbolos y entonces nunca llegan a confirmarse (Giménez Amaya and Sánchez-Migallón, 2010: 149).⁴

⁴ "Science can only create and move by means of symbols, and only the world of life, the pre-scientific world, can be its ultimate confirmation. When science proclaims itself superior to intuitive pre-scientific knowledge, when scientific positivism looks away from history, it forgets its symbols are nothing but symbols, never receiving confirmation".

Much science, overlooking its original partiality, has claimed to be the only valid universal knowledge, in spite of being vaguely aware of its relative provisionality (Giménez Amaya and Sánchez-Migallón, 2010: 152). The instrumentalization of science made it possible to believe that everything in nature, including human beings, could be manipulated. The excesses of technical rationality make us forget that the human being is essentially and existentially a biographical being, a being who builds his history, his personality, by means of a narrative (Giménez Amaya and Sánchez-Migallón, 2010: 159). Experimental science is currently undergoing a very profound crisis, not only because of the questions it is asking itself, but also of the fact that it is questioning itself as discipline and as human activity. This crisis has been even more patent in neuroscience on account of its theoretical and practical implications. This is precisely what has made neuroethics and its approach necessary.

It is curious how humanistic and scientific disciplines can converge producing similar results.⁵ Interestingly enough, in his latest book, *Thinking, Fast and Slow*, psychologist Daniel Kahneman identifies the neural bases that demonstrate the need for unhurried thought in order to avoid making cognitive errors which could have moral consequences. The discussion about the importance of time is not new to the human sciences. We could say both are ways of attempting to understand the human being: while scientists dissect ideas into their different components, artists and philosophers, in turn, propose an understanding of consciousness from within. Our truth, they said, must originate from ourselves, from the way *we feel* reality (Lehrer, 2010: 16). This relates to the way Ortega y Gasset differentiated social and human sciences from natural sciences, by way of the division between *biographical* and *biological life* (San Martín, 2012). Any description of the brain requires both cultures: art and science. The reductionist methods of science must go hand in hand with an artistic research into our experience (Lehrer, 2010: 19).

We owe C.P. Snow the theory of the “two cultures”, which describes the phenomenon whereby art and science suffer from a mutual misunderstanding. Our knowledge could be described as a collection of solitary chiefdoms, each with its own customs and vocabulary. According to Snow, the solution to this epistemic schism was the creation of a “third culture” that could bridge the communication gap between scientists and artists. All would benefit from a better understanding of the other. Snow turned out to be a prophet, at least partially. The third culture is now an authentic cultural movement. However, although this new culture bears the same name as the concept defined by Snow, it is actually very different from his project. Instead of referring to a space for dialogue between artists and scientists—a shared cultural space, so to speak—the third culture of today has to do with the direct communication of scientists with the general public, to scientists’ interest in

⁵ This is the main thesis of the book *Proust Was a Neuroscientist* (Lehrer, 2010), which shows how some artists, writers, painters and composers, were ahead of the discoveries of neuroscience.

translating their truths into the language of the masses (Lehrer, 2010: 223-224). This is clearly important and necessary, but it presents several limitations (2010: 224). 1) It has not managed to eliminate the dividing line between our two main cultures. A real dialogue between equals is still not in place. 2) The positions defended by the thinkers of the “third culture” are often based on a one-dimensional view of the scientific enterprise and its relationship with humanities. Therefore, statements claiming for instance that the “lack of empiricism” of humanities has to be corrected by reductionist science are not uncommon. Unfortunately, many of the brightest minds of our third culture are clearly opposed to anything which is not scientific (Lehrer, 2010: 225).

The contributions of neuroscience to the building of knowledge on some fundamental aspects of the human being should not be disregarded. However, for these contributions to be successful—both from an epistemological and from an ethical point of view—, they must establish an interdisciplinary dialogue with the other social and human sciences. Several authors emphasize the importance of attaining this deep interdisciplinary dialogue (Cortina, 2011; Giménez Amaya and Sánchez-Migallón, 2010: 167). In this respect, the *epistemological turn* the UNESCO Chair of Philosophy for Peace has been working on can provide us with some useful material for thought (Martínez Guzmán, 2001: 114-116). Here are some of the fundamental axes of this epistemological turn: 1. Intersubjectivity, interdisciplinarity and mutual interpellation, versus objectivity. 2. The assumption of an epistemology committed to values. 3. Overcoming the dichotomy between nature and culture, acknowledging the social construction of nature within a continuum.

