

The search for what make us human: deception and self-deception in the service of the justification of violence

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ABSTRACT: Many researchers have attempted to identify the essential features that differentiate humans from all other living beings. In this paper I (1) explain that it is logically impossible that such features exist, (2) discuss some possible causes of the erroneous belief that they exist, one of which is support for justifying violence against animals, and (3) discuss some of the consequences that this belief has on the progress of knowledge.

1 Introduction

Taxonomy is always a contentious issue because the world does not come to us in neat little packages.

Stephen Jay Gould¹

In his autobiography “Recuerdos de mi vida” (“Recollections of my life”), published in 1917, Nobel Laureate Ramón y Cajal wrote: “With the help of my microscope, with my usual passion, I embarked on the conquest of the assumed anatomical feature of the crown of creation, the disclosure of these enigmatic strictly human neurons on which our zoological superiority is founded.”²

Searches of this kind continue today, and a number of authors have seen their efforts published in prestigious scientific journals. For example, D. Penn and coauthors (2008, *Behavioral and Brain Sciences*) explain Darwin’s mistake and “the discontinuity between human and nonhuman minds”³; A. Varki (2010, *PNAS*) states that certain *human-specific* genetic changes must have contributed to the “Human Condition”⁴; M. Pagel (2012, *Nature*) asks “What made us human?” and suggests that about 200,000 years ago a “defining event” in the evolution of modern humans occurred⁵; according to S. Fisher and M. Ridley (2013, *Science*), DNA sequencing is “offering unprecedented opportunities to uncover the molecular variants that make us human”⁶; and C. Cela-Conde and coauthors (2013, *PNAS*) state : “One thing we have discovered is that humans possess certain unique mental traits. Self-reflection, as well as ethic and aesthetic values, is among them, constituting an essential part of what we call the human condition.”⁷

¹ Gould (1996, p. 188).

² As quoted by DeFelipe (1999, p. 38).

³ Penn *et al.* (2008, title).

⁴ Varki (2010, p. 8939).

⁵ Pagel (2012, p. 297).

⁶ Fisher and Ridley (2013, p. 929).

⁷ Cela-Conde *et al.* (2013, p. 10339).

In Section 2 of this paper I will explain that the search for the defining characteristics of human beings, the essential features that supposedly differentiate humans from all other living beings, is by definition doomed to failure, much in the same way as would be the quest for three-legged bipeds: these features cannot exist.

In Section 3 I will discuss some possible causes of the mistaken belief in the existence of an essence that differentiates humans (hereinafter, “the erroneous belief”).

Finally, in Section 4 I will discuss some possible consequences of the erroneous belief on the progress of knowledge.

2 The logical impossibility of humans being *essentially* different

As a great observer, Darwin wrote the following:

“From these remarks it will be seen that I look at the term species as one arbitrarily given, for the sake of convenience, to a set of individuals closely resembling each other, and that it does not essentially differ from the term variety, which is given to less distinct and more fluctuating forms. The term variety, again, in comparison with mere individual differences, is also applied arbitrarily, for convenience’ sake.”⁸

“Nevertheless the difference in mind between man and the higher animals, great as it is, is certainly one of degree and not of kind. We have seen that the senses and intuitions, the various emotions and faculties, such as love, memory, attention, curiosity, imitation, reason, &c., of which man boasts, may be found in an incipient, or even sometimes in a well-developed condition, in the lower animals.”⁹

Of course Darwin was not infallible, and perhaps in this case was wrong. But he was not. Actually, Darwin’s words only explain a small part of a more general law: the sets of things that are *usually* given the same name (“humans,” “trees,” “tables,” etc.) do not usually receive it because they share some kind of essence, but because they *are similar* enough, together with contingencies in the evolution of languages.

For reasons I will attempt to explain in Section 3, the impossibility of humans being essentially different is *psychologically* difficult to accept for many people. However, a *logical* demonstration of this impossibility is quite simple, and almost as straightforward as demonstrating that there are no three-legged bipeds. In short, the demonstration is based on the obvious fact that definitions follow the common uses of words instead of preceding them. The logical impossibility can be shown in different ways; the easiest way I have found of doing this is as follows:

⁸ Darwin (1876, p. 42). The modern definition of species based on reproductive isolation (applicable only in sexually reproducing species) does not contradict Darwin. Reproductive isolation, which *can occur in varying degrees, depends on similarity* between individuals in the set of traits that influence whether two individuals may have common offspring. In turn, the reproductive isolation is a cause of similarity between the individuals more or less isolated from others.

⁹ Darwin (1871, p. 105).

Premise 1: a differentiating or defining essence is a feature or set of features which all the elements of a *specific* set of elements possess, and no other element possesses.

Premise 2: different people refer to different things as being “human”. *For example*, paleoanthropologists disagree on which fossils correspond to humans and which fossils do not, while other people argue about whether a human zygote or a human embryo is a human. Therefore, “humans” are not a *specific* set of elements.

