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Acknowledgements

The completion of this research work was not without difficulties. It was supported and encouraged by many people, whom I have the special honour to thank.

First and foremost, I express my deep and sincere gratitude to Prof. Christoph Lüthy who, despite his multiple occupations, as Dean of the Faculty of Theology, Philosophy and Religious Studies, and as a Lecturer, has accepted to supervise this work. His high expectation, critical thinking and patience have been motivating factors for me to realise this project.

My sincere gratitude also to the Faculty of Philosophy, Radboud University, Nijmegen, for providing me with suitable environment for studying.

Special thanks to my Religious Congregation (both the Congo and Dutch Provinces) for giving me the opportunity to further studies in Philosophy.

Finally, may all who have contributed, in one way or the other, to the realisation of work be thanked hereby.

1. Introduction

The human – nature relationship has always been a subject of great philosophical interest. It concerns specifically the nature and the place of the human species in the world in its relation to other species. In a bid to deal with this problem, anthropology has understood the human species in opposition to zoology. It has postulated that the human species was created separately from other species, and was, in fact, placed in a position of power over and possession of nature. As a matter of fact, the human species was regarded as the pinnacle and master of nature and all within it. This kind of conception was rooted in a certain anthropocentric worldview. In the Judeo-Christian tradition, for instance, it was argued human beings occupied a unique position in the chain of created beings. Though their material bodies associated them with the rest of creation, they alone possessed a soul and were thereby linked to the spiritual realm to a God who had created them in His image and likeness (Genesis 1, 26-27).

This position was also held in Ancient Greek philosophical tradition in which humans were regarded as the sole rational beings. They alone were thought to have the ability to think and to rationally examine and understand the world in its essence. Plato, for instance, articulated this paradigm for understanding the human nature in terms of rationality. He postulated a dichotomy between body and soul. He characterized the soul as the site of reason, and as such partly and potentially independent of the body, which is mortal and will die. He argued that human existence is a struggle to gain control over the physical (the body) by means of the rational (the soul).

For many centuries, this conception has influenced the framework within which all discussions of living organisms were done. In fact, it introduced a sort of “human exceptionalism”. René Descartes, for instance, in his theory of philosophical dualism, posited a dichotomy of body and soul. He argued that there is, on the one hand, what he called the *res extensa*. It refers to material properties and the physical world as well as all that it contains. On the other hand, there is the *res cogitans*, which according to Descartes, refers to the soul. The latter is unique to the human being. For this reason, he argues that only humans have soul, and therefore consciousness which is the precondition for the free will. Hence, their superiority to animals.

However, things changed with the advent and development of evolution theory in the mid-19th century, mostly when Darwin’s *The Descent of Man*, 1871 was published. It brought about a deconstruction of the traditional anthropological understanding of humans. In fact, the theory of evolution maintained that the various species emerged all from a natural origin rather than

possessing a divine origin (Olafson 2009). Through the process of natural evolution, they have evolved randomly. It assumes that all the species in nature, humans included, are inter-related in the sense that they have common ancestors. Further, the theory of evolution has shown that all species change over time and space through natural selection and transmit their traits to their offspring as they struggle for survival and chance to reproduce.

“As a theory of human nature, evolution had a humbling effect on the pride associated with claims that humans held a privileged status among living things” (Olafson 2009). Consequently, the human has been dethroned from the central position he occupied in the universe. The major, singular and irreducible fundamental difference he claimed to hold was questioned. Thus, the human species was now to understand itself in respect to other natural life forms, as evolutionists postulated a continuity between humans and animals. It is, for instance, argued that there is no fundamental or essential difference between the human species and the other species, especially apes (Wilson 2015, 80-81). What humans do, animals can equally do. In this manner, the human is stripped of any uniqueness. The tendency is to affirm that the human species is animal as the other species. This view has led to the attitude that animals are ascribed human traits. This is very evident in our daily lives today. Special care is given to animals – pets, as if they were humans.

Philosophically, this raises the question of how anthropology will be different from zoology. Note that throughout this work, the word “anthropology” will be used in the particular sense of the “the study of the human species’ nature and place in the universe.” And the word “zoology” here will designate the study of other forms of species, but particularly animals: apes. In the light of the foregoing, our research question is: if the premise is accepted that the human species has common origin and ancestors with other animals, to what extent can we postulate a difference between the human species and other species within an evolutionary framework? In other words, I want to investigate the difference between us and other by comparing some literary evidences.

It is worth noting that in the 19th century already, this problem was at the centre of philosophical contentions. Two extreme solutions were offered to this issue of the humans’ place in the natural world. On the one hand, Alfred Russel Wallace, in his 1864 paper, *The Origin of Human Races and the Antiquity of the Man Deduced from the Theory of ‘Natural Selection’*, argued that human mental evolution differs from the natural and physical evolution. This fact, according to him, takes humans out of the natural order and marks their anthropological difference or uniqueness. In other words, Wallace claims that just as all species in nature are influenced by

their respective natural environments and strive for survival in which only the best fitted cope, so also was the human species once naturally selected and involved in the struggle for existence. However, unlike the other species, the human species at some stage developed capacities that enabled it to fittingly adapt to environmental chances. This resulted in his mind's development; raising man from the animal and natural order to the human state. Accordingly, for Wallace, it is the evolution of mind that constitutes the fundamental anthropological difference between the human species and the rest of species in nature; to the effect that it is mental traits that now constitute the engine of (cultural) evolution, not physical traits as in animals.

On the other hand, Thomas Huxley held a thesis that was diametrically opposed to Wallace's. He addressed the question in his 1874 article *On the Hypothesis that Animals Are Automata, and Its History*. Huxley's argument is that animals, including humans, are just automata. He reasons that consciousness or the mind, which Wallace had taken to distinguish humans from animals, is just a collateral product of our brain. It does not have any specific role or influence capable of acting on the human body. Rather, consciousness is just like the whistle on top of a steam engine. In other words, both humans and animals are physical machines, and our so-called distinguishing mark, the mind, is a causally inert epiphenomenon.

In the light of the foregoing, I think that the debate over what accounts philosophically for the difference between anthropology and zoology is an interesting one. So, in this research work, I want to join the debate and argue for the discontinuity between the human species and the other species. In other words, granted that humans and other forms of species evolved originally from common ancestors, I intend to state that the human species has abilities or capacities that set it apart from the other species. For this reason, it has evolved beyond the spectrum of the natural order, which it shares with the rest of species. In order to achieve this, I want to discuss and analyse comparatively the views of Richard Dawkins and Thomas Suddendorf. R. Dawkins is an English atheist and conceivably today's most renowned evolutionary biologist and zoologist. He rose to prominence with the publication of his book, *The Selfish Gene*, 1976, on which I will focus my study, and which developed a gene-centred view of evolution, including humans, and introduced the theory of memes as the mark of the anthropological difference.

