Morals of human and animal: difference of degree or kind?

"The difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind" (…) "I fully subscribe to the judgment of those writers who maintain that of all the differences between man and the lower animals, the moral sense or conscience is by far the most important." Charles Darwin, The descent of man, 1871.

And when He had made an end of speaking with him on Mount Sinai, He gave Moses two tablets of the Testimony, tablets of stone, written with the finger of God (Exodus, 31:18).

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Abstract: humans experience themselves as a unique species. However, evolutionary theory challenges that view: humans are connected to all lifeforms on earth and share many traits with primates and other mammals, also regarding emotions and cognitive functions. One of the most unique traits of humans seems to be their morality. In this essay I study to what extent moral sense is really unique for humans and whether evolution can explain the existence of it. I discussed two opposing views: the view of primatologist Frans de Waal who sees human moral sense as different in degree from non-human animals and also argues that the evolution of this moral sense has shaped human morality. Besides, I discussed views that are critical about this, partially arguing that there is no sound evolutionary explanation for the evolution of moral sense, and at least not for full-morality. Moreover, the philosopher Anthony O'Hear argues that those evolutionary explanations (the *is*) are not enough to say something about what we *ought* to do. I also attempted to make a synthesis of both views and concluded that for moral sense a difference in degree seems plausible, but that moral sense is not the same as morality: also other reasons play a role in morality, presumably because of the evolution of intelligence and culture.

1. Introduction:

1.1 How unique is humankind?

Humans often experience themselves as a unique species compared to other living organisms. This was for example expressed by the philosopher Henri Bergson: "Among conscious beings themselves, man comes to occupy a privileged place. Between him and the animals the difference is no longer one of degree, but of kind" (1907). He continues and even states 'man might be considered the reason for the existence of the entire organization of life on our planet'.

When we see human accomplishments around us, we indeed start wondering: 'how on earth are humans only different in degree compared to the other animals? Animals are far less sophisticated than humans!' Take human technology: we see humans gazing at small devices in their hand, ruling their lives with it. We see large and very complex buildings, almost futuristic cars. Humans can take over 'life' in the hospital, or even create artificial life (Noireaux & Liu 2020). Humans go to the moon. Take humans curiosity and science: we see people in white rooms, using all sorts of tubes and machines in order to study molecules in their own body, or organisms that can not be seen with the naked eye. We might see people studying brains, plants and all other biological phenomena around us. We also have courts where humans are judged. To put it straight: it seems that humans transcend their biological nature. Even though we find more and more clues about the intelligence of other mammals, still we have never seen non-human apes trying to go to the moon. The idea of a 'ladder of life' or 'scala naturae', with humans on top seems therefore rather intuitive. This ladder was described by the ancient Greek philosopher Aristotle in his *Historia animalium* (Lennox, 2001/4th century BC). He placed humans on top of nature (closest to the gods) and then down to other mammals, birds, fish and insects on the bottom.

However, since the publication of the *Origin of species* by Darwin, most scientists and a growing number of lay people do accept that we are all the product of evolution. This theory implies that we are connected to all lifeforms on earth, that we share common ancestors with all other animals and hence that we are gradually different animals. So how special are humans compared to other animals, especially in the light of evolution? Is there a gradual difference or is it a difference in kind? The contrast between degree and kind dates back to Darwin: as the great proponent of gradualism he argued that "the difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind" (Darwin, 1871).

So *difference of degree* means that there is a gradual evolutionary explanation for the difference in a trait. It is a difference on a continuum involving shades of grey. An example is that there are gradual steps or intermediate forms between the fins of a fish and human hands (Shubin, 2008). It also implies that a similar trait is present in different species, an equivalent. Difference of *kind* means that there is a large difference without gradual explanation; for example that there are no intermediate forms between the fins of a fish and human hands. For the present purposes it is defined as that there must be something more than an evolutionary explanation. This is called a saltatory view (from 'saltus' or 'leap'), which is based on the conviction that something major must have happened after humans split-off from the common ancestor with apes, especially regarding our brain capacities ((Wallace's problem), Bickerton, 2014; De Waal, 2016, p. 122).

In this essay I will focus on whether there is a gradual or evolutionary explanation for a trait that is often seen as uniquely human: morality. First I want to describe two positions in the broader human uniqueness debate: first the view that humans are of a different kind than animals and secondly the view that humans are different in degree. Subsequently I zoom in to the question why morality is important in this human uniqueness debate, which leads to my research questions.

1.2 Humans are different in kind

According to Crispin Sartwell, professor of philosophy, throughout Western philosophy, humans are seen as very unique and apart from the animals, or beasts as people often call them (2021). Western philosophy has tried to prove we are not animals. Sartwell says that one of the main questions of Western philosophers, perhaps unintentionally, has been 'what makes humans so much better than other animals?' The answer to this question was often found in human morality. The well known philosopher Immanuel Kant also wrote that "The moral law reveals to me a life independent of animality" (Kant, 1788). It was even reasoned that some humans are closer to animals than others: "Some humans, according to this line of thinking, are self-conscious, rational and free, and some are driven by beastly desires. Some of us transcend our environment: reason alone moves us to action. But some of us are pushed around by physical circumstances, by our bodies. Some of us, in short, are animals – and some of us are better than that" (Sartwell, 2021).

1.2.1 Distinctions made by philosophers

Sartwell describes a line of thought which is nowadays partially represented by philosophers like Harry Frankfurt, who was influential in thinking about higher order intentions or volitions. In this perspective animals are driven by a lower intentional system, whereas humans have a higher intentional system because they can reflect upon this lower intentional system (Frankfurt, 1988). This idea is influenced by the distinction between autonomy and heteronomy by the philosopher Immanuel Kant (1785). Autonomy means in short that the individual herself determines by rational choice what is good and wrong, instead of being directed by forces around her (heteronomy). This distinction was applied later in arguing that humans have more control over their desires than animals. This idea will be further explored in section 3.1.1. Philosophers have also argued that human morality and rationality are unique because not all human behaviour can be explained in evolutionary terms. An important voice in this camp is the philosopher Anthony O'Hear, who wrote the book *Beyond Evolution* (O'Hear, 1997), which will be discussed in chapter 3.

1.2.2 Role of religion

Many cultures and religions have also stressed the distinction between humans and animals. Often this had to do with their view on human origins and with keeping human behaviour moral. Animality was seen as inferior to humanity: humans should rise above their animality (Gross, 2014). For example in Western countries, influenced by Christianity and Greek philosophy (Renehan, 1981), humans and human morality were viewed as very unique, being from a different order than animals (Challenger, 2021). This also meant for a part of Christianity that animals were seen as inferior to humans. A phrase on the wall of my biology class was based on the popular Dutch expression 'voor aap staan', or in English 'to be like an ape'. This means being ridiculous in public. The saying said: 'I'd rather stand for ape than to be descended from it'. The fear about being an animal is also expressed in a book by the theologian Gijsbert van den Brink, who works on the misunderstanding of a gap between evolution and faith. He describes a farmer who said to him that the human value is at stake when we accept evolution (van den Brink, 2017). It is fair to say however, that also in those religious and philosophical traditions views were

often more nuanced: in the Old Testament often the term 'all flesh' was used to point to the relationship between humans and animals, and there was the Christian church father Francis of Assisi who called the non-human organisms his brothers and sisters (Hopcke & Schwartz, 2006). Nevertheless, as religion plays a role in understanding human life for many people, it has influenced the view of humankind and often has argued for a view that humans are distinct from the rest of nature, close to, or in the image of the god(s).

1.3 Humans are different in degree

Instead of the view that humans are of a different kind, evolutionary theory offers the view that humans are different in degree. This theory has elucidated that all life on earth is connected and that humans have a common ancestor with apes. That humans are gradually different from other mammals can be seen by the fact that we share many traits with other mammals. For example all organs, the ability to give milk, social structures and even diseases like arthritis and Covid-19 (de Wit et al., 2020). Humans share even more traits with the apes (Hominidae). Some examples of shared traits are more reliance on vision instead of olfaction, short nails, short snout, expressive faces, large brains, and a long period of nursing and parenting young, which is essential to teach them how to survive (Pough et al., 2005). Many features of humans that were once thought to be unique for humans, are found in primates. Research has shown that they are capable of for example tool-making, empathy, discerning the intentions and goals of others, and forming friendships (Tomasello & Carpenter, 2007; De Waal, 2016). This suggests that humans are gradually different from the primates.