Conclusion: “humans” cannot have a differentiating or defining essence.

(For similar reasons, if the *human species* is the *set of humans*, it is useless trying to discover where and when the human species originated, because there is no original point, although it does make sense to investigate the evolution of our ancestors and, for practical reasons, to classify fossils into different classes or species.)

In contrast, the set of elements that are “humans according to definition *d*” would be a determined set of elements and have essence if the definition were truly defining. However, as people are not obliged to accept it, the author of the definition *d* risks affirming that what many people call a human being is not a human being, or vice versa. (If they are not careful, authors of definitions also risk laying themselves open to ridicule, as is said to have happened to Plato when he said that “man is a featherless biped.” Diogenes, showing a plucked chicken, replied “Here is Plato’s man.” Plato, it is said, responded by adding “with broad, flat nails” to his definition.)¹⁰

Let us see a couple of examples that illustrates this.

1: Ridley says that in the mid-1990s “the first genetically unique feature universal to all people and absent from all apes was discovered”¹¹: an allele of the gene called CMAH. Ridley does not explain how the feat of checking the presence of the allele in all humans and all apes was achieved (nor how it was decided who was a human: were the genomes of fetuses analyzed?), but never mind: let us suppose the feat was accomplished. So is the “human” allele of CMAH a defining feature of human beings? Yes, provided we define “human being” in this way: “a living being with that precise allele.”

This hypothetical definition would have many absurd consequences: a newborn from human parents without the allele (due to mutation) could not be a human; a transgenic laboratory rat with the allele would be a human; and there would have *simultaneously* been humans and nonhumans among our evolutionary ancestors, etc.

2: According to M. Cartmill and K. Brown: “We all know how to identify humans: (1) upright bipeds with (2) nimble hands, (3) big brains, (4) short faces, (5)

¹⁰ Arnaiz (2014). “We are the only vertebrate species with a bipedal gait and erect posture; birds are bipedal, but their backbone stands horizontal rather than vertical (penguins are a trivial exception)”, according to Ayala (2010, p. 9015).

¹¹ Ridley (2003, p. 27).

weird pelage, (6) protruding fat depots, and so on.”¹² If so, a human who, due to an accident, loses one or both legs or hands becomes nonhuman.

These are the problems of making precise or relatively precise definitions of “human being”, which make such definitions scarce. Note that the hypothetical quantitative definitions, as “a human being is a being with an IQ above 50”, would also share these problems. Some authors argue that a number of mental abilities are what differentiate humans. In the same way that IQ tests have been devised to measure what people usually call “intelligence”, other methods may be developed to measure other abilities, and this may allow us to state the following: “to know if a certain individual is a human, the procedure p designed to measure the ability (or combination of abilities) a must be applied to the individual. If the measurement yields a number greater than x the individual is a human; otherwise, it is not.”

However, it seems unlikely that a sensible person would dare to say something like this. Advocates of the erroneous belief usually offer vague and inapplicable definitions (such as “a human being is a being with the capacity for language / morality”¹³). This may be related to the fact that vagueness can facilitate deception and self-deception.¹⁴

3 Causes of the erroneous belief

Human beings have a strong tendency to believe that things that are similar and share the same name also share an essence: “Research on psychological essentialism demonstrates that people perceive ‘natural’ categories—such as living organisms—as having an underlying, definitive, and unseen nature that makes them what they are... Psychological essentialism appears to be a prevalent cognitive bias, and has been identified among children and adults across a wide range of cultures... Across these contexts, people show a robust tendency to judge category membership as reflecting an immutable underlying essence.”¹⁵ Famously, Plato even claimed that Justice, Goodness, and other concepts *have an entity that is separate and distinct* from the particular things we call just, good, etc.¹⁶

Essentialism is related to the “categorical” way of thinking, which consists of thinking about individuals and individual cases as elements of a class or category, attributing them the supposedly essential or stereotypical characteristics of the category. Categorical thinking is less realistic than the individualized treatment, but is much more

¹² Cartmill and Brown (2012).

¹³ Language is “the most radically common factor—within its diversity of forms—that defines our human condition”, according to Savater (1994, p. 67),

¹⁴ Dunning (1989), Schweitzer and Hsee (2002).

¹⁵ Dar-Nimrod *et al.* (2011, p. 442). Presumably, the trend exists because it was evolutionarily advantageous on average, which in turn derives from its facilitation of inferences, although these are not always correct (Salomon and Cimpian, 2014).