T. Suddendorf is a German-born psychologist interested in investigating mental abilities in both humans and animals. He is famous for authoring *The Gap, The Science of What Separates us from Other Animals*, (2013), the second focus of our study, in which he highlights the key difference between humans and the animal kingdom. Admittedly, both authors are not philosophers; but I have chosen them because their respective works, to the best of my

knowledge, represent two of those that have meaningfully address the question I am concerned with. Their various positions, in fact, give a reasonable account of the difference between anthropology and zoology, granted that the two are closely related from an evolutionary point of view. So, I want to read their works philosophically and see how best they answer my research question. In the first place, I will consider Dawkins' position. In the second part, I will be discussing Suddendorf's position on the question at stake.

2. Richard Dawkins on Anthropology vs Zoology Debate

Dawkins' book, *The Selfish Gene*, seeks to examine the implications of Darwin's evolution theory by natural selection on biology. Although it is mainly a scientific elaboration of a gene-centred view of evolution, and therefore has often been interpreted in relation to genetics and biology, I think that it also something to say about humans. Hence, I want to look at it from the angle of philosophical anthropology in an evolutionary framework. In fact, I want to analyse its hidden anthropology in relation to zoology. In other words, I want to examine how Dawkins implicitly elaborates on our research question: the place and nature of the human species in its relation to other species in the universe. The task, I must admit it, is arduous as there is hardly any literature on that. My analysis will be basically a close reading of chapters 1, 2 and 11 of Dawkins' *The Selfish Gene* in which he examines the human species' nature and place in the universe. Dawkins' main claim is that there is both continuity and discontinuity between the human species and the other species. In other words, he argues that, as all the other species, the human species is a product of natural evolution. Therefore, ontologically and genetically, it is associated with the entire evolved universe. Nonetheless, the human species has some characteristics which raises it above the rest of species. In order to give account of Dawkins' perspective, my analysis will be structured around four points. First of all, I will discuss Dawkins' cosmology (world-view) from which springs up his anthropology and zoology; our second point. The third and last thing we will examine is Dawkins' concept of *memes theory*, as that which marks the fundamental difference between anthropology and zoology. Finally, I evaluate Dawkins' position.

a. Dawkins' Cosmology

Dawkins' description of the nature of the human species and its relation to zoology, according to me, as I underscored earlier on, is consequent to (and concomitant with) his conception of the genesis of the world. For this reason, briefly discussing this cosmology will enable us to better appraise Dawkins' opinion on the relation between anthropology and zoology, namely how is anthropology different from zoology.

Dawkins' account of the genesis of life is purely speculative, in the sense that it is not founded on any empirically unquestionable data. He states himself that no one was there, who could explain how things happened with accuracy (Dawkins, *The Selfish Gene* 1989, 14). In order to attempt an account of the origin of life, Dawkins has recourse to Darwin's evolution theory by natural selection. Simply put, Darwinian evolution theory means that every life form evolved

instead of being created; and that all the species in nature are related in the sense that they originated from a common root. Through natural selection, they are involved in a struggle for survival, during which only the strongest and fittest survive and pass on their traits to their offspring. This transmission of natural traits varies from generation to generation as a result of changes in the environment.

Based on that, Dawkins postulates an atomistic and mechanistic view of the world. Indeed, he argues that the universe emerged *ex nihilo*, that is, out of nothing (Dawkins 2004, 613). Evolving out of nothing, the universe, according to Dawkins, was simple and made up of unordered atoms. Upon the effect of natural selection, it “changed into complexity”. The original, disordered atoms grouped around one another. Their self-grouping resulted in molecules, ultimately, producing life and humans (Dawkins 1989, 14). In other words, Dawkins postulates atoms as the *archè* of the universe. Life forms and all the living species evolved from them (Dawkins 1989, 12-13).

Note that Dawkins does not explain the process of atoms’ self-grouping at the origin of the universe. He only states that the formation of molecules and the manufacturing of life forms, consequent to it, was accidental. It was facilitated by what he calls the “replicator”. Dawkins reasons that the “replicator” is a special kind of molecule that is capable of producing copies of itself. It is comparable to “a mould” or a “template” and to “a large molecule consisting of a complex chain of various sorts of building block molecules” (Dawkins 1989, 15). It means that in Dawkins’ opinion, atoms endlessly create molecules which replicate various copies of themselves by way of grouping and separating. He calls this a process of “a progressive stacking up, layer upon layer” in the formation of the original replicator (Dawkins 1989, 15).

Having stated this, Dawkins holds that replicators have properties. First of all, they are not perfect. They intrinsically bear possibilities of producing mistakes or failures while copying the original replicator. Nonetheless, this proneness to mistakes or errors, for Dawkins, is not negative. Rather, it opens room for improvement and evolution. As a matter of fact, it produces a variety of replicators different from the original. On this, Dawkins writes: “anyway, erratic copying in biological replicators can in a real sense give rise to improvement, and it was essential for the progressive evolution of life some errors were made” (Dawkins 1989, 16).

The second characteristic of the replicators is their *speed fecundity*, that is, their fastness in reproducing or self-copying. Dawkins thinks that during the process of replication, some replicators are faster than others. The faster ones become greater in number than the less fast,

which naturally disappear as they will be taken over by the faster. Dawkins explains that as they multiply, they become too many to fit in the environment. So, by means of natural selection, which he calls *competition*, the less-favoured ones become extinct. To illustrate this, Dawkins reasons that “if replicator molecules of type A make copies of themselves on average once a week while those of type B make copies of themselves once an hour, it is not difficult to see that pretty soon type A molecules are going to be outnumbered, even if they ‘live’ much longer than B molecules” (Dawkins 1989, 17).