2. Neurophilosophy: an Anthropological Review

As discussed in the previous section, neuroscience needs to revise some aspects of its fundamentals and methodology before continuing to make assumptions with the hope of changing or modifying the understanding of the human being (Lavazza and De Caro, 2009). In this section we will discuss some of the contributions of neurophilosophy to the knowledge of the human being, as well as some of its biases. To perform this analysis, we will firstly focus on the relationship between nature and culture, and secondly on the relationship between culture and conflict.

2.1. Nature and Culture

A noteworthy contribution of neuroscience to the understanding of the human being is the recovery of the biological-natural dimension, which too often had been overlooked in the history of Western thought, as Steven Pinker points out in his seminal work *The Blank Slate. The Modern Denial of Human Nature* (2003).

Indeed, if we think of the history of human beings as a species, we observe that the phylogenetic, instinctual and emotional mechanisms were in charge of taking decisions which were vital for us, and only a small part of the conflicts we faced were rationally controlled and managed. Freedom and free will, in the context of the evolutionary process, were only limited capacities. This is why José Manuel Martín Morillas (2003; Martín Morillas and Muñoz, 2007: 31-51) suggests the concept of the *agonising rationality*, which focuses precisely on the study of these circumstances, as rationality cannot control all circumstances that affect the lives of human beings, and will probably never be able to control them.

El resultado final es un ser humano en cierto sentido “roto” por las condiciones de su propia evolución, por su historia y por las interpretaciones que ha alcanzado a hacer de sí mismo. Esta ruptura podría ser reflejo, asimismo, de su doble condición homo y sapiens, ser vivo y ser cultural (Muñoz y Jiménez Arenas, 2012: 62).⁶

At the UNESCO Chair of Philosophy for Peace we have been vindicating the importance of recovering the etymological sense of “human” (*homo-humus*: ground, earth) which reminds us of our natural, earthly dimension. This earthliness has to do with the physical and biological conditions of our existence, it implies an assumption of humility (a term also related to *homo-humus*), and it is also an expression of our own frailty (Martínez Guzmán, 2005b).

However, one thing is giving back to the biological-natural dimension the weight it deserves in the understanding of the human being, and another quite different is falling into a naturalistic reductionism which is bent on ignoring the rich social complexity of the world and how it can make human beings avoid and/or adjust their biological underpinnings. Similarly to how phrenologists were determined to reduce the analysis of human nature to the shape of the skull, neurologists seem determined to reduce it to the functioning of neurons.

As we mentioned earlier, the natural sciences are characterized by their reductionism, while human beings are characterized by complexity. Thus, for instance, feelings are only experienced as a conscious whole, and not as a sum of separate feelings; dissecting emotions the way science dissects its objects of study would only make them unreal. For the psychologist William James who criticised the reductionism into which psychology was already drifting at the end of the nineteenth century, the true contents of our minds are always representations of some kind of *whole* (Lehrer, 2010: 40).

⁶ “The final result is a human being who is, in a way, ‘broken’ by the conditions of his own evolution, by his history and by the interpretations he has made of himself. This rupture could also be a reflection of his dual nature of *homo* and *sapiens*, of living being and cultural being”.

As Walt Whitman said, no matter how much we know about our physical anatomy, the ineffable will always remain ineffable (Lehrer, 2010: 44).⁷ If science could see freedom, what would it look like? And if it wanted to find will, where would it look? (Lehrer, 2010: 62). Neuroscience seems determined to recuperate a positivist scientific vision, which many of us thought obsolete. Similarly to how an astronomer can predict the future movements of a planet, positivists believe that before long humans will be able to reliably predict their own behaviour. As Lehrer (2010: 53) points out, if that were the case, free will, as well as God, would become an illusion, and we would realise that our lives are, in reality, as predictable as planetary orbits. However, according to the second law of thermodynamics (William Thomson, 1852) the universe is destined to chaos, as it suffers from a feverish entropy. The mistake actually lies in pretending there is order and predictability in the field of the natural sciences. As physics discovered the lack of determinism of the quantum world, biology has found an inexplicable disorder in its own heart. Life is built on an architecture of randomness. Scientific theories are thus functional models, but cannot be considered perfect mirrors of reality. The discovery of neurogenesis and of neuronal plasticity has revealed that the idea of a fixed deterministic order was only a mirage. The minds we inherit allow us to escape from our own heritage.