1.3.1 Gradually different emotions

Primatologists and zoologists have shown that humans also share emotions with mammals. The primatologist Frans de Waal is especially well known for arguing that human and primate emotions are only gradually different, and that emotions are not even unique to mammals (De Waal & Andrews, 2022). To give a few examples from his books: tickling a juvenile chimpanzee is a lot like tickling a child: both have the same sensitive spots (De Waal, 2019). The ape will start laughing just like the child: mouth wide and making similar sounds. When a horse and a man have been riding for a long time through a warm and dry environment both will go to the water and drink as soon as possible. Do you think that the thirst feeling is different between the two? (De Waal, 2019, p. 129). There are many more examples which show that human experience is in many respects similar to the experience of animals, even on a more complex level than thirst. For example, many animals show grief when a mate or child dies. This was for example shown with voles that have a monogamous relationship. When these voles lose their mate they show changes in their brain suggesting stress and depression. They also become passive in the face of danger, implying that they don't care anymore if they will live or die (Young and Alexander, 2012, as described in De Waal, 2019). All those examples show that human emotions are not as unique as once thought.

1.3.2 Gradually different consciousness

Even one of the traits that we experience as very unique, our complex brain and level of consciousness, is probably not that unique. In 2012 a group of scientists published the *Cambridge declaration on Consciousness,* declaring that consciousness of some imaginable kind is likely to be widespread, especially among mammals, birds, and cephalopods. They write "artificial arousal of the same brain regions generates corresponding behavior and feeling states in both humans and non-human animals. The evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit

intentional behaviors." (Low et al., 2012). It is still a topic which is debated and surrounded by many questions. But whereas some think that the human brain jumped from an apelike brain to a humanlike brain, the evidence seems to point to the contrary: "human brains have almost the same anatomy as apes, no jump to be seen, we do not have any compound or lobe different. For this reason our brain has been called a "linearly scaled-up primate brain"" (De Waal, 2013; Appendix II). So it seems plausible that even consciousness has evolved in a gradual way, just like the many other traits that evolved gradually.

With that we come to one of the most important voices in the humans-are-gradually-different camp: the earlier mentioned primatologist De Waal. He shows many examples of experiences, feelings and emotions in animals that are shared with humans. He studied empathy and reconciliation in primates and found that apes and most mammals are not that cruel, that nature is not that 'red in tooth and claw' as often said. Effectively, he argues that the gap between humans and animals is not as large as often proposed. I will elaborate further on his view in chapter 2. Another primatologist is going even further than De Waal. Sue-Savage Rumbaugh has been studying language, something that sets humans apart. She shows that many seemingly unique human traits are also found in apes, and is well known for training apes to communicate with lexigrams. She demonstrates that apes in her care could recognize their own shadows, learn to enter into contractual agreements, signal intent, assume duties and responsibilities able to distinguish between the concepts of good and bad, and deceive others (Savage-Rumbaugh et al., 1998; Lyn et al., 2008). However, these studies are still controversial and some
are not supported by other research.

1.4 Morality as the most important human unique trait

With these last examples we touch upon traits that have been and still are thought to be uniquely human. Which at least means that the steps of degree between the human version of the trait and the animal version seem to be many. Maybe even that the equivalent is not present in animals, which could mean that there is a difference in kind. I have described two perspectives on whether the differences are of kind or degree. From now on I want to focus on a trait that is thought to be most unique and therefore can be a focus point in studying if the difference between human and animals is one of kind or degree.

Even though most researchers agree that the lines between most human unique traits and animal traits have been blurred, language, rational thought (Laland and Seed, 2021), and morality are among the last traits that are argued to be uniquely human and therefore different in kind (O'Hear, 1997; Challenger, 2021). Human morality seems to be an important difference between humans and animals, both because it has implications for every day behaviour and society and because there are differences observed between human and animal morality. Indeed, humans try to be moral and sympathetic to each other, judge each others' behaviour and even hold people responsible for their behaviour in ways seemingly absent in other animals. Because of this and other reasons, as described in paragraph 1.4.2, in the remainder of this essay I will focus on whether human morality is different in degree or kind compared to non-human animals.

1.4.1 Definition

But first it is important to touch briefly upon a definition question. Is morality the *capacity* to evaluate actions as good or bad? Or is it the *moral sense* or feelings, emotional responses to experiences which we use to judge if something is moral or immoral (Prinz, 2006)? Or is it the *moral norms*? These are all related, but for the present purposes I mainly use the moral sense and sometimes, depending on which author is discussed, the moral capacity definition. This choice has two reasons: 1) the moral sense is usually seen as mainly biological and presumably can be evaluated from a biological evolutionary perspective (Ayala, 2010). And 2): the other two definitions bring me into areas of research which I do not want to focus on. This is because the moral norms will lead me to a discussion of ethics and cultural evolution, and in this essay I will not focus on both of them. The capacity of morality and predisposition towards it is related to intelligence and the ability to anticipate (and choose between) the consequences of one's own actions and I also want to avoid this topic of the evolution of intelligence as much as possible. Important to note is also that moral sense focuses on one aspect of morality, whereas moral rationalists like Plato and Immanuel Kant would say that this focus is not correct because moral principles are knowable a priori, by reason alone, or at least that reason plays a larger role in morality than emotions (Capps and Pattinson, 2017). Therefore I do not pretend that I will deal with full morality in this essay. However, since the definitions are related and used differently by different authors, I will come back to this definition question later on (4.4.2; See also Appendix IV).

1.4.2 Morality and evolution

Human morality has also been designated by Charles Darwin as the most important difference between humans and animals. "I fully subscribe to the judgment of those writers who maintain that of all the differences between man and the lower animals the moral sense or conscience is by far the most important" (Darwin, 1871). However, he argued subsequently that this difference also can be explained in evolutionary terms. As I explained earlier he is the great proponent of gradualism and just to emphasize this gradual view I will quote the same line by Darwin again: "the difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind". And so too morality is only different in degree in humans. Darwin saw morality as a human trait that arose as a by-product during the shaping of man by natural selection into a highly social and intelligent species. The capacity for morality, he argued, lay in small, subtle differences between us and our closest animal relatives. "The following proposition seems to me in a high degree probable – namely, that any animal whatever, endowed with well-marked social instincts, would inevitably acquire a moral sense, or conscience, as soon as its intellectual powers had become as well developed, or nearly as well developed, as in man" (Darwin, 1871, pp. 68-69). So if our intelligence is an outcome of natural selection, the moral sense is also an outcome of this. He also proposed that norms of morality are not biologically determined but are rather a result of human collective experience (culture).

Building on this idea of Darwin many researchers have tried to explain why morality has evolved. The main reason for the evolution of morality according to most researchers is cooperation. Simply put, this was the driving force, and natural selection favoured it, because cooperation was beneficial in human history (Dennett, 1995). It has been shown that cooperation indeed can be beneficial because it often provides direct mutual benefit in terms of resources and protection or indirect benefits in terms of passing on of shared

genetic traits (Hamilton, 1964). Selection for cooperation resulted in brains that are wired for cooperation and moral behaviour. This would mean that the human morality is not necessarily different in kind; its roots and equivalents can be traced back to other animals. Therefore the view of Darwin and many others is that human morality is only gradually different from that of other animals, just like many other evolved traits. This seems to be in contrast to the view that human morality is of a different kind, as was shortly introduced before by Kantian philosophers. Because I will focus much on this difference in degree versus difference in kind I repeat their meaning once again: the term degree represents a gradual evolutionary explanation. I contrast this with kind, which is defined as that there must be something more than this evolutionary explanation.

Hence, there are contrasting views on this trait, which could be illustrative for the human uniqueness debate. Human morality is also very important, and might be the biggest difference between humans and animals. Therefore I will focus on this trait in my discussion of human uniqueness.

1.5 Methodology

This leads to the following research questions:

Is human moral sense different in kind or in degree compared to other animals?

a. Is human morality different in degree compared to other animals? Using the view of primatologist Frans de Waal.
b. Is human morality different in kind compared to other animals? Using the view of philosopher Anthony O'Hear.
c. Can both views be combined and provide an answer to the question whether there is difference in degree or kind between animal and human moral sense?

1.5.1 Author choice

My main research question is approached by using the view of two scholars that have written on the subject. I have attempted to close read their writings and compare their perspectives. First I describe the view that human morality is different in degree when compared with other animals. This is based upon the views and books of the primatologist Frans De Waal. This because De Waal is one of the most prominent primatologist who is writing explicitly about morality in animals and humans. I focus mainly on his book *The bonobo and the atheist* (2013), and *Mama's last hug* (2019). Sometimes I use his book *Are we smart enough to know how smart animals are* (2016), or papers written by him and colleagues. Subsequently the view of researchers and philosophers who argue against this view is described. This contra view is mainly based on the views of philosopher Anthony O'Hear in his book *Beyond evolution* (1997). This because O'Hear accepts evolutionary theory but still argues against too reductionistic views of the evolution of unique human traits like morality. He also deals partially explicitly with De Waal. Finally I will attempt to make a synthesis of both views and propose my own view.