¹⁶ Interestingly, this “theory of Ideas” was in part a result of the reaction of Socrates and Plato to the moral relativism of the Sophists: both philosophers wanted to establish that justice, morality, etc. could be objectively defined (Calvo Martínez, 1988, pp. 125-127).

economical: according to N. Macrae and G. Bodenhausen “category application is likely to occur when a perceiver lacks the *motivation*, time, or cognitive capacity to think deeply (and accurately) about others.”¹⁷ “Simply stated, categorical thinking is preferred because it is cognitively economical”.¹⁸

Every feature of a living being and every effect or set of effects of a behavior can be bad, neutral or good for reproductive success. As explained in the previous paragraphs, the erroneous belief may be a bad effect of a good feature, the good feature being the bounded cognitive capacity. This feature may be good because cognitive capacity has construction and maintenance costs, which implies that there can be excessive cognitive levels with excessively high costs.

However, the erroneous belief may also be a neutral effect, or even a good one. Two possible benefits of false beliefs are known. This implies that overall, false beliefs *may be beneficial*. Since natural selection favors individuals that reproduce the most, not the strongest nor the most intelligent or realistic, it can be expected that living beings with beliefs have some ability to acquire advantageous beliefs, whether they are right or wrong. This can occur in various ways; for example, by categorizing¹⁹ and applying stereotypes²⁰, to some extent, at one’s convenience.

(This can also occur in a way that has left its mark on some languages. The Spanish verb “ignorar” means both “to ignore” and “not know.” The relationship between these two meanings is obvious: ignoring “uninteresting” information is a very common way of not knowing this information. Many humans may be unaware of the fact that we cannot be essentially different because they have paid little attention to information that contradicts it, such as the theory of evolution, although, as previously explained, this theory is not necessary to refute the erroneous belief).

In summary, essentialism, categorical thinking and confusion between individuals and classes of individuals (or platonic ideals) are trends which to some extent may be biased as a result of each person’s interests.

One of the two known benefits of false beliefs —the one that seems relevant here— is the increased capacity for deception²¹. Individual A is more likely to make individual B believe a false belief if A also believes it. But, why would anyone want others to hold the erroneous belief?

Holding a certain belief facilitates accepting other beliefs that are more or less consistent with it. Often a belief is fiercely defended not because it has intrinsic value, but because it helps to defend another belief that has it²². A benefit resulting from others

¹⁷ Macrae and Bodenhausen (2000, p. 105). (Italics added).

¹⁸ Macrae and Bodenhausen (2001, p. 241).

¹⁹ Pietraszewski *et al.* (2014).

²⁰ Macrae and Bodenhausen (2000, 2001).

²¹ Von Hippel and Trivers (2011). The other benefit is the decrease in the average cost of errors in situations of asymmetry of the cost of errors (Haselton and Nettle, 2006). An explanation of both benefits can be found in Cortizo Amaro (2014, ch. 9).

²² For example, Lysenko gained much power because their genetic hypothesis seemed to support some beliefs of the Soviet leaders. According to Milner (1995, p. 421): “During the 1930s, Trofim D. Lysenko achieved great power in the USSR by convincing government ideologues that he could create a genetic science in line with his political philosophy. The rulers wanted science to support the idea that the Soviet society could be transformed, literally, within a few

holding the erroneous belief is that they are more likely to accept this belief: violence against animals is justified. The erroneous belief does not logically lead to the justification, but that is usually unimportant, because the role of logic in normal human beliefs and decisions (excluding applications such as mathematics) is also unimportant.²³ It is enough for the justification to superficially appear to cohere with other “truths”, especially if, as is the case, violence is directed against certain individuals and its justification at others, who may share an interest in considering that the justification is good enough.

This may be an example of, say, “argumentation” linking the erroneous belief to justification of violence: “humans are essentially different; this allows us to be the only living beings with moral capacity and moral rights; therefore animals do not have moral rights and so we have no moral duty to limit our use of them.” This statement is similar enough to reasoning for it to be accepted by an audience that is willing to justify violence against animals.

The first step of the argument, “this allows us to be the only living beings with moral capacity and moral rights” is facilitated by another trend that often accompanies the erroneous belief: the positively biased description of human traits. Consider, for example, these opening words from a paper on “Darwin’s mistake”:

“Human animals – and no other – build fires and wheels, diagnose each other’s illnesses, communicate using symbols, navigate with maps, risk their lives for ideals, collaborate with each other, explain the world in terms of hypothetical causes, punish strangers for breaking rules, imagine impossible scenarios, and teach each other how to do all of the above.”²⁴

This sentence contains several incorrect claims: some of these behaviors can be performed by some animals²⁵, and not all humans carry out those behaviors. This is the kind of error that is consistent with essentialism. But what I would like to point out here is that the list of behaviors is suspiciously positive. They do not say, for example, that humans manufacture and sell weapons, make laws punishing non-harmful behaviors²⁶, and kill others “for ideals.”