Neuroscience cannot make the mistake of falling into a new mechanism. The most essential element of human nature is its malleability, the way each individual wants to change him or herself (Lehrer, 2010: 50). Regardless of any mechanism that could be discovered by science, freedom will always remain. The ability of the mind to modify itself is the source of our freedom (Lehrer, 2010: 62).

A very interesting point related to this is the theory of neurogenesis. While we are alive, a large proportion of the brain will be dividing itself. The brain is not marble, it is clay, clay that never hardens (Lehrer, 2010: 67). Neuroscience is just beginning to explore the deep ramifications of this discovery. The hippocampus, the part of the brain that modulates learning and memory, is constantly acquiring new neurons which help us learn and remember new ideas and behaviours. It is in the irrepressible plasticity of our brains where we find freedom (Lehrer, 2010: 67). Our nature is infinitely modified by education (Lehrer, 2010: 70). Although genes are responsible for the gross anatomy of the brain, our plastic neurons are designed to adapt to our experiences.

It is important to take into consideration what neuroscience can offer to the field of “neuropeace” or to the “neural bases of conflict transformation”. We must remember that the analysis of the biological basis of human behaviour has been a classic subject of Peace Research, in the context of the debate on the existence of a

⁷ Walt Whitman wrote: “Hurrah for positive science!... / Gentlemen, to you the first honors always! / Your facts are useful, and yet they are not my dwelling, / I but enter by them to an area of my dwelling.” (Lehrer, 2010: 44-45).

biological determinism that could predestine us toward violent behaviour. The results seem to indicate that there is no such determinism, a finding anthropology for peace and other disciplines have proven by empirical evidence (Haas, 1990; Adams, 1992; Sponsel and Gregor, 1994; Howard Ross, 1995; Gregor, 1996; Bonta, 1996; Fry, 2006).

However, despite the evidence Peace Research has found to support the human capacity for peace, science has a tendency to adopt a violentology approach which seems to place the origin of selfishness, intolerance and lack of indignation in the biological world. In contrast to this perspective based on violentology, Philosophy for Peace, following the ideas of Francisco Muñoz (2001), opts for an anthropological peaceology perspective, which is neither unilateral nor dichotomous, but aware of the capacity of the human being for both violence and peace, thus placing the analysis of violence in the sphere of freedom, responsibility and culture.

A first step will thus be the recognition of the complexity of the biological inheritance, devoid of any violentological bias (Muñoz, 2001). Fortunately, the latest neuroscientific theories have recognized the human capacity for peace and empathy (Rifkin, 2010). However, there is still a long way to go, not only for neuroscience, but also for philosophical anthropology itself. In this regard, the research of María Luz Pintos Peñaranda (2010), in which empathy and care are perceived as basic elements of our biological heritage, is of great interest.

A second step in the understanding of our behaviour is the acknowledgment of the importance of education and culture, alongside our biological heritage (which cannot be disregarded either). This has been an important subject of Peace Research. However, while in the past, this discipline focused its debate on the biological and genetic basis of violence, the main subject of the debate is currently the neurological basis. The basic issue remains the same: does violence in human relationships have a biological basis—or in this case neurological? Is there a biological basis—in this case neurological—to the making of peace in human relationships? As for the latter question, all the better if this basis exists, nevertheless, the proposal is still mainly based on culture and social constructionism. The starting point of Philosophy for Peace is the need to make a normative reconstruction of our competencies and capacities to make peace.

The new neurological perspectives place neurological transmission and learning events in the framework of theories which are more favourable to sociability (mirror neurons), positive emotions, or moral commitments, among them the commitment to make peace. However, thinking that this is all there is would be another deterministic reduction, reducing these elements to neural events, which are neither pure nor neutral, and should be researched within new theoretical contexts. Thinking that this is all there is, would take us to a new form of dogmatism. Mirror neurons, for example, would be ways of explaining intersubjectivity from a neuronal perspective,

but they would in no way represent a “positivist verification” of intersubjectivity, only a different way of explaining it. Understanding it in any other way would be equally dogmatic, but in the opposite sense, like in the world portrayed in Skinner’s *Walden Two*, where it seemed that behavioural psychology could model people to make them better through stimulus-response-reinforcement processes.⁸ Currently, extensive neuropsychological research suggests the possibility of manipulating human behaviour through the artificial activation and deactivation of certain brain centres or connection systems involved in the unified functioning of the nervous system (Giménez Amaya and Sanchez-Migallón, 2010: 47). However, influencing our neuronal system (through drugs or electrical stimulation, for example) is not going to solve problems such as hunger or poverty, or put an end to wars. For that we need to resort to mutual interpellation, to learning and to the common construction of the world that we inhabit.