2. Human morality different in degree?

In short: human morality is unique on a scale of degree but not of kind because there are many similarities with animal morality.

De Waal argues that evolution of behaviour happens similar to evolution of other biological traits. Therefore also behavioural traits related to moral sense evolve. His reasoning is that since similarities in traits often are homologies, behavioural similarities presumably also point toward common ancestry. He observed many similarities between human and animal moral traits. Hence he argues that those similarities also arose because of evolution and common ancestry. Therefore human morality is not different in kind because also in other mammals most or at least fundamental morality traits are observed and gradual steps can be made from animal to human morality.

He describes that empathy and fairness are 'emotions' that are present in most mammals, and those are the pillars for morality. Those pillars have evolved because cooperation was adaptive. The advantage of and selection for cooperation shaped mammals in such a way that they have emotions/brains that are wired for cooperation. This resulted for example in hierarchy and self-control. This biological evolution co-occurred with cultural evolution and has shaped our morality, leading ultimately to internalized, rationalized and institutionalized rule systems.

Essentially, De Waal argues that morality is for a large part rooted in our emotions and that our moral emotions are shaped by evolution. Even though he does not attempt to build a phylogenetic tree of the evolution of morality he describes more or less a bottom-up story of the evolution of morality (2013). I follow this line of reasoning, starting with cooperation because De Waal sees it as the ultimate reason for the evolution of morality. Subsequently I will describe for several 'morality traits', which are described by De Waal, to what extent it is present in animals and to what extent it is uniquely human. I will start with the simpler traits which presumably have originated earlier, and then continue towards some more complex morality traits. The moral traits are chosen because De Waal emphasizes them and have the goal to represent a broad spectrum of moral traits.

2.1 The view of De Waal per trait

2.1.1 Cooperation

Cooperation is the trait to start with, because De Waal argues that other morality traits arose to facilitate cooperation, which was adaptive because of the survival value of group life (a point I will come back to later). Cooperation can hence be seen as the most ingrained moral value, and I will therefore first focus on what De Waal writes about cooperation as an important pillar for group living and driving force behind the evolution of other moral traits. Secondly, I will focus on examples of non-human-animal cooperation and how this data supports the idea that the difference between humans and them is one of degree.

Importance

The importance of cooperation in the evolution of morality is because it shaped moral emotions. De Waal is not the first, in observing that cooperation is the driving force for morality. Thomas Hobbes was one of the first who came up with the idea that cooperation might be fundamental for morality (Hobbes, 1651). He saw morality as a development from people who were living in small separate groups and competing with each other, to

some of those competitors starting to cooperate for mutual benefit, which resulted in the birth of a different kind of group, a society (Dennet, 1995). For this a "social contract" was needed, which was the step from persons without morality to citizens. Already in his theory it becomes clear that cooperation and morality are intertwined.

Charles Darwin also argued that our enhanced ability to cooperate might be the most significant distinction between humans and our closest evolutionary relatives. In the current era of neuroscience this view is also argued for by influential neuroscientists, such as Michael Tomasello. He argues that morality is a consequence of our tendency to collaborate and cooperate in ways that other great apes do not and that this is *the difference in degree* Darwin wrote about (Tomasello & Carpenter, 2007). Other researchers, such as van Schaik, another famous Dutch primatologist, also provide explanations for why cooperation has evolved in primates and how this psychologically works (Jaeggi, Burkart & Van Schaik, 2010). With this we can conclude that cooperation has been front and centre in much morality research, already earlier in history and until now. Current research is going beyond the reasons that have been given in the past and adds empirical data.

Cooperation is far more important than previously thought argues De Waal. To make this clear he describes the distinction between cooperation and competition. If competition is stronger as an instinct than cooperation, it would all fall apart he writes. Most animals cannot even survive without cooperation. This cooperative view of nature was already argued for by Kropotkin (1902). According to the Waal it is important to drive this point home, just because without understanding that cooperation is part of nature, we cannot understand that morality might be part of nature. De Waal writes that the competition view of nature, with a lot of selfishness and much brutal behaviour is not nuanced. Presumably it is based on too strong emphasis on individual-level natural selection and individual survival of the fittest. There is in contrast also a lot of cooperation, altruistic behaviour and empathy (2019, p. 195). Even in ecology the focus is mainly on competition, but there is co-existence as well (Simha et al., 2022). Hence it is important to keep in mind that the process of natural selection, for which competition is an important factor, is not the same as its products (De Waal, 2013, p. 41). Besides, natural selection can act on other levels than the individual, which can explain the evolution of cooperation especially also during major transitions in evolution (Okasha, 2005).

There even might be active selection for cooperative individuals. De Waal mentions this on the basis of research by anthropologist Chris Boehm. He describes that hunter-gatherer communities enforce the rules by ostracizing or even killing persons who violate too many rules and marrying preferably with cooperative individuals. For example severe bullying or intimidation was punished in those communities with the death penalty, and this was not a rare observation, in a report he describes 21 instances of such executions (Boehm, 2014).

Data

Now I come to the point by De Waal that complex cooperation is observed in the non-human-animals and that this supports the idea that there is a difference in degree. De Waal mainly describes many observations of cooperation in several mammal species. For example, even though it is hard to show this cooperation in laboratory setting, he describes an experiment in which chimps could obtain food by pulling ropes simultaneously in order to get food(cooperation), and if not (competition) they wouldn't

get the food. The chimps did cooperate 5 times as often as competing, shared the food and used mechanisms to overcome competition such as protesting against it and third-party punishment in which dominant individuals intervened against freeloaders (Suchak et al., 2016). Also elephants cooperate in order to obtain food (Plotnik et al., 2011; De Waal, 2013, p. 130).

In the wild it is easier to observe cooperation. There are ample examples of apes, lions, wolves, killer whales and even birds that cooperate during hunting (De Waal, 2016, chapter 6). I describe one example which shows the complexity of this cooperation in chimpanzees when they hunt colobus monkeys according to De Waal: "some males act as drivers, while others take up distant positions high up in a tree as ambushers waiting for the monkey troop to escape in their direction through the canopy. This appears to involve role division and the anticipation of prey movement (2016, p. 191)." But to show that those chimpanzees are really cooperative it is also important to describe what happens after the prey is captured: "The prey is captured by one of the ambushers, who potentially could quietly slink away with the meat but does exactly the opposite. During the hunt the chimps are silent, but as soon as a monkey is captured, they erupt in a pandemonium of hooting and screaming that draws everyone in (…). The communal feast that ensues is the only way to sustain this sort of cooperation, because why would anyone invest in a joint enterprise if not for the prospect of a joint payoff?"

Interpretation

So De Waal interprets the data as role division and anticipation of prey movement and besides as making a feast to sustain this cooperation. I cannot think of another more plausible explanation for the role division and anticipation part. For the feast making De Waal maybe draws conclusions too fast. It could be that the ambusher which first captures the prey is just happy with his own food and cannot inhibit his screams and thus cannot quietly slink away, although these inhibitions seem no problem for chimpanzees as later discussed in the Inhibition section (2.1.4). However, the step from screaming to the apes doing this (intentionally?) to sustain their cooperation might be a too big step. Hunger and pleasure might be better explanations than 'making a feast to sustain cooperation' because the latter implies very long time anticipation, although this can not be ruled out.

However, the data about cooperation in animals is very clear: cooperation is present in other mammals than humans. De Waal does not explicitly say whether this cooperation is different in degree or kind in comparison to humans although he says that the degree of human cooperation makes human unique. He simply lists examples of quite complex cooperation in non-human mammals and argues that cooperation is an important force in nature and might be the basis for morality.

Overall, it is clear that complex cooperation does occur in other animals than humans. The importance of cooperation in nature is also stressed by De Waal and other researchers, and it seems plausible that other morality traits have evolved in order to facilitate cooperation, although this point will be elaborated on during the description of other traits. Cooperation in non-human animals might be of a different degree than in humans because animals lack the sophisticated communication tools that humans have. Humans cooperate also on a far larger scale, and this might even be a reason for making humans the successful species they are (Harari, 2014). Nevertheless, it is not unreasonable to say that human cooperation may have originated in common ancestors with (other) animals and that there has been selection for cooperative individuals.

2.1.2 Empathy

Now we come to the second trait, empathy. Empathy is sensitivity to another's emotions. It is not necessarily positive (which would be sympathy) and it can also be used by torturers. So what can we learn from De Waal about empathy in non-human-animals and to what extent is there a difference in degree or kind between them and humans? Again, De Waal comes with many experiments and examples that show empathy in animals. But first I will shortly describe why he thinks that empathy is important for morality.