This positive bias, which stems from the desire to believe that we and the groups or classes to which we belong are good, *is related to rights* (which in turn are related to violence). The reason is that believing that we are good helps us to make others believe it, and making others believe it favors our rights because, from an evolutionary and

generations, and that the Russian people evolved progressively. If every generation had to be educated independently, without an accumulation of heritable improvements, it would take a long time to create a socialist utopia. (...) His policy caused a delay of thirty years for the Soviet biology and genetics and devastated the country’s agricultural production. A series of repeated failures and poor harvests eventually forced him to leave his post in 1965.”

²³ Cortizo Amaro (2014, ch. 1).

²⁴ Penn *et al.* (2008, p. 109).

²⁵ At least some animals can communicate using symbols (Fouts and Fouts, 1998), and it is clear that many animals cooperate with each other.

²⁶ Cortizo Amaro (2014, ch. 11).

psychological standpoint, many positive traits lead to higher social status, and rights partially depend on social status.²⁷

R. Alexander relates a case that illustrates both the use of the aforementioned “argumentation” and its collapse when part of the audience is not ready to collaborate in the deception, either because it disagrees with the interests or due to an aversion to deceptive argumentations:

“I recently heard a philosopher lecture on the topic ‘Why animals have no rights,’ He argued that only humans construct and operate moral systems, and only organisms that do this have rights. He was concerned to advance the notion that it is not immoral to use nonhuman organisms in medical research to save human lives. He was immediately asked: Why not use severely retarded persons in medical research, as they are also certainly not moral beings and therefore by his reasoning should have no rights. His response was difficult to decipher ... This speaker did not seem to grasp that rights are given and denied by humans, and that if all humans were to decide that dogs, or rhesus monkeys, or laboratory rats have rights equally with humans they would indeed then have such rights, and this would surely be true using his own definition.”²⁸

The conference referred to in this quote is just an anecdotal case. However, although to my knowledge the relationship between the erroneous belief and the justification of violence has not been directly investigated, there are already some studies which support that the desire to use animals leads to greater acceptance of the idea that they are essentially different from us, and to lower ratings of their mental capabilities, their sensitivity to pain and (as a result) their deservingness of moral consideration.²⁹

Another fact that supports this relationship is that it has also been observed in cases of violence against human groups. For example, Aristotle justified the existence of free and enslaved people by defending that they had different natures³⁰; according to S. J. Gould, the effort by many scientists to attempt to demonstrate, often misleadingly, that people of African descent have a smaller brain volume and a lower IQ in comparison to Caucasians was aimed at justifying black people occupying a lower position in society³¹; and during the Nazi regime in Germany many biologists, either spontaneously or with the help of incentives, volunteered to help in the task of discovering what made Jews physically different (they failed, and were replaced by social scientists who explained that it was their behavior that made Jews different and worse).³²

²⁷ Cortizo Amaro (2009; 2014, ch. 6).

²⁸ Alexander (2007, pp. 156-157).

²⁹ Bilewicz *et al.* (2011), Bastian *et al.* (2012), and Bratanova *et al.* (2011), respectively.

³⁰ Aristóteles (1977).

³¹ Gould (2004).

³² Koonz (2005, p. 229).

Finally, it is evident that there is a similarity between the belief in the human essence and the belief that humans, and *only humans*, have a soul³³, and it seems very likely that in many cases there is a causal relationship between these two beliefs. The first could be a cause of the second. If it is found that to some extent the second leads to the first, before stating that we have found a cause of the erroneous belief that is independent from the justification of violence we could ask whether the people involved want this exclusivity, and why.

4 Consequences of the erroneous belief

The beliefs of every human are usually relatively consistent with each other. Therefore, possessing a false belief often requires having other related beliefs, which are likely to be at least partially false. The erroneous belief leads naturally to choose other false beliefs, especially if it is in danger and needs to be supported by other beliefs. It seems very likely that the erroneous belief has favored other false beliefs, possibly hindering the advancement of knowledge in at least three areas of knowledge: primatology, human evolution and psychology. I will comment here only a few examples.

In the first case, the advocates of the erroneous belief are interested in not discovering that other animals are similar to us. For example, when J. Goodall discovered that chimpanzees manufactured some simple tools used to “fish” for termites, some researchers tried to discredit her on the grounds that her inexperience prevented her from producing reliable information. Then Goodall contributed photographs showing the process being carried out. According to Goodall: “Some scientists then actually suggested I must have taught the chimps to fish for termites!”³⁴ (When it became impossible to deny that some animals make tools, a number of scholars reacted by redefining “tool”³⁵ or stating that what is characteristic of humans is the “*complex use of tools.*”³⁶)

Other scientists refused to accept the findings that chimpanzees could communicate with humans and with each other using sign language³⁷, or that they could reconcile after a fight.³⁸

³³ Many people believe that humans have some undetectable thing called “soul”, but animals do not (others do not believe that we have it, and others believe that both humans and animals may have it). Might those people, assuming that they are correct, *rightly* argue that the soul is what differentiates humans and animals? No. They may rightly say “As I see that they are a human being I conclude that they possess a soul.” But they cannot rightly say “As I see that they possess a soul I conclude that they are a human being.” because souls are undetectable by definition.