Finally, Dawkins argues that replicators are characterized by *accuracy of replication*. It refers to the ability of replicators to faithfully copy themselves in the process of replication. It means that replicator of type A produces the same type A replicator and so on. Further, Dawkins explains that in modern biology, these replicators are referred to as DNA, the carrier of genes responsible for transmission of hereditary traits from parents to their offspring (Dawkins 1989, 22) both on the part of the human species and of animals.

b. The Human Species and Animals, Survival Genetic Machines

Consequent to his theory of the genesis of the universe, Dawkins holds a naturalistic and mechanistic view about the human species and the other species of the universe. To start with, he argues that they are all likewise products of natural evolution. They originally emerged and evolved out of the grouping and separation of molecules of atoms. It implies that they share in the same natural conditions and characteristics. Essentially, according to Dawkins, both the human species and the other species are part and parcel of the natural environment. They can only be understood in this naturalistic perspective. From this viewpoint, there is no fundamental difference between the human species and the other species. There is rather a natural continuity between anthropology and zoology in the sense they all partake in the same evolving environment and are, therefore, influenced by its changes. In his opinion, both the human species and other species are all genetic survival machines. In other words, as pointed out by Angela K. Harris, “in Dawkins’ opinion, all living organisms are nothing more than robots or containers that genes create for their own survival and benefit. The organism is nothing more than a vessel that carries around replicating genes” (Harris 2014, 5). And these genes are the same (in the sense of structure and material) both in humans and animals. Dawkins himself clearly states that “the argument of this book is that we, and all other animals, are machines created by our genes” (Dawkins 1989, 2). Further, he continues “we are survival machines, but ‘we’ does not mean just people. It embraces all animals, plants, bacteria and viruses (...). In their fundamental chemistry, they are rather uniform, and, in particular the replicators that they

bear, the genes, are basically the same kind of molecule in all of us – from bacteria to elephants” (Dawkins 1989, 21). This means that, according to Dawkins, the human species forms an integral part of all the universe. Dawkins holds that these genes – factors of all species of life – have survived natural evolution for millions of years. They were originally involved in a struggle or competition for existence. During this competition, the stronger ones continued to exist and then, ended up producing humans and all other animals in the universe. Therefore, for Dawkins, both humans and other animals are genetically related. Simply put, anthropology is greatly connected to zoology. For this reason, it implies that genetically, in Dawkins, there is no difference between the two, i.e., anthropology and zoology. The study of the human species implies the consideration of its relatedness with other species. In fact, one may even argue that there is no place for any anthropology in such a view.

Furthermore, Dawkins uses a particular human behavioural character to elaborate on this continuity between zoology and anthropology. It is *selfishness*. He posits that humans are selfish by nature. He defines selfishness as a behaviour which seeks or works to secure one’s or one’s group’s welfare at the expense of the other’s; even if it requires jeopardizing it (Dawkins 1989, 4). Selfishness implies, therefore, protection, by all means, of the individual and group interest. The aim of such behaviour, according to Dawkins, is the perpetuation or continuation of the individual or group existence in the context of the natural selection competition which involves all the species. He continues that this human character is genetic. As a genetic characteristic, it is not only proper to the human species. Animals also are selfish just as humans are. This selfishness is a consequence of natural evolution. It was imported on them by genes as they struggled for existence (Dawkins 1989, 2). For instance, he affirms,

“if you look at the behaviour of baboons you will find it to be selfish; therefore the chances are that human behaviour is selfish also (...). Humans and baboons have evolved by natural selection. If you look at the way natural selection works, it seems to follow that anything that has evolved by natural selection should be selfish. Therefore we must expect that when we go and look at the behaviour of baboons, humans and all other living creatures, we shall find it to be selfish” (Dawkins 1989, 4).

Based on the aforesaid, Dawkins establishes a genetic anthropology, whose main argument is that humans and animals are interconnected. This notwithstanding, he postulates a certain uniqueness of the human species. This is what will be discussed in the following section.

c. Dawkins and the Specificity of the Human Species

So far, we have articulated Dawkins' hypothesis of the continuity between anthropology and zoology based on his theory of the selfish gene. Nonetheless, Dawkins recognizes that anthropology is different from zoology. In other words, he postulates that the human species is distinct from other natural organisms. He deals with this particular question in chapter 11 "Memes, The New Replicator" of his book. In order to account for its uniqueness, Dawkins posits two arguments, namely culture (*memes*) and the human ability of foresight.

➤ The Culture Memes

Despite the fact that evolution is universal in the sense that it pertains to all living organisms, including humans, Dawkins argues that there is one reason that takes the human species out of the natural and genetic order. This reason, according to him, is "culture" (Dawkins, *The Selfish Gene* 1989, 189). Though he recognizes the existence of the phenomenon of cultural transmission in other organisms, Dawkins thinks that it is not realized "to the same vast extent. In human alone, he hypothesizes another example of the process that Darwinism illustrates, in this case involving cultural replicators" (Distin 2005, 10).

Dawkins characterizes culture as a new and specific form of replicator which operates in humans (Dawkins 1989, 192). The newness and specificity of this replicator lies in its replication and evolving rapidity. Dawkins posits that it outruns genes. As a matter of fact, "once the genes have provided their survival machines – humans in particular – with brains that are capable of rapid imitation, culture will automatically take-over" (Dawkins 1989, 200). Dawkins calls this new replicator – culture – "memes". Analogous to genes, the word "memes" was coined by Dawkins as a derivative shorthand from the Greek word "Mimeme", which means "imitation" (Dawkins 1989, 192) or "that which is imitated" (Bülow 2013, 3).

Dawkins defines a "meme" as a piece or "unit of cultural transmission, or a unit of *imitation*" (Dawkins 1989, 192). In other words, memes are a set of "cultural entities that replicate by way of human to human contact" (Harris 2014, 5). Simply put, memes designate cultural heritage of a group of individuals. According to Dawkins, they include entities such as melodies or tunes, ideas, catch-phrases, clothes fashions, ways of making pots or building arches (which includes architecture and technology). He argues that analogous to genes that evolve and spread genetically from one body to another one, the development of memes, that is of human cultural heritage, is transmitted from individual or group of individuals to another. He puts it as follows "just as genes propagate themselves into the gene pool by leaping from body to body via sperms

or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain”. (Dawkins 1989, 192). Their transmission is realized through a process of *imitation* as well as social teaching or learning. Working as a “parasite”, memes influence the behaviour of individuals. It means that when ideas or concepts are handed on from one generation to another, they can either enhance or diminish the survivability of those who receive them. Living in the brain, memes control and act upon them (Dawkins 1989, 197). By this, Dawkins outlines the huge influence culture has on the individual’s behaviour. The reason for that is that, psychologically, it penetrates and persuades the individual and conditions him to behave in a certain way. In brief, the human species, in Dawkins’ viewpoint, is a cultural or memetic species.

This description of anthropology, according to me, is problematic. I will voice my criticism of this theory when I will be evaluating Dawkins’ position. For the time being, let me continue elaborating on Dawkins’ analysis in relation to foresight.

➤ **Ability for Foresight**

Another element that accounts for the anthropological specificity, according to Dawkins, is the human ability of foresight. Foresight means, according to Dawkins, the human conscious capacity of thinking and imagining the future. It implies making plans for future survival. He argues that among all natural species, humans are the sole species that can consciously project itself in the future. This gives it the ability to plan ahead of time for long lasting selfishness that will guarantee its survival. It means that the human species can travel in time thanks to its conscience. As will be discussed later, Suddendorf also develops this idea of mental time travelling as proper to humans. In this case, conscience becomes, therefore, that which elevates humans above all other evolved species. The latter, Dawkins argues, “are unconscious, blind replicators” (Dawkins 1989, 200-201).