Importance

According to De Waal there would be no morality without empathy. 'I always consider empathy the foundation of morality. If I'm not interested in others, and the wellbeing of others, then I cannot be a moral being', he said in an interview (De Waal, 2017). I come back to this point in the synthesis (4.4.4). To him this is because "emotional contagion", or the automatic way in which we are sensitive to the emotional state of others, provides us with feedback on our actions. Without this feedback we are unable to know if a certain action was good or bad for the other. I focus merely on moral sense in this essay, and I do think that empathy as a sense, maybe even based on mirror neurons (2019, p. 95), is important in considering the results of ones actions on others wellbeing.

Data

De Waal provides many examples of empathy over a whole range of animals to underpin his argument that human empathy is different in degree from animals. For example rats that were squeezed in a glass container and were in distress, were liberated by free rats that learned how to open a little door. Those free rats were remarkably eager to do so. Their motivation to free the rats was challenged by giving the free rats the choice between a container with chocolate chips and another with a trapped rat. The free rats often rescued the companion first, which suggests that reducing distress of another rat counts more than delicious food (De Waal, 2019, p. 118). In voles it was observed that when one of a pair was in distress, the other would become distressed as well (De Waal, 2019, p. 105).

Even though grief is not the same as empathy, grief also shows bonding between individuals and interest in others. Grief was observed in many species. For example dolphin mothers keep their dead calf close to them for days after dying and it has often been reported that chimpanzee children are in grief for many days after they lost their mother, an example observed by the famous primatologist Jane Goodall: the son of a mother that just died became listless, lost his appetite, and after a month died as well. This child was abnormally bonded to his mother, but similar stories of grief in chimpanzee children are reported (King, 2013).

Also chimps and bonobo's are empathetic. De Waal mentions the example of Washoe, the world's first language trained chimp. She tried to rescue a fellow chimp when it fell in the water. Since chimps have intense hydrophobia, this shows that the chimp must have had a strong motivation to overcome this in order to help the other chimp out (Fouts, 1997).

An extreme example of testing empathy is the following experiment: one rhesus monkey was placed in a box. When this monkey pulled a lever it would receive food. When subsequently another monkey was added to a box besides the first one, and the lever was pulled, this second monkey was shocked with an electrical shock. The first monkey tried to avoid for 5 days not to pull the lever, thus starving him or herself, in order to avoid

shocking the other monkey again (Masserman et al., 1964). This shows that the first monkey is sensitive to what the other monkey felt. It was even so that monkeys that were shocked earlier in the experiment avoided to pull the lever up to 18 days, showing that they could imagine what happened with the other monkey in subsequent trials.

According to De Waal it is logical that empathy is observed over such a range of animals and in such sometimes surprising forms. De Waal argues that cooperation has shaped emotions like empathy: empathy is taking perspectives of other individuals into account, which in turn made group processes more smooth. Since humans descent from a long line of group living animals it seems reasonable that cooperation has shaped empathy over a long time and that it is therefore different in degree compared to non-human animals (2019, p.99).

Interpretation

De data presented by De Waal seems to be unambiguous: empathy does exist in many mammals, and, to me, up to a surprisingly high level. That empathy has an evolutionary root and therefore presumably is different in degree, rather than different in kind, seems therefore reasonable. De Waal also presents an extra argument: it has been shown that similar neuronal networks are involved in empathy in a variety of animals and that there is the same interaction between emotional responses and prefrontal responses in all those animals (Preston & De Waal, 2002). It is therefore reasonable to state that this trait is not unique in humans. Since the neuronal circuitry is similar it seems to be the most parsimonious explanation that this trait has evolved from a common ancestor. Whether empathy is only a foundation of morality or also moral in itself is discussed in the synthesis (4.4.4).

2.1.3 Reciprocity or fairness

Reciprocity or fairness is another trait that is important for morality according to De Waal. Reciprocity is related to fairness even though fairness might be a more complex level of this behaviour than reciprocity. First I will discuss why it is important to discuss this trait. Then the question is again whether this trait is present in non-human-animals, and to what extent this differs from the quality of this trait in humans, or, put differently: to what extent there is an evolutionary explanation. To discuss this it is useful to describe the distinction that is made between first- and second order fairness. "First order fairness is responding negatively to inequity as a way for individuals to increase their payoffs from cooperation. Second order fairness is that individuals recognize when they receive more than a cooperative partner, and act to alleviate this inequity in order to maintain a beneficial cooperative relationship" according to Sarah Brosnan, one of the collaborators of De Waal (Brosnan et al., 2010).

Importance

De Waal argues that the sense of fairness that humans posses is an intellectual transformation of an emotional response shared with many animals. "Fairness is often considered a product of reason and logic, and a uniquely human moral value, but it would never have arisen without a basic emotion that we share with other primates, canines and birds" (2019, p. 207). De Waal does not say much about the importance of fairness in the evolution of morality although he argues that it is important in group processes. "Sensitivity to reward distribution helps ensure payoffs for both parties, which is essential for continued cooperation. It is probably no accident that the animals most sensitive to inequity – chimps, capuchins, and canids – hunt in groups and share meat (2019, p. 214).

Data

First order fairness has been shown in many mammals, from dogs to primates, the most telling evidence being an experiment with unfair rewards for similar tasks with two capuchin monkeys (2019, p. 214). The monkeys are first rewarded with identical rewards, cucumber. But then one of them is given a grape (which is the preferred reward), whereas the other is still rewarded with cucumber. So there is an unequal reward which results in the monkey receiving cucumber becoming angry and throwing out the cucumber. This monkey even starts shaking the test chamber with agitation, and hitting the ground with its hands (2019, p. 212).

This is however not second-order fairness, which could not be shown in the capuchin monkeys. This could be shown in apes. After chimpanzees performed a simple task they were rewarded with carrot pieces or grapes, with grapes again being the preferred food. Again, the apes that were rewarded with carrot pieces, refused to perform or discarded their carrot reward when its companion was rewarded with grapes. However, the apes that received the grapes also became upset. Chimpanzees were more likely to refuse a high-value grape when the other chimpanzee got a lower-value carrot than when the other chimpanzee also received a grape (Brosnan et al., 2010, De Waal, 2019, p. 217).

De Waal argues that gratitude is involved in reciprocity on the positive side. It helps in humans to render another person his due. He describes that gratitude creates a warm feeling about received benefits, which prompts us to repay them. Even though it is maybe impossible to test if gratitude is involved, it was tested whether reciprocity also occurs on longer timescales and within larger groups of non-human primates. Grooming was recorded among chimpanzees in the morning. In the afternoon it was observed whether longer grooming sessions in the morning resulted in sharing more food in the afternoon. On a day during which individual A groomed individual B in the morning the chances were higher that individual B would share more food with individual A in the afternoon.

It also works on the negative side: chimps become aggressive to a chimp that is an ally but does not help out during a fight. Chimps also take revenge, sometimes waiting until their former ally is fighting with another chimp and then joining this latter chimp to defeat their former ally (2013, p. 128). Hence, there is more than one-on-one fairness. According to De Waal it is also the case that chimp colonies revolve around fairness and tit-for-tat strategies. They seem to build reputations about who is treated fair or not. Fairness is in humans also very important: humans can become very aggressive when treated unfair.

Interpretation

It is reasonable that those emotions of anger or gratitude around reciprocity have an origin in earlier mammals, and that it helps for cooperation. This is because fairness is less present in solitary species than in group living species (comparison between capuchin and rhesus monkeys). It is also rather nature than nurture, because children of two years old show tantrums when they are treated unfair, which suggests deep roots in emotions, according to De Waal (2019, p. 213).

The existence of reciprocity to quite a complex level, involving for example reputation building is clearly shown by De Waal. Whether this is real fairness depends on the definition of fairness: is it more related to honesty and even justice or to reciprocity? I would say that in this definition problem some small exaggeration from De Waals side might reside, probably making the difference in fairness behaviour between ape and

humans look as somewhat smaller than it is. This because reciprocity was what is mainly shown in the apes, which is purely about inequity avoidance. Honesty and justice on the other hand was not really shown in the apes, but those terms are also related to fairness. Nevertheless, it is surprising to me that even second order fairness seems to exist in apes. It also seems reasonable that human fairness has evolved, since reciprocity seems to elicit such strong emotional responses in monkeys and apes, but also humans. Besides, I would say that humans can learn from apes to some extent, because humans also fail quite often for the reciprocity test, so some humility on humans side seems to be at least reciprocal and maybe even fair.