³⁴ Goodall (1999, p. 68)

³⁵ According to an objection cited by de Waal (2002, p. 210) tools made by animals are not “real tools”, because for qualifying for real tools they must be associated “with complementarity of roles, symbols, cooperative production and education” and if any of the four conditions is not met tools are not “real tools.”

³⁶ Penn *et al.* (2008, p. 109). (Italics added).

³⁷ Fouts and Fouts (1998, p. 49).

³⁸ De Waal (2002, p. 56).

According to M. Gazzaniga and J. LeDoux, “the fascinating studies of the communicative capacities of chimpanzees (...) have shown that the cognitive capacities underlying communicative skills are not unique to man in any absolute sense.” But they also make a comment that shows that some research on language has been aimed at supporting the thesis that the human brain is special: “the old tactic of analyzing the gross anatomical discontinuities between man’s brain as compared to the brain of the chimp and other animals no longer seems to be a fruitful enterprise, since the essential difference between these two groups on the language dimension is no longer clear. The uniqueness of man appears to be in the areas of speech production and reception.”³⁹ According to Cartmill and Brown: “Language has generally been viewed as a crucial marker [of humanness] — so crucial that linguists change their definitions of language whenever rudimentary linguistic capacities are discovered among nonhumans.”⁴⁰

The gradualism of evolution poses a problem for those advocates of the essential difference of humans who believe that “modern” humans are essentially different from their ancestors (unlike those who explain that the alleged modern-day essential difference results from the disappearance of intermediate individuals). How could a generation of non-human ancestors, all of whom by definition lack human essence, be replaced by a generation of humans, all of whom by definition have human essence? A bad solution is the proposal that in the human evolutionary past there was a *sudden* change, an *evolutionary revolution*, which transformed our last cognitively “archaic” ancestors in our earliest cognitively “modern” ancestors.

Implicitly associated with those who defend the theory of the revolution, Ridley predicts that science will soon find some genes whose mutation “suddenly allowed symbolic or abstract thinking”: “I predict that the changes were in a small number of genes, simply because the lift-off is so sudden, and that before long science may know which ones.”⁴¹

The reason why the theory of revolution is a bad solution is not only that it has been completely discredited⁴²: it was already a bad solution before that, because what occurs suddenly on an evolutionary scale is still not instantaneous, and the transition between our last essentially different nonhuman ancestors and our earliest essentially equal human ancestors remains unexplained

According to evolutionary biologist F. Ayala, humans have a “capacity for ethics” (or for morality) and animals do not.⁴³ According to him, the emergence of this capacity was sudden, and not a result of an evolutionary revolution, but because the intellectual capacities of our ancestors crossed a hypothetical “evolutionary threshold” that was necessary for morality. Ayala compares the emergence of the capacity for

³⁹ Gazzaniga and LeDoux (1981, pp. 92 and 77-78).

⁴⁰ Cartmill and Brown (2012).

⁴¹ Ridley (2003, p. 229). Note that by saying “before long” instead of “within 100 years,” Ridley avoids the risk of having to admit his mistake.

⁴² By Mcbrearty and Brooks (2000) and by many subsequent discoveries. One of the most recent is the discovery of certain marks on rock made by Neanderthals (Rodríguez -Vidal *et al.*, 2014)

⁴³ Ayala (2010).

morality with the boiling of water, a sudden event that happens when, after a gradual heating, water reaches the threshold of 100 °C.

It would seem that Ayala wants to reconcile the erroneous belief and the gradualism of evolution, but his proposal is untenable. Whatever the meaning of “evolutionary threshold”, the intellectual capacities on which Ayala says the capacity for ethics is founded are not collective but individual capacities, and human zygotes obviously do not possess them. If Ayala’s proposal were correct, at some moment in the development of each normal human the threshold would be crossed and the capacity for ethics would suddenly emerge. Apart from implying that the status of human being is only achieved after crossing the threshold, this scenario is difficult to believe because, as far as I know, this sudden process has never been described. Ayala does not provide any evidence that it has been observed.

Also problematic for this kind of advocates of the erroneous belief is the discovery that less than some 100,000 years ago at least three different human races or species coexisted and *interbred*: the ancestors of the existing human species, Neanderthals, and Denisovans.⁴⁴ We can therefore expect that these advocates may try to question that coexistence. J. Avise and Ayala did so some years ago, when the evidence was much weaker than it is today: “Another longstanding debate in anthropology is whether two or more species of more recent human ancestry ever inhabited the planet at the same time (a scenario that might seem unlikely based on general ecological considerations for competitive, large-brained primates).”⁴⁵ There are many examples of much related species coexisting, and Avise and Ayala do not explain why large brains make a difference.

The erroneous belief, along with the positive bias, has probably been more pernicious for understanding current human psychology and behavior.