As Angela K. Harris, a researcher in Philosophy of Education at Walden University, suggests, an example of this safeguarded and planned selfishness is “when warring nations come together in a cooperative cease-fire and peace treaty in order to end the war and prevent future wars”. She continues that “because of this ability to imagine the future, Dawkins believes that it is important to try and teach our young altruism, so that humans can do what no other species has sought to accomplish before” (Harris 2014, 4). Dawkins himself argues that this ability of foresight enables the human species to behave in a way such that it does not jeopardise its own

future (Dawkins 1989, 200). At this juncture, I am going to evaluate Dawkins' response to the question of my work.

d. Critical Evaluation of Dawkins

Though I acknowledge Dawkins' merit for showing, first of all, the continuity between the human species and other, so implicitly between anthropology and zoology, and secondly the discontinuity between them in terms of what differentiates the former from the latter, I register two objections to his thesis, especially his anthropology.

First, his account of human nature, within the framework of evolution, is genetically too mechanistic and limited. For him, the human species is nothing more than a mere genetic machine or robot programmed by our genes. It is a "survival machine", additionally inhabited by parasitic "memes". Such a characterization, in my opinion, introduces a certain genetic and purely memetic determinism and reductionism of the human species. It describes the human species as devoid of any consciousness or reason. It might be objected that Dawkins talks of consciousness in his description of foresight, which is of course conscious. But his notion of foresight seems problematic. I will come back to this later.

More so, Dawkins' analysis of the human species makes no room for individual freedom. It ascribes everything, as far as human behaviour is concerned, to genes. By implication, the latter becomes, therefore, the causal agents of human behaviour. They totally govern human actions and make them (humans) do what they do mechanically, without them having to think about it; let alone them having control over it. For this reason, I think, Dawkins' account is anthropologically reductionistic and deterministic. In fact, the human species is not only a set of genes, but it is also a rational and emotive species. I do not think that evolution theory, by natural selection, which Dawkins uses, denies any reason or consciousness to the human species. In daily experience, the human species experiences itself such that it thinks and decides on what to do and how to do it, depending on the circumstances in which it finds itself. On this, I agree with Eric A. Smith who, contrary to Dawkins, thinks that humans "are likely to be well-adapted to most features of contemporary environments" (Smith 2000). This means that the human species is capable of adapting to the changes in environments and consciously adopts a specific behaviour towards those changes. For instance, to face cold with the help of technology, we manufacture suitable clothes. In the same manner, we produce medicine to cure or prevent diseases. Is this just a mere accidental outcome of genetic and memetic influence?

This adaptation, according to me, is not just a consequence of any genetic or memetic selection; but also, and maybe mostly, a result of conscious and rational consideration of events involved in order to develop proper ways of responding to them. In this way, understanding the human species as Dawkins does would mean that it only produces mechanistically what its genes are about and blindly executes their dictates.

Dawkins tries to escape this problem by introducing the notion of “foresight”, which I discussed above. But one would wonder, where would this foresight come from? I have already noted that Dawkins’ definition of the human species as a genetic robot does not make room for reason. In fact, he does not attribute any role to reason; in fact, he does not even speak of it. Yet foresight implies reflection and critical thinking in order to be able to plan for the future. It implies a conscious time travelling activity in the mind. Besides, towards the end of his book, Dawkins asserts that, though we are genetic machines, “we have the power to turn against our ancestors. We, alone on earth, can rebel against the tyranny of the selfish replicators” (Dawkins 1989). Here too, I think there is a problem. One might ask: where does this power and consciousness to rebel against replicating genes come from? Rebelling to something or someone supposes, as for foresight, reason or consciousness, and the power to steer the body that is becoming conscious of the oppression or negative influence from an external force and deciding consequently to act against it. This does not follow from Dawkins’ logic, in the sense that he fails to ascribe any role to reason in his account of the human species. On this account, I think that Dawkins’ analysis is self-contradictory. His notions of foresight and capacity of rebelling against genes seem to fall from nowhere in his theory of genetically determined conception of humans.

Secondly, Dawkins claims that the “culture memes”, (the mark of the anthropological difference), replicate and transmit themselves from brain to brain (Dawkins 1989, 192). However, his description of this memetic transmission seems so automatic that it does not make room for individual reflection and creativity; thus describing man as a mere copying machine. Culture in this way remains a mere and *unconscious* or *reflectiveless* replication of patterns of life. In my opinion, this is a limited account of culture. As a matter of fact, culture, as “memes”, is not only transmitted, but it also evolves. One might object that Dawkins is aware of the fact that culture evolves. However, in his account, the evolution of culture, by way of imitation and analogous to genetic transmission, does not seem to involve conscious human participation. What it entails, according to me, is that memes simply jump from brain to brain like parasites. The human species does not have control and say over them. Gill Jameson would agree with

me when he asserts that “by suggesting that memes arise as soon as the brain can achieve imitation, it should be expected that memetic evolution will control people in the same way as genes control the behaviour of animals” (Gill 2011, 8-9). In fact, memes, in Dawkins’ view, command humans, whose brain simply becomes the receptacle of a completely independent entity: the memes. In fact, it is as if memes (and genes) were agents with intentions and load them over the human brain. But the question is: where do these memes come from? How do they originate? Dawkins remains silent on this question.

Yet while imitating, ideas, cultures, and the like, individuals usually think them over and take only what is deemed reasonable and useful for their time. This, therefore, calls for interpretation and adaptation of the past into the present, which does not go without changes and incorporation of new aspects based on the individual’s creativity because, the human species is a creative species. It does not imitate blindly. In other words, humans are creators as much as they are imitators. For this reason, I concur with Christoph von Bülow, an analytic and theory of mind philosopher at Konstanz University (Germany) who argues that Dawkins’ “mechanism of the selective passing on of memes among persons leaves important parts of cultural evolution unexplained: major creative achievements by individual persons, e.g., a Beethoven symphony or Einstein’s theory of relativity, did not arise by variantly successful spreading of rarer (sic.), but were developed by their creators in mostly ‘isolated labor’” (Bülow 2013, 8-9). So, Dawkins’ automatism of memes, according to me, reduces cultural development to a poor and blind mechanistic reproduction of ideas.

Thus, characterised by its genetic reductionism and by its analogous theory of memes, Dawkins’ picture of the human species tends to describe two realities working differently and separately like machine in the human species: genes and memes. As discussed above, what Dawkins proposes as the marks of that difference seems untenable and his analysis of the difference between anthropology and zoology is at most unconvincing. For this reason, I undertake to consider, in the following section, another response to the question, namely Suddendorf’s.