The evolutionary theory would suggest that if we are intelligent enough to invent the technology needed to increase our brain power, we should be able to use it. It would be the next step in the survival of the fittest. Still, we may ask ourselves: what would happen to the citizens of impoverished countries? Would universal access to this technology be guaranteed? Is it ethical to invest on the research and manufacture of drugs to increase memory while thousands of people are dying due to lack of medicines for malaria or diarrhoea? Gazzaniga believes that the increasing number of intelligent people will neither pose a danger nor a challenge to our values (2006: 94); but then again it might do so, if access to these resources and knowledge is not universal and is kept in the hands of 20% of the world population from the “developed” countries.

Finally, we would like to comment on two interesting topics regarding which neuroscience has offered some explanations and generated some debate, two topics related to the concept of the human being which could be the subject of further research:

a) *Why does our judgement vary depending on whether a person is near or far from us?*

Neuroscience has analysed the different reactions we have towards moral dilemmas involving the suffering of people who are close to us, and towards those involving the suffering of people who are far from us. According to a number of authors, at least part of the answer could lie in the most primitive operating codes of our brain, which we acquired throughout the evolutionary process. As said by Wilson, people follow codes of conduct which are very solidly anchored in the depths of our Palaeolithic brains (Wilson, 1993 in Cortina, 2010a). These codes, which are primarily emotional, were established in the minds of individuals who lived in very small populations where they were necessary for survival, as they ensured mutual aid.

⁸ Authors such as Gazzaniga, for example, talk about the possibility of resorting to the findings of reproductive technologies to select better and smarter embryos from the very beginning.

Hence, in situations of physical closeness, these deep emotional moral codes of survival are activated, while, when there is no physical closeness, other colder cognitive codes, more detached from the immediate instinct of survival, are activated (Cortina, 2010a: 137). This adaptationist interpretation could be useful to understand why personal and impersonal problems affect us in a different way, and it could be a very interesting finding for education, as it implies that children and adults should not be blamed for feeling more deeply affected by the problems of those who are close to them than by those at a distance, or for feeling safer with those they are familiar with than with people who are strange or different from them. Although we need not feel guilty about this, we should ask ourselves if the direction we want to follow is this, or if we prefer to nurture reason and emotions differently, for example, by also showing appreciation for those who are far from us. If it is true that certain codes inscribed on our brains make us more interested in personal problems than in impersonal ones, if it is true that they make us react positively towards the people who are nearby and resemble us, and negatively towards strangers, instead of allowing such reactions to generate feelings of guilt, it would be better to ask ourselves if we want to encourage these tendencies or, on the contrary, we want to weaken them. Also, if that is the moral project we want to pursue or if we wish to take into consideration the rights of every single human being. Since feelings can be nurtured, cordial reason would let us nurture our reason and emotions the way we feel is morally better, instead of constantly lamenting our immediate reactions and feeling embarrassed about them (Cortina, 2010a: 138, 2011: 74-76).

b) *The paradox of altruism or the logic of the sustainability of life.*

One of the greatest challenges faced by Darwin's natural selection theory was the paradox of biological altruism, which was manifest in the behaviour of certain animals and in that of human beings. An individual behaves altruistically from a biological point of view when he invests his own resources to favour the adaptation of another individual (Cortina, 2010a: 140). Natural selection cannot explain this altruistic behaviour which appears to benefit the recipient and harm the individual that performs it, as it makes the altruistic subjects diminish their investment in adaptation. According to Hamilton's research and Dawkins's popularization work, it seems that biological altruism can be explained by the desire to protect genes. However, some actions which are costly for the individual have nothing to do with kinship. How can they be explained? The most plausible answer seems to be related to a capacity—present in humans, and perhaps also in some animals—which is the ability to reciprocate: some altruistic actions cannot be explained by kinship, but by the expectation of reciprocity (Cortina, 2010a: 143-144). In *Philosophy for Peace* we would also speak about our capacity for giving, for gratuity and for love. According to authors such as María Luz Pintos Peñaranda, the ethics of care is not an *ad hoc* creation derived from experience and from the legacy of