In a paper on morality, Ayala says that the ability to make value judgments — upon which he believes the ability for ethics partially depends— “depends on the capacity for abstraction; that is, on the capacity to perceive actions or objects as members of general classes. This makes it possible to compare objects or actions with one another and to perceive some as more desirable than others. The capacity for abstraction requires an advanced intelligence such as it exists in humans and apparently in them alone.”⁴⁶

I do not believe that I need to defend the idea that also animals find some objects or actions more desirable than others, and the assertion that this requires the categorization of such objects or actions is very surprising. But the oddest thing is that Ayala says that the ability for abstraction or categorization “requires an advanced intelligence such as it exists in humans and apparently in them alone”, when, as explained in Section 3, researchers on categorization assert that categorization is a

⁴⁴ Stringer (2012), Prüfer *et al.* (2014), Birney and Pritchard (2014). Another species, hypothesized after genomic analysis, probably coexisted with these three species and interbred with Denisovans less than 400,000 years ago (Prüfer *et al.*, 2014).

⁴⁵ Avise and Ayala (2010, p. 8897).

⁴⁶ Ayala (2010, p. 9019).

useful resource for bounded or lazy intelligences⁴⁷, and other authors have found, as we would expect, that other animals also categorize.⁴⁸

This is a striking and illustrative case, while not particularly transcendental. However, the erroneous belief and the positive bias may have influenced beliefs about human psychology, and may well continue to do so, in a far more profound and important way.

For example, a surprising attack has been recently published against the role of the unconscious in decision-making.⁴⁹ I think that R. Baumeister and coauthors (involuntarily) provide us with an explanation: “Consciousness is one of the defining features of human life and experience”, “Human conscious thought may be (...) one of the defining features of the human condition.”⁵⁰ Perhaps the role of the unconscious is attacked to save the role of consciousness, and the role of consciousness has to be saved to keep saying we are special.

In general, the preconception that “man is a rational animal” hinders the understanding of important facts, such as that the average human capacity for logic is considerably lower than it is often assumed⁵¹, the role of reasoning in human decision making is small⁵², each person cannot know the causes of their behavior⁵³, holding misconceptions may be advantageous⁵⁴, and human communication is not the transmission of information encoded in symbols⁵⁵.

In many *practical* matters, the continuity between animals and humans is fully accepted. For example, studies of on nonhuman primates are sometimes published in journals of anthropology and psychology, and medicines for humans are initially tested on animals. Recently, a new proceeding was developed for the study of Alzheimer’s disease in macaques, and, a commentary on it, published in *Science*, says: “Given the similarities between human and macaque brains, this model may be an important step toward understanding Alzheimer’s pathogenesis and developing effective therapies.”⁵⁶

But, as if brains were one thing and minds something very different, when it comes to issues that affect our image things change and many authors cling to outdated ideas that hinder the advancement of knowledge about ourselves.

⁴⁷ Macrae and Bodenhausen (2000, 2001).

⁴⁸ Jitsumori (2004).

⁴⁹ Newell and Shanks (2014).

⁵⁰ Baumeister *et al.* (2011, pp. 332 and 354).

⁵¹ Tversky and Kahneman (2006), Johnson-Laird (2010), Kahneman (2012).

⁵² Kahneman (2012), Cortizo Amaro (2014, ch. 1).

⁵³ Nisbett and Wilson (1977), Cortizo Amaro (2014, ch. 1).

⁵⁴ Haselton and Nettle (2006), Von Hippel and Trivers (2011), Cortizo Amaro (2014, ch. 9).

⁵⁵ Owren *et al.* (2010) correctly argue that animal communication cannot be correctly described as transmission of encoded information, and that its role is to influence the behavior of other individuals (to the “sender’s” advantage, of course, although the communication is frequently also beneficial for the “receiver”). Predictably, it will take a long time to accept that the same words can be said about human communication, although some psychologists begin to insinuate it; for example, Haidt and Björklund (2008, pp. 191-192), and Kahneman (2012, p. 363 [1st p. of ch. 34]) and other researchers on the framing effects.

⁵⁶ Stern (2014).

References

Note: “*PNAS*” stands for *Proceedings of the National Academy of Sciences of the United States of America*.