3. Thomas Suddendorf on Anthropology vs Zoology

Suddendorf's account of the relation between anthropology and zoology, as discussed in his 2013 book *The Gap: The Science that Separates Us from Other Animals*, is very fascinating. Like any evolutionist, he first asserts that the human species, biologically and naturally, is only understood in relation to all other species, in the sense that they are all products of natural evolution.

However, Suddendorf thinks that there is a “gap” (Suddendorf 2013, 11; 14) between anthropology and zoology. This gap is such that humans have risen beyond zoology or rather animals. And Suddendorf attributes this difference to human mental capacities, which, according to him, have shaped and transformed the human place and position in nature. These human mental capacities include language, mental time traveling, the ability to read other minds, culture, *high* intelligence and the sense of morality. In the following, I will not elaborate on all of these capacities. I will only focus my attention on mental time traveling, language and culture. The rationale behind this choice is that these three, as will be shown, account best for the difference between our species and others.

a. Mental Time Traveling

Simply put, mental time traveling, according to Suddendorf, is the mental ability of the human to transport himself in time into the past and the future, i.e., being able to remember the past and imagine the future. In other words, it is “the faculty that allows humans to mentally project themselves backwards in time to re-live, or forwards to pre-live, events” (Suddendorf and Corballis 2007, 299).

According to Suddendorf, as matter of fact, only the human species is a “time traveller” (Suddendorf 2013, 89). It alone is mentally and consciously able to re-live past events and pre-live the future by way of imagining forthcoming scenarios. And this ability is what has made the human species rise beyond other species in the process of natural evolution. Suddendorf's argument is that mental time traveling into the past requires memory, which, as he acknowledges, animals also have to some degree (Suddendorf 2013, 104). However, the memory through which the human species is able to time-travel is a special type of memory. It is what he calls “episodic memory” (Suddendorf 2013, 91) or “autonoetic consciousness” (Suddendorf and Busby 2003, 391). In effect, according to Suddendorf, episodic or autonoetic consciousness is that part of human memory which is capable of remembering or retrieving and re-living the past so as to “re-experience perceptions, actions, emotions or thoughts of a past

episode of your life” (Suddendorf 2013, 91). It is the memory of events and of one’s own lived past experiences. Suddendorf maintains that this memory is unique to the human species. In fact, Suddendorf states that that animals can remember the past to some extent. They can remember where and when the food is kept (Suddendorf 2013, 104). But, according to him, they cannot remember the scenario or episode around that remembered past event. Only humans are capable of recalling some particularities of that event including the principal characters involved, the actions that took place, the setting or stage and the effects that event produced on those involved (Suddendorf and Corballis 2007, 301).

However, Suddendorf’s description of mental time travel as proper to humans raises some questions. First and foremost, one would expect that Suddendorf elaborates on the manner in which the human species is capable of transporting itself into both the past and the future. But, he completely remains silence on this issue. Further, since all species, including humans, are products of natural evolution, why then is that only the human species can time travel? Why do animals not do likewise? More so, why do only humans have episodic memory? All this suggests a certain inequality in the chances for survival between the human species and others. Doesn’t this mean that evolution, from its very beginning, is partial and favoured one type of species, namely humans? From evolutionary point of view, how did the human species do to acquire the episodic memory which enables it to adequately time-travel unlike animals?

Note that according to Suddendorf, this retrieving or recalling of the past is not automatic. He affirms that it is a “reconstructing process that draws on some stored gist that is then actively expanded as we rebuild the scenario of the past” (Suddendorf 2013, 93). This means that it is a mental process that involves thinking, reasoning. It is not a mere playing-back or rewinding of a recorded past as in a radio cassette. It is a conscious and rational activity of the human mind that seeks to re-construct the past in order to draw meaning and sense from it. The relevance of the auto-noetic consciousness, in Suddendorf’s opinion, is that it not only enables us to remember and re-experience or re-live past events, but mostly, it enables us to imagine and project ourselves into the future. He writes: “the main benefit of memory for past events may be that it allows us to imagine future events” (Suddendorf 2013, 94).

Here, Suddendorf establishes a close link between travelling backwards into the past and travelling forwards into the future. In this case, the former informs and influences the latter. In fact, Suddendorf puts it more clearly that

“based on previous experiences, we can imagine specific events in the future, including the sorts of particularities that have characterized events in the past. Mental time travel into the future might include the planning of some specific event, such as a dinner party, or it might involve the mental anticipation of some event that we know to be scheduled for some future date, such as a job interview” (Suddendorf and Corballis 2007, 301).

In this sense, it is creative and innovative. As a matter of fact, it “unlocks a new real of possibilities for our species” (Suddendorf 2013, 96). In other words, it opens rooms for possible future projections before they are (phenomenologically) experienced.

Since time travelling both backwards and forwards is a mental activity, Suddendorf thinks that, it is therefore private and a priori inaccessible to the outside world. However, its experiences and the fruit of its imagination or projection can be shared through language. So, language in Suddendorf’s opinion, is the locus of the crystallization and communication of the mental time travels. Using it, “we take mutual trips down memory lane and communicate our plans and visions” (Suddendorf and Busby 2003, 393). It is another mark that sets humans apart from animals.

b. Language: The Human Species as a “Talking Ape”

“Thanks to words, we have been able to rise above the brutes” – Aldous Huxley.

In the structure of his book, *The Gap*, Suddendorf discusses the problem of language in the fourth chapter, “Talking Apes”. He postulates it as another mark of the difference between humans and other species. In fact, he states that language is “distinctly human” (Suddendorf 2013, 63). But, one would object and argue that animals also have a language that is proper to them, in the sense that they communicate with one another in various ways. Think for instance of the case of the waggle dance of bees. With this form of round or figure-eight dance, bees share information about the direction and distance to the place where to find flowers yielding pollen and also to water sources. The table below illustrates their mode of communication:

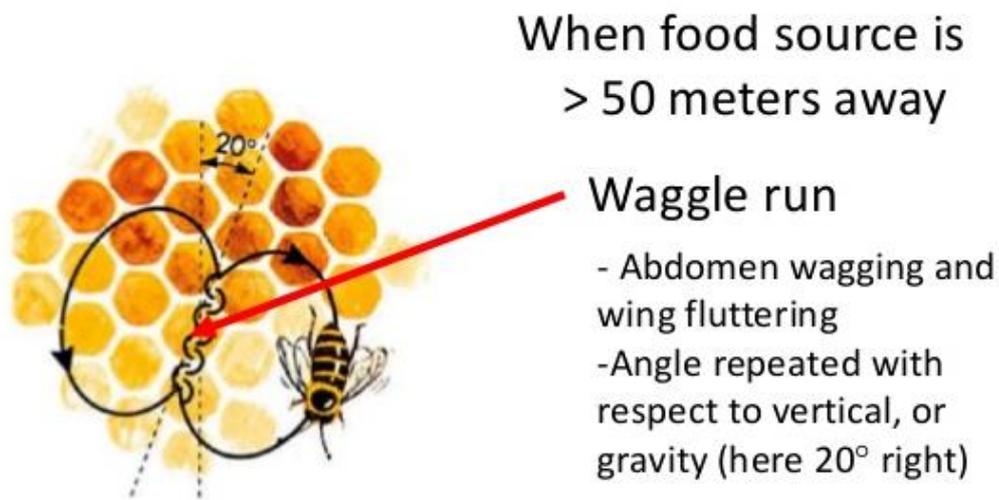
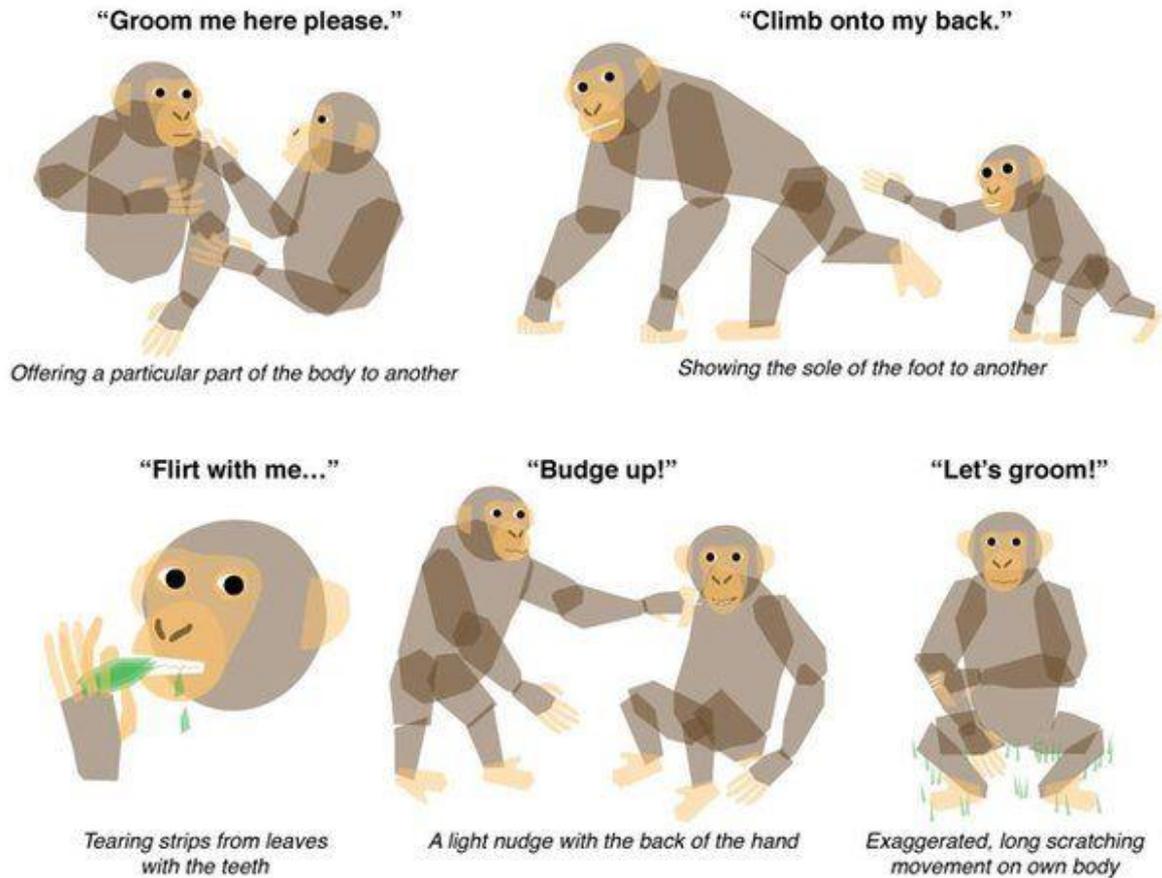


Figure 1: Waggle Dance of Bees: when the food source is of 50 meters away, the bee performs a waggle dance (see the red arrow). The dance is characterised by abdomen wagging and wing fluttering and an angle repeated with respect to vertical or gravity (here 20° right).

Source: <http://www.slideshare.net/VaibhavWadhwa1/dance-language-honeybee>

Moreover, monkeys also communicate through an intricate system of gestures and signs as illustrated in the following table:



Source: Hobaiter and Byrne: The Meanings of Chimpanzee Gestures, Current Biology (2014)

Figure 2: Monkey’s Sign Language

Source: <http://www.nonhumanrightsproject.org/2014/07/14/a-dictionary-of-chimpanzee-sign-language/>

These pictures show that language as a means of communication is not unique to human. It is a universal phenomenon and animals too do have a special type of language. Suddendorf is aware of this. In fact, he recognises that animals communicate and have a specific way of relating and transmitting information to their fellows. He further states that certain animals like parrots can mimic human words (Suddendorf 2013, 82).

But Suddendorf’s main argument is that, of all extant species, only the humans are capable of communicating linguistically and verbally. Animals, according to him, “lack adequate multitasking capacities and voluntary control of the face and vocal tract to establish vocal conversations” (Suddendorf 2013, 86). To illustrate this, Suddendorf refers to the bishop of

Polignac in Paris who, after observing the life of a chimpanzee and certainly having marvelled at its behaviour, exclaimed: “speak and I will baptize thee” (Suddendorf 2013, 63). Embedded in this affirmation are three assumptions. First of all, only humans can receive baptism. Secondly, the chimpanzee has all it takes to be compared to the human species; at least from a behavioural perspective. Thirdly, what makes the difference between the human species and the chimpanzee (an epitome of all animals in this case) is language. Since the chimpanzee cannot speak, therefore it cannot be treated as human. Accordingly, language is that which demarcates humans from animals and therefore anthropology from zoology.

On account of this, Suddendorf thinks only the human species is capable of having control over language expressed in vocal conversation. Its language is special in the sense that it is a means of verbal externalization of the private contents of its mind. In other words, through language, the human species’ mental entity is communicated, and made known publically. So, as discussed earlier, language stands as a bridge between two private minds. Suddendorf clearly states that “the most fundamental feature of language is that it allows us to exchange thought. In conversations, we connect the private world of our minds to the minds of others as we share attitudes, beliefs, desires, knowledge, feelings, memories, and expectations” (Suddendorf 2013, 65).