women, but part of our biological basis as a species. According to Marc Hauser (2008: 73), our moral faculties are equipped with a universal set of rules, in which each culture introduces certain exceptions. We want to understand the universal aspects of our moral judgments, as well as their variations, what makes them possible and what their limits are. As stated by Hauser, our common emotional code generates a common moral code (Hauser, 2008: 71). For Eskimos and some other cultures infanticide is lawful and justifiable when there is a scarcity of resources. However, for Americans it is a barbaric act. Nevertheless, parents' duty to care for their children is universal in all cultures (Hauser, 2008: 73). That innate biological criterion, that obscure metaphysical ethic, seems to coincide with what takes us closer to life and keeps us away from death. And in this context a philosophy of care makes a great deal of sense.

2.2. Culture and Conflict

To complement what has already been said, the anthropological review proposed in this section takes some of the elements peace and conflict studies have been working on as a starting point. The aim of this review is simply to offer a critical analysis taking into account some research lines of neuroscience, while updating the discussions that have been taking place in our research on peace and conflict.

In this paper we want to emphasize the image of human beings as conflictive beings (Muñoz, 2001), which means that one of the traits of their nature is the fact that they live conflicts (Comins Mingol and others, 2011; París Albert, 2009; 2010): *human beings are conflictive because the experiencing of conflicts is inherent in their nature*. We will therefore not fully understand what people are until we recognize this as one of human beings' fundamental features.

As we are talking of conflict, we should remember its etymological definition, in order to know exactly what we mean by this term. The word conflict means "fight", as it derives from the prefix "co-" (which means "union" or "partnership") and the verb "*fligere*" (which means "struggle") (Martínez Guzmán, 2005a). Therefore, what we are saying is that "fighting with", interacting with others to fight, is an essential trait of the human being. We now see the great importance of this capacity of interacting between people, as stated by the epistemological turn of Philosophy for Peace described by the UNESCO Chair of Philosophy for Peace at the Universitat Jaume I, which speaks about the importance of intersubjectivity (Martínez Guzmán, 2001; 2005a). Still, we must clarify that the means used for this interaction may be either violent or peaceful, i.e. this capacity for "fighting with" can come about violently or peacefully. While it is true that the verb fight could make us think of violence ("fighting with violence"), it is also true that, when viewed from a different perspective, it can have another connotation. This verb, which comes from the Latin *luctari* and can be linked to the prepositions "to", "against"

and “for”, means, on the one hand, the use of one’s own forces and resources to defeat another, to overcome an obstacle or to achieve something and, on the other hand, the reciprocal attack people perform against each other with their forces and weapons (Moliner, 1997). However, in a figurative sense, this “fight with, against and for” can refer to an individual or collective effort made to achieve something without necessarily resorting to violence (Comins Mingol *et al.*, 2011). The latter is the sense that we would like to emphasize, as it shows that conflicts, understood as a “fight with”, can be addressed through violence, but also through peaceful means. Again, this latter option is the one we are interested in emphasizing when it comes to regulating conflicts, as these are the means that better allow us to understand the meaning of being conflictive. And they allow us to understand it more easily because they prove that conflicts are not necessarily linked to violence: it is true that we are conflictive, but that does not mean we are violent. As we have pointed out, conflictivity can also be regulated by peaceful means, and this is what we should try to work for, what we should learn and what we should make into a habit. This would allow us to see conflicts as something natural, as long, of course, as they can be transformed peacefully.

The aforesaid conflictivity brings us to another trait of human nature, its *complexity* (Muñoz, 2001). Complexity is closely linked to conflictivity, since acknowledging the complexity of human beings means recognizing they have different choices when handling life’s conflicts and situations. It evidences that their choices when facing conflicts can be based either on violence or on peace, and it also indicates their responsibility regarding their actions and their freedom when choosing how they interact with others.