2.1.4 Inhibition

Now I turn to some moral traits that are less fundamental according to De Waal. They are more or less built on the pillars of empathy and reciprocity. Nevertheless, it is sometimes surprising that those traits exist in other animals and they make the picture of 'animal morality' more complete. I start with inhibition. The question I ask again is whether this trait is present in non-human animals and how big the difference is in this trait between animals and humans.

Data

That animals have the ability of self-control is already visible in the cat trying to catch a mouse as De Waal writes: "it has to inhibit its urges and to try to come closer to the mouse very carefully" (2013, p. 151). Another example is that juvenile monkeys wait until their playmate's mother has moved out of view before starting a fight. A more conspicuous experiment is performing the marshmallow test with apes. This is a well-known test, usually performed with children: they are placed in a room with some rewards on a table in front of them. If the children are able to control their urge to take the reward, they will get more rewards. Hence, delaying gratification in those tests results in more rewards. Apes were able to delay gratification for 18 minutes and even tried to take their minds off the rewards by seeking distraction to better fight the temptation. They did about as well as human children (De Waal, 2013, p. 154). De Waal concludes that this comes close to free will.

De Waal argues that self-control, inhibition, or keeping our urges in control is important for being part of a group. "When we see a disciplined ordered group of animals, there is often social hierarchy behind it, which is ultimately rooted in violence" (De Waal, 2013, p. 150). With ultimately he means that violence is in some extreme cases needed against individuals that do not follow the rules of the group, which results in less violence in general and good cooperation. If a subordinate chimpanzee in certain situations takes food before a higher ranking one, this can for example result in punishment. So De Waal thinks that social animals evolved the awareness that certain forms of behaviour might have troublesome results, and partly therefore learned to control their emotional urges. So this trait has part of its roots in cooperation as well, although there are presumably other factors involved.

Interpretation

The described observations show that animals are able to inhibit themselves and are not only urge driven. The view that there is a gap between animals that are simply urge-driven and humans which are perfectly able to inhibit themselves is therefore falsified. According

to De Waal this is remarkable since for a long time animals were seen as beings that are far less able to control their urges and were therefore used as bad example for humans. So the difference in kind has at least become smaller and closer to degree, especially when we see that the apes are almost as good as human children in the marshmallow test. De Waal writes that humans come from a long line of ancestors with well developed hierarchies for whom social inhibition was second nature, although a lot is still unknown about why inhibition has evolved. Altogether I think that it is reasonable that inhibition is advantageous, and since it is also present in quite complex levels in other animals a difference in degree is more likely than a difference in kind. The examples of inhibition in social situations are most important in regard to morality.

Besides, I would say that inhibition and choosing other options that will result in better outcomes is an important ingredient for morality. This because this results in the remarkable suggestion by De Waal that the level of inhibition and maybe foreseeing results of actions that apes show in the marshmallow test comes close to free will. To me this suggestions seems not completely unreasonable. This would have important implications for the presence of morality in animals, because free will also suggests accountability (I will come back to this point in 4.4.2).

2.1.5 Hierarchy, shame and guilt

Now we turn to two traits that I group together under hierarchy. Of course, morality has partly to do with authority and rules and therefore discussion of hierarchy is necessary. However, since the presence of hierarchy in animals is quite well known, it is more interesting to focus on traits that follow from hierarchy according to De Waal. I will focus on two of those 'sub-traits' that in my opinion are very interesting in a discussion of morality in animals. These sub-traits are the incorporation of behavioural rules and feeling guilt, related to hierarchy and social groups. I will discuss the sub-'traits' one by one. Again I will ask whether incorporation of rules and feeling guilt is actually present in non-human-animals and subsequently discuss to which extent there is a difference in degree or kind between them and humans.

Data

Even though experimental data seems to lack, De Waal describes examples of chimpanzees which point to incorporation of behavioural rules: "Social rules are not only obeyed in the presence of dominants and forgotten in their absence, they are internalized, which is shown by the fact that lower-ranking individuals show exaggerated submission to the alpha after forbidden exploits" (Mama's last hug, p. 152). They show this exaggerated submission even when the alpha did not see their transgression.

De Waal says that this exaggerated submission is related to our saying that we want to 'sink in the ground' after a transgression and links it to shame and even guilt. This shame like behaviour in apes is visible in that they lower their body and turn their rump toward others that have been upset by the behaviour of the ape that was the transgressor. De Waal also describes examples of apes that were punished by the group, because they transgressed certain 'laws' like being careful with the child of another ape. They were sometimes literally excommunicated. He argues that this seems to be a rule-enforcing mechanism.

So apes do show shame or even guilt emotions, especially toward higher ranking individuals, even when the 'authorities' did not see their transgressions. This suggests that apes are aware of certain rules that they should not break, even when their leaders are away. For De Waal this leads to the conclusion that animals can incorporate behavioural rules which are associated with their role and can respond in a manner that acknowledges a perceived violation of the social code. It was shown that their greatest underlying worry is rejection by the group since this is very important for survival (Mama's last hug, p. 152). Guilt is also observed in other animals as suggested by De Waal, even outside social groups. He describes an example of a dog biting in the hand of his owner and being non-active for days afterwards.

Interpretation

Even though for the discussed traits data is scarce and they are not discussed in great detail by De Waal, I included a discussion of them, because in my opinion these traits really are close to the line between humans and animals and reveal interesting views on animal morality. Maybe this is best expressed when I simply say that I was really surprised when I read in the books of De Waal about incorporation of behavioural rules and guilt in apes. I think my surprise is because rules and guilt is something which is really linked to human morality in my perception.

Therefore, we should consider the data carefully. First, the data that De Waal presents are examples, not empirically proven experiments. And of course, they are interpretation of behaviour. We cannot read the brains of the chimps to see whether they really have incorporated rules and feel shame and guilt. Also, shame is something different than guilt in my opinion, although the two are strongly related. Shame is about how we feel about ourselves and guilt involves an awareness that our actions have injured someone else or were wrong in another way. Hence, De Waal possibly jumps quite fast to his conclusions, although he shows some interesting examples of awareness of doing wrong to others. Nevertheless, I agree that some data hint in the direction of his conclusions and are remarkable in themselves. They point towards a possibility of some sort of conscience in apes, since internalizations of rules is related to this. Besides, if the hints of feelings like guilt also can withstand careful scrutiny in more experimental research, it seems that both conscience and guilt feelings are rather gradually different from the experience of humans than different of kind because the existence of those traits in close relatives points towards an evolutionary explanation.

2.2 The frontiers of ape morality

2.2.1 Rationality

Presumably we have arrived at the frontiers of ape morality. In my opinion from now on I will describe moral traits that are less clearly different in degree, and sometimes seem to be different of kind. So now we turn to morality traits like rationality and out-group care for which less data is present, and also not provided by a primatologist like De Waal, since he mainly studied behaviour and interprets it. I focus first on rationality and how it is used in moral behaviour. Again, I try to answer the question whether this trait is present in animals and to what extent there might be an evolutionary relationship between non-human-animals and humans for these traits.

Data

It is important to first define what rationality actually is. It is often defined as the quality of being guided by or based on reasons and is related to thinking, although it is much more. It can be defined as an ability and therefore can be studied for its presence (Knauff & Spohn, 2021, p. 3). To discuss the presence of rationality in animals and compare it to the level of rationality in humans would require a whole new essay. It is clear however, that the big gap between human rationality and animal intelligence is not as big as often thought, as De Waal points out.

Neuroscientists are trying to understand the brains of primates, and are very clear that evidence is adding up that just like other components of our morphology human brains are not very different: we even share neuronal circuitry with insects (Bridi et al., 2020; De Waal, 2019, p. 233). The structure and operation of the brain of humans and mammals is very similar in principle (See appendix II for more information). The line between human and animal rationality is blurred and, as De Waal asserts: "Apes, especially, are thinking beings who try to understand every problem they face. They lose interest once they figured it out" (2019, p. 80).

Moreover, one of the main points of De Waal is questioning how rational humans actually are. He reasons that there is an interplay between emotions and rational thought. He for example describes a study with a patient who had brain damage in brain areas associated with emotions. The patient was never emotional but was able to reason: "This lack of emotion seemed to paralyze his decision making" (2019, p. 205). De Waal describes that emotions therefore are also needed to make (moral) decisions and are an essential part of our ratio. Therefore he argues that a dualism between rationality and emotions in humans is not really present. He quotes the famous French philosopher Pascal to say that this is already known for a long time: "The hart has its reasons of which reason knows nothing." He uses the sense of fairness in animals to connect this to morality because fairness also is a result of both emotion and rationality (I quoted De Waal about this in 2.1.3).