Another characteristic of the human species’ language, as that which sets anthropology apart, is *recursion* and *generativity*. Recursion is a mathematical term which means that a new formula or sequence can be created from a preceding one. In relation to language, it refers to the ability inherent in human language to create endlessly new words from existing ones and attribute to them new meaning, which is adopted and incorporated into the language used by a specific group of individual. This is realized through the mental process of combing and re-combining words in order to generate new sentences (Suddendorf 2013, 72-73). It implies that generativity is component of recursion. It “enables humans to create virtually limitless variety of words and things” (Gross 2012, 8). Suddendorf further argues that “this generativity is the critical component of human language that distinguishes it from animal communication, and further implies that language cannot be reduced to associative learning or to a finite-state system” (Suddendorf and Corballis 2007, 31). Moreover, Suddendorf contends that this generative recursion is evidently at work in grammar of any language. Taking English as a case, he states from the stem “joy”, a new word can be formed by adding, for instance, a suffix such as “-ful”. Hence, we generate the new word “joyful”. This can also give another word by adding another suffix to it as “-ness”. At the end, we generate the word (noun) “joyfulness”. More so, from a

single sentence, new sentences with new meaning could be generated by adding relative clause or clauses to original sentence. For instance:

Sentence 1 (original): “You think the longest sentence is...”

Sentence 2 (generated by recursion): “I am not convinced by it, but you think the longest sentence is...”

Sentence 3: “But I insist it is true that, although you are not convinced by it, the longest sentence really is...” (Suddendorf 2013, 71-72).

As one can notice, this process can be performed endlessly with different words. According to Suddendorf, it is absent from animals’ communicating system. They have not developed such a linguistic system, which is open-ended. Only humans are capable of it. Note that there are lots of researchers who think that higher apes can time-travel and understand language. Their basic argument is that higher apes have in common with human some procedural and semantic memory. But Suddendorf refutes their suggestions. He contends that there is hardly evidence of episodic memory in animals which may enable them to time travel as humans do (Suddendorf 2013, 110).

However, I think that Suddendorf’s view about language is philosophically limited and reductionistic in its instrumental dimension. He defines language merely as an *organon* in the Aristotelian sense of the term, i.e., an instrument at the service of something else; a means for and to something. In this case, language is simply a means for human thoughts or mental entities. It does not have any other signification and existence than expressing the human mind. It is limited to what humans do with it when expressing their mental content. Further, in Suddendorf’s conception, language is grammar-cantered. Language is considered as only verbal expression of human thoughts following specific rules governed by recursion and generativity. If language were only verbal or formalised and grammatical expression of mental entities, what then do we have to say of those individuals who are deaf and dumb? Does it mean that they do not communicate their thoughts? What then of babies? In fact, what then becomes of sign language which is also an integral part of human language?

So, more than being simply an instrument, language, in fact, is a mode of our being in the world. As Suddendorf himself mentions, language permeates all aspects of human life. If language does so, this means that it is not only a sign, but also a mode of our being in the world. It is both verbal and conceptual and signs. Deaf and dumb individuals and babies use the second mode of language to communicate. Especially babies, before they develop verbal or conceptual

ability, express their mental content through various signs. Parents also communicate with them in the same manner. For instance, when a baby has something in mind, it may cry sending a message to its parents.

Hence, through language, not only in grammatical and formalised form, the human species is able to communicate and impart to others that which it receives from others, namely culture, from generation to generation. Suddendorf postulates culture as another element that marks the difference between the two species: ours and others. This is what will be discussed in the next section.

c. The Human Species: A Cultural Species

“The primary difference between our species and all others is our reliance on cultural transmission of information and hence on cultural evolution” – Daniel Dennett.

At the very opening of his eighth chapter, “A New Heritage”, Suddendorf states that the human species is “deeply a cultural being” (Suddendorf 2013, 157). He defines culture as the sum total of enduring learned patterns of life. It includes values, knowledge, object, customs, etc. These constituents of culture, according to him, are created by society and handed down by it to other societies from generation to generations. It means that culture, as Suddendorf sees it, implies creativity and transmission. To illustrate this fact, he takes the example of shoes. He argues that shoes were first invented by an individual who, in his genius, realized the need for adding “a sole to one’s foot” (Suddendorf 2013, 157). From there, it has become a custom for humans to make shoes and this practice has been propagated around the world.

Note that Suddendorf acknowledges fact that transmission of learned patterns, an aspect of culture, is not unique to humans. He contends that animals too, such as monkeys, do have patterns of life, cultural heritage which they hand down to their fellows in one way or the other. For instance, he reports that “in 1953, a Japanese macaque, Imo, was observed washing sweet potatoes to rid them of sand. This behaviour spread through the group and so suggested social learning by the monkeys” (Suddendorf 2013, 173). However, according to him, they lack creativity. He reasons that there is no evidence that monkeys have made something like shoes, and teach others how to make shoes. On this account, Suddendorf states that creativity in the cultural heritage is uniquely human, and so sets humans apart from animals (Suddendorf 2013, 157).

More so, Suddendorf explains that, as a cultural being, the human species “stands on the shoulders of giants – or, rather we stand on the shoulders of millions of ordinary, mostly deed people from whom we inherited our culture. We have evolved a fast and flexible way to pass on information to next generation” (Suddendorf 2013, 165). It goes without that saying that the human species’ existence is built on past cultural heritage so that culture is central to it. In fact, human worldview is influenced by its cultural heritage. Implicitly, cultural heritage, in Suddendorf’s view, is not transmitted blindly (as it seemed in Dawkins’ perspective where memes are the agents for that transmission). Rather, it involves creativity, reflection and amelioration, which are human active participations. It this way, according to Suddendorf, culture constitutes the gap between our species and others; in brief between anthropology and zoology. It acts on our genetic constitution and improves it in ways that are different from the animal kingdom, whose inherited genetic constitution remains mostly at the same level. He holds that culture has made the human species transform the earth. This is self-evident in architecture, technology, clothes, increasing knowledge, etc. (Suddendorf 2013, 165).

However, Suddendorf acknowledges that animals also impart their ways of living to their fellows. In fact, they also possess a sort of cultural transmission. Now the question is, what distinguishes the human species’ transmission from other species’? Suddendorf seems to suggest that it is language. More than language, the difference, I think, is also related to the notion of *understanding*. Understanding implies not only *knowledge* that one or a group of individuals have about a particular thing or situation, but also a formal or informal *agreement* a group of individuals have on the particular meaning to be attributed to something. Unlike animals who tend to transmit their patterns of life by mere mimic or what I may call “instinctive imitation”, humans understand, and explain what they pass on whether verbally or by signs from a particular perspective. And that to which they attach a meaning becomes a symbol. Symbol here understood as a thing which points to something else than the thing (symboliser) itself. As individuals understand the meaning attached to a particular sign or cultural element, they identify themselves to it within their cultural environment. For instance, in the Christian tradition, the Cross is symbolic of the death of Christ, through which he accomplished the salvific work of the world from sin. As stated earlier, the particular understanding attached a cultural element influences the existence of the individuals involved in one way or the other.