Moliner (1997) gives us a definition of conflict closely linked to the ideas discussed in the previous paragraph when he says conflicts are linked to *indecision*. Conflicts are those moments when the fight is undecided; that is, those situations in which we do not really know what to do because they can be addressed through different alternative actions, which can be either violent or peaceful. We must also say that these interpretations are included and analysed in the Philosophy for Peace of the UNESCO Chair of Philosophy for Peace. Martínez Guzmán argues that we have different alternatives when it comes to doing and saying things to each other, and that we are the ones responsible for deciding whether we say them or do them through violent or peaceful means (2001; 2005a).

In order to move forward, we have to link these ideas with some of the proposals neuroscience could make. It would be interesting to reflect upon various questions, some of which have already been raised earlier, to give them a more detailed analysis. Are there any universal neural bases which allow us to speak of traits of conflictivity and complexity common to all human beings? Are there any universal neural bases that explain why different people manage their conflicts in similar ways

(for example, through violence)? In short, are there any universal neural bases that enable us to identify the biological nature of violence?

Neuroscience experts tell us that nothing happens, and nothing exists in the human world, which has not been previously filtered and processed by the brain (Mora, 2007: 25). Hauser (2008: 88) states that what has allowed us to live in large groups of unrelated individuals who are continually coming and going is an evolved faculty of the mind which generates unconscious *universal judgments* on justice and prejudice. These quotations show us how these authors generally defend the universality of our behaviour, thoughts and feelings, justifying this universality by shared neural bases. Cortina (2011: 54) also argues that universalism is something unquestionable in the twenty-first century as, in her opinion, some rights (the right to life and the right to dignity, among others) are defended by all human beings. Nevertheless, this author also emphasizes the dependence of human beings on their social environment (2011: 90). Peace and Conflict Research, however, seems to give a lot more emphasis to the way people are *socially constructed*. That is, to the ways in which our identity is shaped in accordance to the learning we receive in our social environment and throughout our lives, thanks mainly to the education we receive both at formal, non-formal and informal levels. Taking this into account, Peace and Conflict Research adopts a predominantly critical view towards universalism, as it is true that, as Cortina (2011) says, although we have some common ideas about certain rights, we can still ask ourselves if the interpretation of these ideas is the same for everybody in every context. Under what rationale are these ideas shaped? We believe these issues and what is hereinafter discussed from a critical perspective is also in accordance with the research carried out by Cortina.

The questions that have just been raised are linked to two of the main grounds for criticism of universalism, namely: 1) It is understood that universalism implies the acceptance of the power of a few as a *model*, a form of power which is imposed on others. For example, male Western reason has been the universal model of reason since Modernity. This is an instance of how the power of a few imposes itself over any other form of rationality producing the subordination of other types of knowledge (the knowledge of women and the knowledge of other non-Western cultures, for example). We can therefore say that this male Western reason has told us what things are like, and how they must be defined and understood; so much so that this form of reason has applied its interpretations to all parts of the world at all times in history, which is why we talk about universality. 2) It is understood that universalism implies a *homogenization* of the different forms of knowledge, to the extent that there is a universal reason, a knowledge of a few, which tells us how things are and how we should interpret them, as we already said in item one. A single concept of justice is thus promoted, and it aims at being universally validated in spite of being a construction of the Western world.

If we relate these ideas to the first two questions we have raised—are there any

universal neural bases that can allow us to speak of traits of conflictivity and complexity common to all human beings? Are there any universal neural bases that explain why different people manage their conflicts in similar ways (for example, through violence)?—we must say that Peace and Conflict Research is unlikely to accept this universality. It is true that we are talking about conflictivity and complexity as traits shared by all human beings. Perhaps this could be a type of universality that could be understood from the perspective of Philosophy for Peace, since both traits could be considered universal characteristics shared by people across the world at all times in history, and perhaps it also is similar to what Cortina refers to (2011) when he speaks about the existence of universal rights, for example.

However, academics who do research on peace and conflicts think the ways in which human beings are conflictive and complex can vary between different people and cultures, and also depending not only on the more biological aspects that shape the personality and character of each person, but also on how this personality, these traits, and this identity are socially constructed in accordance with the formal, non-formal and informal education this person receives. Not all people respond similarly to the same conflicts; responses also vary depending on our own experiences and on the influences we receive from our social environments. We believe this interpretation is in keeping with the idea we mentioned earlier, when we questioned whether the interpretation of universal rights was the same for all people and in every context. As we have already said, we believe Cortina also shares these nuances, although she defends the impossibility of denying universalism in the twentieth century.