- Alexander, Richard D. 2007. *The biology of moral systems*, 1st reprint. AldineTransaction, New Brunswick (United States) and London.
- Aristóteles. 1977. *La política*. Editora Nacional, Madrid.
- Arnaiz, Gabriel. 2014. “La frase de Diógenes”. Retrieved on 27/10/14 from http://filosofiahoy.es/index.php/mod.pags/mem.detalle/relcategoria.4210/idpag.5810/relcategoriaPrincipal./v_mem.listado/chk.dcf5e382d86ca35f549bb15600ef2d33.html
- Avise, John C., and Francisco J. Ayala. 2010. “In the light of evolution IV: The human condition”. *PNAS*, 107(suppl. 2):8897-8901.
- Ayala, Francisco J. 2010. “The difference of being human: morality”. *PNAS*, 107(suppl. 2):9015-9022.
- Baumeister, Roy F., E. J. Masicampo, and Kathleen D. Vohs. 2011. “Do conscious thoughts cause behavior?” *Annual Review of Psychology*, 62:331-361.
- Bastian, Brock, Steve Loughnan, Nick Haslam, and Helena R. M. Radke. 2012. “Don’t mind meat? The denial of mind to animals used for human consumption”. *Personality and Social Psychology Bulletin*, 38(2):247-256.
- Bilewicz, Michal, Roland Imhoff, and Marek Drogoz. 2011. “The humanity of what we eat: Conceptions of human uniqueness among vegetarians and omnivores”. *European Journal of Social Psychology*, 41:201-209.
- Birney, Ewan, y Jonathan K. Pritchard. 2014. “Four makes a party”. *Nature*, 505:32-34.
- Bratanova, Boyka, Steve Loughnan, and Brock Bastian. 2011. “The effect of categorization as food on the perceived moral standing of animals”. *Appetite*, 57:193-196.
- Calvo Martínez, Tomás. 1988. *De los sofistas a Platón: política y pensamiento*, 2nd reprint. Editorial Cincel, Madrid.
- Cartmill, Matt, and Kaye Brown. 2012. “Being human means that ‘Being Human’ means whatever we say it means”. *Evolutionary Anthropology*, 21:183.
- Cela-Conde, Camilo J., Raúl Gutiérrez Lombardo, John C. Avise, and Francisco J. Ayala. 2013. “In the light of evolution VII: The human mental machinery”. *PNAS*, 110(suppl. 2):10339–10342.
- Cortizo Amaro, José Luis. 2009. *Evolución, autoengaño, clasismo y dominación*. Published by José Luis Cortizo, Vigo (Spain).
- Cortizo Amaro, José Luis. 2014. *Human violence: causes and justification*. Published by José Luis Cortizo, Vigo (Spain).
- Darwin, Charles. 1871. *The descent of man, and selection in relation to sex*, Vol. 1. John Murray, London.
- Darwin, Charles. 1876. *The origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*, 6th ed., with additions and corrections. John Murray, London.
- DeFelipe, Javier. 1999. “Cajal y la corteza cerebral”. *Investigación y Ciencia*, october 1999, pp. 36-38.

- de Waal, Frans. 2002. *El simio y el aprendiz de Sushi. Reflexiones de un primatólogo sobre la cultura*. Paidós, Barcelona.
- Dunning, David, Judith A. Meyerowitz, and Amy Holzberg. 1989. "Ambiguity and self-evaluation: the role of idiosyncratic trait definitions in self-serving assessments of ability". *Journal of Personality and Social Psychology*, 57(6):1082-1090.
- Fisher, Simon E., and Matt Ridley. 2013. "Culture, genes, and the human revolution". *Science*, 340:929-930.
- Fouts, Roger S., and Deborah H. Fouts. 1998. "El uso del lenguaje de signos por los chimpancés". In: Cavalieri, Paola, and Peter Singer (editors). *El Proyecto "Gran Simio". La igualdad más allá de la humanidad*. Ed. Trotta, Madrid.
- Gazzaniga, Michael S., and Joseph E. LeDoux. 1981. *The Integrated Mind*, 3rd ed. Plenum Press, New York.
- Goodall, Jane. 1999. *Reason for hope: a spiritual journey*. Warner Books, Inc., New York.
- Gould, Stephen Jay. 1996. *The mismeasure of man*, revised and expanded edition. Norton & Co., New York.
- Haidt, Jonathan, and Fredrik Björklund. 2008. "Social intuitionists answer six questions about moral psychology". En: Walter Sinnott-Armstrong, editor. *Moral Psychology, Volume 2: The cognitive science of morality: Intuition and diversity*. MIT Press, Cambridge, Massachusetts.
- Haselton, Martie G., and Daniel Nettle. 2006. "The paranoid optimist: an integrative evolutionary model of cognitive biases". *Personality and Social Psychology Review*, 10(1):47-66.
- Jitsumori, Masako. 2004. "Categorization and formation of equivalence classes in animals: Studies in Japan on the background of contemporary developments". *Japanese Psychological Research*, 46(3):182-194.
- Johnson-Laird, Philip N. 2010. "Mental models and human reasoning". *PNAS*, 107(43):18243-18250.
- Kahneman, Daniel. 2012. *Thinking, fast and slow*. Penguin Books, London.
- Kahneman, Daniel, and Amos Tversky. 2007. "Choices, values, and frames". In: Daniel Kahneman and Amos Tversky, editors, *Choices, values, and frames* (5th reprint). Cambridge University Press, New York.
- Koonz, Claudia. 2005. *La conciencia nazi: La formación del fundamentalismo étnico del Tercer Reich*. Paidós, Barcelona.
- Macrae, C. Neil, and Galen V. Bodenhausen. 2000. "Social cognition: thinking categorically about others". *Annual Review of Psychology*, 51:93-120.
- Macrae, C. Neil, and Galen V. Bodenhausen. 2001. "Social cognition: categorical person perception". *British Journal of Psychology*, 92:239-255.
- McBrearty, Sally, and Alison S. Brooks. 2000. "The revolution that wasn't: a new interpretation of the origin of modern human behavior". *Journal of Human Evolution*, 39:453-563.
- Milner, Richard. 1995. *Diccionario de la evolución. La Humanidad a la búsqueda de sus orígenes*. Biblograf, Barcelona.
- Newell, Ben R., and David R. Shanks. 2014. "Unconscious influences on decision making: A critical review". *Behavioral and Brain Sciences*, 37:1-19.