Interpretation

What De Waal does in my perspective is not only highlighting the intelligence of animals, but also lowering the high view of humans as purely rational beings (chapter 6 on emotional intelligence in his 2019 book Mama's last hug deals with this topic). It follows that our morality is also not always rational. I think that he has a point on both sides: humans are not purely rational and apes are more intelligent and maybe even more rational than I knew before I read the books by De Waal.

However, although the Waal does not deal with this topic extensively I think that some statements he makes are too bold at least because he does not explain them. Coming back to the hierarchy section for example, even though apes might incorporate certain rules, they are clearly not doing this in the same way as humans do, or at least not completely. We add a layer of language and symbols to those rules and also rationalize them. By using language humans can discuss rules and transgressions and even make rules for people we do not know. On first impression language therefore seems to be necessary for rationalization of morality.

Besides, I do not know whether we can say that apes are thinking beings and it might be that De Waal overstates here. If De Waal would say to me that apes think about morality or rationalize it I would not immediately buy that idea. It might be a definition problem however, because those definitions of thinking and rationalization have a broad range, from a synonym for all 'intelligent information processing' for example to solve problems, to an umbrella term for processes associated with 'high-level' cognition such as decision making, categorization, and reasoning (Holyoak and Spellman, 1993). It is often referred to as active manipulation of mental representations of information.

When we apply this to apes and take into account that they are capable of solving problems, planning in advance (p. 225, 2019), using memory of the past (Martin-Ordas et al., 2013), foreseeing the implications of actions and even choose for other actions (think of the Marshmallow test), then we might say that they are indeed able to think to some extent. When we extrapolate this to moral issues, it might be that an ape indeed can reason that a certain action (A) will have a bad outcome (associated with negative emotions), even for others (think about the shock experiment), maybe because they learned so in the past, and therefore choose for another option (B). They might know that option B will have a better outcome, from past events, and it might even be enforced to them due to hierarchy. To me, this seems reasonable, also since their brains are working quite similar and therefore their decision-making process might be similar in essence to that of humans. Hence, De Waal might be right in saying that apes think and also that apes rationalize rules, although this is 'interpreting', not proving.

It might be that the real difference between apes and humans is therefore not that they don't have similar brain processes like 'reasoning' or 'rationalization', but that they lack the language to do it in the same way as us. So they have ways to feel that certain things should be done and others not (related to moral sense) and are maybe even able to reason in such a sense that they learn that certain solutions for moral dilemmas are the best. But they do not have the language to catch this in rules, or the culture that we have to also enforce laws and morality. So I would say that our rationalization of morality is different in that we have language to express ourselves about it, and also for other aspects gradually more intelligence/capacities which make us more conscious about our moral choices. There are elaborate explanations for why language and consciousness have evolved (i.e. Savage-Rumbaugh et al., 1998). And these traits are at least partially present in primates. Therefore a part of the ingredients needed for the 'higher-level rationalizations' by humans seem to be present in other mammals. Hence, the difference in rationalization seems to be a difference in degree, rather than of kind, but this is as said at the frontiers of current knowledge and making many inferences.

2.2.2 Out-group care

I will now discuss one last morality trait: out-group care. With that I mean caring for other individuals than those of our own group (with relatively well known individuals), or even for other species. In humans this is a well known phenomenon in which a person favours others seen as similar to themselves (ingroup) over people seen as different (outgroup) (Campbell and De Waal, 2011). Caring can be defined by empathizing with other individuals, and by concern for the welfare of them. This trait is presumably already in itself of another kind than the ones discussed before. This because it is a rather abstract trait in comparison to the other more biological traits. Nevertheless, it can be observed and questioned whether non-human-animals have something like out-group care and to what extent there might be an evolutionary explanation.

Data

De Waal thinks morality evolved for the in-group, not for the out-group. Therefore, universal moral laws might be unique for humans. Humans try to care for the out-group and even encourage it. The Good Samaritan is an example of care for someone outside the in-group and universal human rights is another (Assembly UN general, 1948). De Waal argues that this is relatively unique for humans. This is because in apes care for the out-group has not been observed often, although it is also not the case that apes always have war with the outgroup, as is shown by the relatively peaceful bonobo's.

Data supports the hypothesis that apes are not very well in caring for the out-group. In an experiment in which contagious yawning was used to measure empathy it was shown that chimpanzees show contagious yawning when video's of yawning group members are shown. Even when video's of human yawning were shown they showed contagious yawning. However, when video's of chimpanzees outside there group were shown, there was significantly less contagious yawning even though the apes watched those video's for longer times. According to the researchers "the combination of high interest and low contagion may stem from hostility towards unfamiliar chimpanzees, which may interfere with an empathic response"(Campbell & De Waal, 2014). There is even research that shows that "chimpanzees are indifferent to the welfare of unrelated group members"(Silk et al., 2005). This because the chimpanzees did not "take advantage of opportunities to deliver benefits to familiar but unrelated individuals at no material cost to themselves."

That out-group care in humans is really not only 'natural' is supported by the fact that humans often find it hard to identify with strangers. Empathy is biased as was shown in many historical events in the past and even today humans could hack off the heads of out-groups. It was also empirically shown: Swiss soccer supporters showed less empathy to supporters of other clubs. "In fact, seeing fans of the rival club getting shocked activated the brain's pleasure areas" (2013, p. 141, Hein et al., 2010).

Interpretation

Therefore, out-group care or humanizing out-groups is transcending our biological nature. There even seems to be no equivalent present in other animals, at least not in apes to my knowledge, which means there is no real difference in degree, but presumably a difference in kind. So humans go beyond reasons from their moral sense, composed mainly of intuitions. Although De Waal admits this, he still argues that much rationalization happens only afterwards, because most often we act morally in split seconds on an emotional basis (shown by activation of emotional brain areas before the cognitive areas). He says that philosophers often have gotten it backwards: they have focused on the

justification part as if it was the motivation part. Nevertheless, humans do have rationales which are overruling emotions as is shown by this case of out-group care (nature versus nurture). This point will be discussed more extensively in the Synthesis chapter, because it shows that human morality is not only composed of 'feelings' but also based on what we think is right (4.4.4).

De Waal also says that apes sometimes do much better than the actors in the parable of the Good Samaritan: chimps and bonobo's show consolation to other individuals when they have pain, although this is mainly for friends and more often by females than by males, as is the case in humans. So, "clearly they are not nearly as selfish as has been assumed, and might actually beat the average priest or Levite when it comes to humane behaviour" (2013, p. 147, 2019, p. 116). There might be some truth in this statement, since humans sometimes value certain idea's more than humane behaviour (i.e. Siebelink, 2009). However, there are many counterexamples and I think this is bold language by De Waal to drive his point home.

2.3 Conclusion

In conclusion we can say that De Waal argues that many morality traits have evolved and are shared with other animals. Therefore morality most likely has an evolutionary origin and is composed of a lot of bottom-up primate social tendencies. So in essence human morality is different in degree to that of non-human-animals. De Waal would say: "our desire of making sharp divisions is at odds with evolution's habit of making extremely smooth transitions" (2019, p. 45). De Waal argues that the sense of fairness is "a great example of how we move from "moral sentiments" (…) to full-blown moral principles. The starting point is always an emotion" (2019, p. 213). When it comes to rationalization and out-group care however, questions remain: are there really sound evolutionary explanations for it? So are they really different in degree?

De Waal describes that at this point where the questions arise something typically human happens: top-down processes come in with which he presumably means ratio and culture. Humans try to justify themselves with ratio and make rules. He argues however that also these top-down processes originate in the bottom-up processes: in the end bottom-up evolution of morality resulted in top-down morality, because the bottom-up origins have been rationalized in top-down rules, enforced by culture.

Therefore, De Waal argues that emotions are a stronger basis for morality than reasoning or top-down processes: "Rational arguments are woefully insufficient to arrive at moral principles, which get their force from the emotions. The enormous investment we make in rectifying unfairness and injustice – the screaming protests, the marches, the violence, the endurance of police beatings and water cannons, the trolling and bullying on Facebook- remind us that we aren't dealing with some bloodless mental construct. Absence of fairness and justice shakes us to the core, something that no amount of elegant abstract reasoning will ever accomplish." (2019, p. 219; more in 4.4.3).

I already discussed per trait if De Waal's views were convincing and I will discuss this later on in the synthesis. One final concluding remark is that De Waal also argues that certain moral sense traits, like empathy, can be the identity of what is good. He thinks that those things (like empathy) are considered to be good, just because we evolved as a group-living species, and because those traits were valuable during the course of evolution (4.4.4).

3. Human morality different in kind?

In short: human morality is of a different kind than (moral) behaviour in (other) animals.