If we go back to the third question—are there any universal neural bases that enable us to identify the biological nature of violence?—, we start questioning the *biological nature of violence*, not only its universalism. As mentioned before, in Peace and Conflict Research this problem was already thoroughly studied in *The Seville Statement on Violence: Preparing the Ground for the Construction of Peace* (Adams, 1992). Philosophy for Peace can contribute to this debate, which we believe has a lot to do with neuroscientific research, with its reflections on the existence of universal neural bases that make us violent. If we take into account Cortina's (2011: 90) statement that human beings are clearly dependent on the social environment, and less on their genes, we will appreciate better the following quotation:

es importante distinguir entre las bases de una ética universal, que serán por supuesto cerebrales, pero también mentales y sociales, y el fundamento de una ética universal, que nos permite dar razones morales ante la pregunta por el carácter exigitivo de normas, valores, sentimientos y virtudes a los que llamamos morales (Cortina, 2011: 96).⁹

⁹ «It is important to distinguish between the *bases* of a universal ethic, which will of course be neural, but also mental and social, and the *foundation* of a universal ethic, which allows us to argue in moral terms when asked about the compulsory nature of norms, values, feelings and virtues which we call moral».

Cortina is, therefore, asking us to take into consideration the influences of social environment, not only the genes—which is similar to what Peace and Conflict Research argues in relation to violence.

Regarding these ideas, we should point out again that Peace and Conflict Research has probably been placing too much emphasis on theories based on social constructionism (or, at least, this is the feeling that could have derived from the ideas we have been discussing so far). Taking this into account, it may be appropriate to mention once again that, when speaking about human beings, besides social constructivism (the social influences which modify and progressively shape the personality, the character and, ultimately, the identity of human beings), it is also important to take into account the most biological side of their personality, character and identity. However, in our research we will obviously give greater weight to the former.

Applied to the case at hand, the position expressed in the previous paragraph gives us the opportunity to state the following about the biological nature of violence, in accordance with the proposals Peace and Conflict Research has been working on: *as human beings we have an innate capacity for violence and an innate capacity for peace.* This does not mean we are more or less violent or peaceful by nature, it means that, biologically speaking, as human beings we have both innate abilities. On the other hand, the way in which we are socially constructed influences on whether we make more or less use of each one of these abilities. *People can be violent or peaceful, but our social make-up is probably what will influence directly on our being more violent or more peaceful.* Gazzaniga (2006: 57) defends a similar proposal when he questions the role of polygenetic traits as the only determinants of the human being; perhaps the genes can build the scaffolding for thought, but what gives rise to thinking, memory and other mental complexities is extremely sensitive to the environment and to the interactions between the elements of such a scaffolding.

In short, the proposal we make from Peace and Conflict Research, in relation to the issues discussed in this section, can be summarized as follows:

1) Although conflictivity and complexity are natural features of human beings this does not mean we all manifest these characteristics in the same way. The ways in which we are conflictive and complex depend not only on the biological aspects of our personality and temperament, but also, and above all, on the social influences which progressively change our personality and temperament.

2) We cannot say all people react in the same way to conflicts, as we can respond to each conflict in multiple ways, and our manner of addressing them will depend not only on the more biological aspects of our character and personality, but also, and primarily, on the influences we receive from our social environment.

3) We cannot say we are violent or peaceful by nature. In any case, although as human beings we possess innate capacities both for violence and for peace, it is also true that the ways in which we are violent or peaceful depend mainly on how we are socially constructed.

4) In any case, if we can say there are universal neural bases that explain violence, we can also say there are universal neural bases that explain our ability to act in a peaceful way. Obviously, it is the latter that we are interested in emphasizing, and this is the reason why we strive to study and disseminate the methodologies for peaceful conflict transformation.

Conclusions

Neuroscience has discovered that different brain areas have specialized in different functions and that there are links between them. Neuroimaging techniques, both structural and functional MRI, allow us not only to discover the location of different brain activities but the activities themselves. A large proportion of neuroscientists present their knowledge as a new philosophy that can account for the functioning of morals or religion. Terms such as “neurophilosophy”, “neuroethics” or “neurotheology” have been coined, and these disciplines aim at studying the neural bases of each of these forms of knowledge and behaviour. However, it is important to remind the neurosciences with humanistic pretensions that they have several pending epistemological and ethical issues before they can fathom human beings in their complexity of homo (nature), sapiens (culture) and conflictive beings.

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