At this juncture, a question arises: what would the implication of the aforesaid perspectives on the description of the difference between our species and others? How do they related to each other? In the following section, this question will be addressed.

4. Concluding Remarks: Implication of the Various Stances

The initial question of this research was to know what accounts, philosophically, for the difference between the human species and other species, especially apes, and implicitly why we should have two disciplines “anthropology” and “zoology”, whilst from an evolution theory perspective, it is granted that all species emerged from a common source. The discussion carried out so far has shown that there are two basic stances on the issue. One stance postulates the existence of the difference between our species and other species. This difference is attributed to the evolution and development of the human mind or mental capacities which uplifted humans from a natural to a cultural order. This is the position held by Wallace, Dawkins and Suddendorf, with the difference that for Dawkins, genes (therefore the biological part of humans) and memes (the cultural part of humans) are two entirely different types of replicators. For this reason, they are completely decoupled and each one seems to work independently from the other. Memes seem to freely jump from brain to brain, which only becomes their receptacle or repository. But for Suddendorf, the cultural order seems to work on the biological order and improve it. There is a sort of close relatedness between them.

The other stance, contrariwise, argues for the absence of any difference between us and other species. It maintains that what is considered as the mark of the human species’ uniqueness, namely consciousness or the mind, is just an epiphenomenon which does not play any role in humans. This is the thesis propounded by Huxley. As stated earlier, he describes the human species as pure automata, whose consciousness is just a by-product of the brain. Everything about the human species, according to him, works automatically under the total influence of our biological constitution like in a machine.

However, philosophically and anthropologically, such a conception is problematic. Indeed, it will have no other implication than describing humans as pure brutes fully determined and controlled by genetic or biological drives. In this way, the human species is, in all, equal to other species. There would not be, therefore, any difference between them. More so, there would be no logical reason and need for having two disciplines, namely zoology and anthropology. Since anthropology is immersed in zoology, only zoology should exist as a discipline. But the question is that, if the human species is the same as other species, and that individual members of the human species are genetic robot whose mind is only an epiphenomenon, why have we not stayed at the same level of existence like animals? Further, why are animals for instance not capable of doing things the same way as humans do? Why

have they remained at the zoological level after natural selection has acted on them? Humans can create technology and seemingly have huge control over what they do. Can animals do so? Have they been able to create for instance an umbrella to hide from rain and sunshine and improve on it? This suggests that consciousness or mind does play an important role in our existence. As a matter of fact, if it was selected, it was certainly for a useful purpose. It improves our natural and biological constitution by way of transforming it and enabling us to develop new things from existing ones, as discussed in the case of language and mental time travel.

So, whilst the theory of evolution has reminded us of our animal nature, we should not prescind from the fact that the human species is rather peculiar. In a very special way, we have been able to exercise a great influence on our nature (biological constitution) and environment to the point of changing or transforming it completely. This is not only thanks to our physical constitution, but mostly because of *high* intellectual mind. In the words of Michael Ruse, a professor of philosophy at Florida State University, “through our intelligence and labor, we humans can make things better, in science, in education, in healthcare, and more” (Ruse 2012, 101). For instance, with technology, which is a product of our genius, i.e., our intelligence, there have been, especially now in the 21st century a shift of paradigm. We are moving from *biotope* to *technotope*, i.e., from a natural and biological constitution of the world to the technological one; whereby the world, and us included, seems to function and be understood in terms of technological construction. With this, we are becoming more and more capable of manipulating our environment, and even aspiring to life in vitro. This is the whole project taking up, for instance, by Synthetic Biology, a discipline in which organisms are selected and altered by modifying parts of their genome in order to create entirely new species (Church and Regis 2012).

Hence, there is something special about us which legitimates our specificity and calls for the need of having another special discipline of studies – anthropology – besides zoology. That special element about humans is consciousness or human mind. All the human mental capacities (such as mental time travel, language, and culture, which according to Suddendorf, are marks of the anthropological difference and many others) are rooted in, and are a consequence of, the mind. Darwin, the father of contemporary theory of evolution, expresses clearly that “the greatest difficulty which presents itself, when we are driven to the above conclusion on the origin of man, is the high standard of intellectual power which he has attained” (Darwin 1871, 390). During the process of evolution, the mind or consciousness certainly evolved in a different way from that of other species. Thus, it took the human species out of the biological

natural order. Now the question would be, how did this gap occur? In other words, how did the evolution of the human mind happen such that it stands as the gap-making mark between us and other species? It would be interesting to expatiate upon this problem. But this is not the question of the current investigation.

All things considered, it is worth noting that any attempt to establish the difference between our species and others basically relies on comparative studies of the species involved. However, in these comparative studies, it is only one species that is active, that is, conceptualises and formalises things in a way which is easily understandable to us. That species is ours. There is no evidence that animals have ever, reasonably and conceptually, said things about themselves. Their characteristics are studied exclusively from the human perspective. The image (figure 2) about monkeys' mode of communication demonstrates that. In it, it is humans who, after observation, interpret monkeys' gestures from the perspective of human logic and understanding, attributing human language. This is the same in the case of the waggle dance of bees. More so, in the episode by Suddendorf the bishop of Polignac in Paris refused baptism to a chimpanzee, the same human logic is at play.

In this sense, it could be said that the study is unilateral and asymmetrical. Put simply, it is the human species that observes, analyses, characterises and conceptualises animal behaviour and makes its deliberations or conclusions from it. So, is there not a tendency that the human species transposes its categories to the animal kingdom and affirms what suits it? How objective could postulating the difference between our species and others be while the other subject of comparison is speechless, and cannot say anything about itself from its own perspective?

Finally, elaborating on the difference between the human species and others, and implicitly on the reason why we should have anthropology besides zoology whilst evolution theory insists on our relatedness, leaves anyone who delves into this problem in a tension. From the 19th century onwards, this tension has given rise to two extreme positions. On the one hand, the difference between us and other species is denied, and therefore only one discipline should exist, namely zoology. On the other hand, there is a move for the affirmation of the difference between the human species and others, though they (humans and other species) are all descendants of the same ancestor from an evolutionary perspective. The latter is the thesis I endorse as I think that on the basis of its high intellectual capacities, the human species has evolved beyond the spectrum of the natural order. From this perspective, anthropology as a discipline enables us to reflect and consider rationally the quiddity of our species in relation to others.

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