In the antithesis I describe critiques on the views of De Waal. I mainly use the view of philosopher Antony O'Hear in his book Beyond evolution (1997). Besides, I describe some critique from other biologists and philosophers. The critics share the opinion that De Waal is exaggerating in diminishing the difference in morality between human and animals.

3.1 O'Hear – beyond evolutionary motivations

The main point of O'Hears book is that human (morality) is not only explainable in evolutionary terms. Even though he does not use this terminology he would say that the morality of humans is of a different kind than that of animals. He is not writing like De Waal in that he does not often make comparisons between animal and human moral behaviours. Therefore it is impossible to discuss extensively per morality trait whether O'Hear sees a difference in kind or degree between animals and humans. He makes a more general point. Nevertheless, after trying to understand the gist of O'Hears perspective I discuss two 'moral traits' which were also discussed by De Waal in more detail, to understand where the differences in perspectives really lie.

Before I come to an actual description of O'Hear view on morality, I will first describe some background for his views on evolution and morality described in his book. O'Hear seems to argue that even though evolution might have shaped how we are, still evolutionary explanations are not sufficient for explaining all human behaviour. So humans have goals, motivations and reasons that are puzzling or even inexplicable on biological terms (p.12). This is because humans have the capacity to ascend causality and are free to be responsible because they have rationality or mind.

He describes the example of Socrates, dying for the sake of intellectual honesty and free speech. Socrates even refused to be rescued, because he thought a certain kind of life might be so shameful that death is preferable. Even though an evolutionary explanation might be that pride and self-respect in the end contribute to survival and reproduction, it did not really show why Socrates died rather than survived. So O'Hear concludes that humans, at least in part, act for reasons which are not always 'Darwinian' (p. 4), because survival should be a strong motivation for Socrates in evolutionary terms.

O'Hear argues that even though a large proportion of human nature is material and presumably shaped by evolution, we are also not like most material objects: with the animals we share consciousness, and above that we have the ability to think discursively (step-by-step reasoning, interpretation AJ), we are even aware of this thinking and are able to express these thoughts in language and other symbolic forms. "This draws on continuities between us and the lower animals", he writes, but "human thought and culture do exhibit certain important properties, rare if not unique in the rest of nature." He acknowledges that there might be an evolutionary explanation for many of these human unique properties, and that our "large and complex" brains play a crucial role in the production of thought and culture. The Mind is an important notion for O'Hear (indeed, he writes it with a capital M, although he does not explain why), and he thinks that this is why humans are not constrained by nature.

3.1.1 Primary and self-consciousness

O'Hear argues that humans have a different level of consciousness than animals. He describes that a horse might have a bad experience when loaded in a horse trailer. This will condition his future perception of being loaded on a trailer. These are crucial aspects of how an animal perceives a stimulus, but it does not in itself mean that the animal has a conception of itself as a being who feels pleasure or pain or who has a past or future. According to O'Hear "it is this conception of oneself as a perceiver, as a subject of pain and pleasure, and as an agent in the world with a remembered past and an intended future which characterizes self-consciousness" (p. 34). So the animal might have certain dispositions to stimuli, but we cannot say that the animal is aware of its dispositions or beliefs. In primary consciousness the past and future of the animal or child (without language) are not brought into explicit awareness. So for the transition from primary to higher consciousness it is needed that the subject of the consciousness does not just have experiences, but is also able to refine, alter and report its experiences.

Humans are unique in higher self-consciousness

O'Hear argues that for this higher consciousness it is needed that the animal produces a symbol system and a society that is also able to develop and moderate the symbolic realm. In humans this is represented by our unique ability of language, which even has a physical uniqueness: the larynx (although it has been found that similar physiological structures exist in mammals like deer and that it is therefore not as unique as previously thought: (Tecumseh Fitch & Reby, 2001)). Therefore he argues that this ability of higher self-consciousness presumably can be found only in humans, since chimpanzees do not have the brain basis for complex sequencing of articulated sounds, and have no true language or speech (p. 38). Besides, even if apes (like Washoe) learn to be able to express themselves in language and are inserted in a linguistic community, language is still not natural for them (p. 48).

Autonomy and heteronomy

He then argues that this self-reflectiveness based on self-consciousness is important for morality, because it allows humans to criticize and judge their own behavior and that of others. This higher self-consciousness allows human to be self-reflective and that is crucial for human morality according to O'Hear. The emphasis on this self-consciousness and free will, or at least higher motivations than only biological is based on arguments from philosophers like Kant. For Kant autonomy (literally: self-law-giving) is very important for morality: it means that the individual herself determines by rational choice what is good and wrong. Heteronomy (literally: other-law-giving) means that an individual is directed by other forces outside itself. O'Hear argues that humans can argue to themselves to do something, and therefore have reasons beyond motivations from the outside.

This view of Kant which O'Hear uses is worked out by other philosophers, also to compare human and animal motivations. So the view that human motivations might be different from evolutionary motivations, or at least from animal motivations, is a view that is not new for O'Hear. I describe the view of other philosophers in the Kantian tradition because it sheds some light on the difference between motivations of animals and humans according to this line of thought. The philosopher Frankfurt describes that human and animals differ in their intentional systems. A first-order intentional system has beliefs and desires, but no beliefs and desires about beliefs and desires, whereas the second order intentional system does have the latter (Frankfurt, 1988).

So a second-order system can stand-back and reflect on the first-order system. To illustrate what this means I will describe an example by the philosopher Frey: he describes that humans usually have a high level of autonomy based on a second-order intentional system. They can for example have a desire to achieve for example promotion. This would be a second order intention, by which they can overcome a first order intention or desire, for example not indulging in the present desire to lie in the sun, but to achieve second order desires, such as a promotion. This means that these people have second-order intentional systems, because they decide to foster certain desires, but shedding others. Animals do not possess this system according to Frey (1987). This means in short that humans can reflect on their preferences and control their preferences also for goals on the longer term, whereas animals cannot. O'Hear says that this capacity in combination with self-consciousness makes that humans can transcend their biological, evolutionary nature.

3.2 Discussion of two traits

O'Hear does not deny that humans have a biological nature and share part of this with common ancestors. Therefore he does agree that certain morality traits are different in degree, although he remains sceptical even for the most basic traits. To show this I will describe two traits that were also discussed by De Waal, and describe the different view of O'Hear for each of them. I cannot discuss all traits that I discussed in the view by De Waal (Chapter 2), because O'Hear only discussed two of them, so I will discuss these: cooperation and empathy. Even for those O'Hear is not discussing them extensively like De Waal, but a short look will provide the gist of his message. I will again look to which extent there is an evolutionary explanation for the traits, or reasons for a difference in kind.

3.2.1 Cooperation data

O'Hear admits that cooperation might be advantageous for the survival of individuals and groups. So he sees a role for this factor in shaping other traits that are important for social behaviour. Nevertheless, he remains critical about evolutionary explanations on this level, by for example saying that altruism is not sufficiently explained by evolution, because group level selection fails to account for altruism: "it was never properly explained how the selection of groups was supposed to work on the behaviour and genetic structure of the individuals in the group" (p. 106). He goes on and starts a discussion about whether altruism can be an evolutionary stable strategy. "Even if the prevalence of drives towards reciprocal altruism sometimes lead to genuinely self-sacrificial behaviour, this could, in the nature of the case, be only the exception. The genuine self-sacrificers would not breed and a population in which such a tendency was marked would be highly vulnerable to a take-over from within or without from free-riding mutants ready to exploit the potentiality for self-sacrifice. The population would not, in other words, be evolutionary stable, and its downfall would be predicted by evolutionary theory" (p. 109).

But even if the evolution of cooperation and altruism is properly explained, O'Hear argues that then still this does not say if it is true altruism and really moral behaviour. He does have two reasons: 1) Altruism in biological explanations is often still because of some self-interest. Altruism might be explained by kin-selection, but than still presumably there is some self-interest in the individual who is altruistic. He describes the example of self-sacrificial alarm-giving and notes that alarm givers are more ready to give alarm calls to

their close kin, than to other members of the same species (p.107). Then he argues that this still is not true altruism and therefore no truly moral in the Kantian sense because there still is some self-interest, whereas altruistic behaviour in the Kantian philosophy means per definition that it should not be advantageous for the individual (p. 107). 2) Besides that he argues that, even if altruism is learned or inherited biologically, then still, why should those givens define or confine what ought to be done? So he argues that even if biological explanations exist, they do not explain why we favour cooperative or altruistic behaviour (p. 102), or put differently, why there is an ought to be so.