- Nisbett, Richard E., and Timothy DeCamp Wilson. 1977. "Telling more than we can know: Verbal reports on mental processes". *Psychological Review*, 84(3):231-259.
- Owren, Michael J., Drew Rendall, and Michael J. Ryan. 2010. "Redefining animal signaling: influence versus information in communication". *Biology and Philosophy*, 25:755-780.
- Pagel, Mark. 2012. "Adapted to culture". *Nature*, 482:297-299.
- Penn, Derek C., Keith J. Holyoak, and Daniel J. Povinelli. 2008. "Darwin's mistake: Explaining the discontinuity between human and nonhuman minds". *Behavioral and Brain Sciences*, 31:109-130.
- Pietraszewski, David, Leda Cosmides, and John Tooby. 2014. "The content of our cooperation, not the color of our skin: an alliance detection system regulates categorization by coalition and race, but not sex". *PLoS ONE* 9(2): e88534. doi:10.1371/journal.pone.0088534 :
- Prüfer, Kay, Fernando Racimo, Nick Patterson, Flora Jay, Sriram Sankararaman, Susanna Sawyer, Anja Heinze, Gabriel Renaud, Peter H. Sudmant, Cesare de Filippo, Heng Li, Swapan Mallick, Michael Dannemann, Qiaomei Fu, Martin Kircher, Martin Kuhlwilm, Michael Lachmann, Matthias Meyer, Matthias Ongyerth, Michael Siebauer, Christoph Theunert, Arti Tandon, Priya Moorjani, Joseph Pickrell, James C. Mullikin, Samuel H. Vohr, Richard E. Green, Ines Hellmann, Philip L. F. Johnson, H el ene Blanche, Howard Cann, Jacob O. Kitzman, Jay Shendure, Evan E. Eichler, Ed S. Lein, Trygve E. Bakken, Liubov V. Golovanova, Vladimir B. Doronichev, Michael V. Shunkov, Anatoli P. Derevianko, Bence Viola, Montgomery Slatkin, David Reich, Janet Kelso, and Svante P a bo. 2014. "The complete genome sequence of a Neanderthal from the Altai Mountains". *Nature*, 505:43-49.
- Ridley, Matt. 2003. *Nature via nurture: genes, experience, and what makes us human*. HarperCollins Publishers, New York.
- Rodr guez-Vidal, Joaqu n, Francesco d'Errico, Francisco Giles Pacheco, Ruth Blasco, Jordi Rosell, Richard P. Jennings, Alain Queffelec, Geraldine Finlayson, Darren A. Fa, Jos  Mar a Guti rrez L pez, Jos  S. Carri n, Juan Jos  Negro, Stewart Finlayson, Lu s M. C ceres, Marco A. Bernal, Santiago Fern ndez Jim nez, y Clive Finlayson. 2014. "A rock engraving made by Neanderthals in Gibraltar". *PNAS*, 111(37):13301-13306.
- Salomon, Erika, and Andrei Cimpian. 2014. "The inherence heuristic as a source of essentialist thought". *Personality and Social Psychology Bulletin*, 40(10):1297-1315.
- Savater, Fernando. 1994. *El contenido de la felicidad*. El Pa s / Aguilar, Madrid.
- Schweitzer, Maurice E., y Christopher K. Hsee. 2002. "Stretching the truth: Elastic justification and motivated communication of uncertain information". *The Journal of Risk and Uncertainty*, 25(2):185-201.
- Stern, Peter. 2014. "A primate model of Alzheimer's disease". *Science*, 346(6208):437.
- Stringer, Chris. 2012. "What makes a modern human". *Nature*, 485:33-35.
- Varki, Ajit. 2010. "Uniquely human evolution of sialic acid genetics and biology". *PNAS*, 107(Suppl. 2):8939-8946.
- Von Hippel, William, and Robert Trivers. 2011. "The evolution and psychology of self-deception". *Behavioral and Brain Sciences*, 34(1):1-16.