3.2.2 Interpretation cooperation

To me it seems that O'Hear argues that cooperation is not a fully satisfactory evolutionary explanation for morality and therefore that there is no gradual explanation or difference in degree, but one of kind. It might be true that cooperation fails to explain all morality, and I think that it is good that this is critically reviewed. However, to me the first points of O'Hear seem not to be strong. First of all, in my opinion O'Hear is not right in saying that group level selection fails to account for cooperation because there are good explanations (Okasha, 2005).

Groups that cooperate better might survive and reproduce more than those that did not. Or, phrased differently, group selection can occur when competition between two or more groups, some containing altruistic individuals who act cooperatively together, is more important for survival than competition between individuals within each group (Wilson and Sober, 1994). Also his point that altruism in the biological sense is not really self-sacrificial because there is some sense of self interest is not completely true in my opinion. I would say that there is true sacrificing behaviour in nature, without self-interest, even though it might be that not every single example can be explained by genetic evolution. Maybe other explanations will be found, such as that our brains and emotions have evolved in such a way that deep attachment can arise, for example because of paternal care, which makes altruistic behaviour more likely.

The point of O'Hear that explanations for the evolution of altruism does not say anything about what we ought to do is a more serious point. His question is why we consider altruistic behaviour better than non-altruistic or even selfish behaviour. Actually this point is related to the naturalistic fallacy (Moore, 1903). This fallacy was the basis for Social Darwinism, the belief that helping the poor and sick would get in the way of evolution, which depends on the survival of the fittest. The problem here is best illustrated by the words of Herbert Spencer who said that survival of the fittest is not just nature's way, but ought to be our way. I agree with O'Hear that the explanations for how things go in nature do not have to say anything about what ought to be done and even that they might not be responsible for the feeling that we ought to be cooperative.

However, I think that it still can be that explanations at least give a hint to why we favour certain behaviour. If cooperation was important during evolution, because there was selection for it, it can be argued that cooperation has been favoured for a long time, and therefore is still regarded as favourable. The fact that free-riders are punished by dominant individuals in chimpanzees, as described in 2.1.1 for example, suggests that there is active favouring of cooperative behaviour also in animals. So, there might be a bottom-up reason for why cooperation is favoured and seen as something which is ought to be done, which has resulted in top-down reasons to phrase it in De Waals way. Hence, I would say that the question by O'Hear why we judge altruistic behaviour as good can

possibly be explained partially by the importance of cooperation during evolution. However, I also think that we should be cautious not to make the naturalistic fallacy and that indeed there are other reasons for why we judge altruistic behaviour as good, for example religious or cultural reasons.

3.2.3 Empathy data

Also for empathy I will discuss the view of O'Hear and see whether there is a difference in degree or in kind between humans and non-human animals. For O'Hear it is reasonable that being sensitive to others is of evolutionary advantage, especially in complex social groups. He describes that deception in animals also suggests that animals have some idea about what other animals feel, will do and think. On this specific topic he uses De Waal's research and describes his example of baboons that utter alarm signals with the effect of scaring rival baboons away from food. The point here is that the deceiver seems to be able to imagine himself in the shoes of his rival, knowing how the rival would react in specific circumstances (1997, p. 116).

O'Hear even thinks that empathy might be an evolutionary origin for consciousness: "The ability to think explicitly about one's own state of mind and about those of one's fellows could well be founded in a quasi-instinctive empathy at a lower level of evolutionary development; such empathy would naturally help to provide the content for such thinking, when we reflect that another is in pain or angry and so on" (1997, p. 116). However, he says that this is speculation and that there still is a difference in human and animal empathy: "there is no suggestion that the empathizing baboon or chimp has more than an intuitive sense of his own feelings or self, or those of his colleagues and rivals, or that he consciously attributes to them or to himself specific mental states. For this language is necessary as we have seen" (1997, p. 117).

O'Hear then distinguishes between unselfconscious empathy and conscious intentional empathy. He admits that there might be a link between them: "doubtless, *degrees* of self-awareness have increased bit by bit, but the development of intentional language has been crucial to the possession of a robust sense of self as a possessor of beliefs and values which can in a sense be detached from oneself through objective expressions, so as to be examined and assessed by a scrutinizing self" (emphasis AJ; 1997, p.117).

3.2.4 Interpretation empathy

So I think O'Hear sees a difference in degree in human and animal empathy. Where he sees a large difference, maybe even close to a difference in kind in the sense that there is not equivalent in animals, is in human language and self-consciousness, which gives humans the ability to reflect on themselves explicitly. For O'Hear this is crucial in terms of morality because it "requires not just a feeling for others but a recognition that they, like me, are intentional agents, choosing what they do and so open to praise, blame, and other reactive attitudes" (p. 116). Here we touch a bit upon a difference between De Waal and O'Hear: for De Waal emotions come before ratio, whereas O'Hear argues that ratio is most important and at least is decisive. This will be discussed in the next chapter (4.4.3).

3.3 Conclusion O'Hear

Overall I think that O'Hear admits that for example cooperation and empathy might have an evolutionary advantage and root and therefore are different in degree. Nevertheless he remains critical as to what extent evolutionary explanations are enough. The message of his discussion of those two traits has the same gist as what I described before about motivations beyond evolutionary ones: biological evolution might explain a part, but there are or must be explanations beyond this. What this explanation is becomes not really clear, but it seems that it is the human mind, which can reason towards other motivations. I cannot say if O'Hear means by this that there is a difference in kind, but it seems so, because he argues that evolutionary explanations, so explanations of difference in degree are not always sufficient to explain the level of human morality. Hence, instead of making the gap between humans and animals smaller, he points out that humans are really unique in nature. Therefore he emphasizes the rationality and reflectivity of human morality. Besides, he argues that there is, apart from explanations for why it has evolved, some form of ought or objective morality, although the source of that remains unclear. He asks whether evolutionary explanations justify the moral appeal that seems to exist (4.4.4).

3.4 Other critiques

Besides O'Hear there is more critique on De Waal, although to my knowledge surprisingly little, especially considering the fact that De Waal is of course writing on a serious matter: human nature. To my knowledge the most serious critique is from the side of neuroscientist Michael Tomasello. This neuroscientist who has spent much of his career on comparing chimpanzees and human children is in contrast to De Waal arguing that humans are quite unique. De Waal and Tomasello agree in general that human nature can be explained as a product of evolutionary primate history. Nevertheless they disagree in emphasis: Tomasello emphasizes the differences, whereas De Waal emphasizes the similarities. Even though the critique of Tomasello is not mainly focused on morality differences he is touching upon this when he discusses cooperation and fairness in apes and I will describe his view in short. Besides I want to describe in short the debate around cooperation as the driving force behind morality, which involves another of the main critiques on the view of De Waal.

3.4.1 Tomasello

In short, Tomasello is less positive about the cooperation skills of apes than De Waal is. He sees humans as truly cooperative because they have shared intentionality, but apes only to the extent that they are interested in some benefit for themselves. In response to the studies by De Waal on collaboration and sharing rewards in apes, Tomasello and his colleagues have published a study in Nature arguing that "collaboration encourages equal sharing in children but not in chimpanzees" (Hamann et al., 2011). In this and similar studies by the team of Tomasello it turned out that chimps generally shared as little food as possible with partners and that receivers accepted all offers of food, whereas human children tried to share equally.

Afterwards De Waal published a new study in which the Prosocial Choice Test in chimps was employed (De Waal, 2019, p. 115). Female chimpanzees could either choose for a token which would reward only themselves or a token that would reward her and a partner. It was shown that the females had a significant bias to choose the token that would reward both of them (Horner et al., 2011). Later on more evidence was added by De Waal, for example by means of playing the ultimatum game with chimps and human

children. In ultimatum games both partners need to agree on a distribution for both to receive rewards. Humans typically offer generous portions of the reward to their partner. It was shown that also apes divide the reward equally if cooperation was required, showing a similar preference in dividing rewards with human children (Proctor et al., 2014).

Nevertheless, conflicting results about the cooperativity of primates shakes one of the foundations of De Waals argument. Conflicting data should be taken seriously. It is a fact that in the wild the primates do cooperate, for example during hunting, but in the laboratory settings this seems not always as clear as De Waal presents it in his books. (More information: van Schaik & Burkart, 2018).

3.4.2 Morality comes from another source than cooperation

Another critique is that of anthropologist Joanna Cook and others. She says that our motivations for cooperation are already morally loaded instead of that cooperation drives morality. So cooperation is not the driving force behind morality, but morality is the driving force behind cooperation. Whether this is true or not is also an extensive debate which is aptly summarised in this article (Gellner et al., 2020). In my opinion there are strong reasons to say that at least part of our morality derives from cooperation, already because cooperation and presumably the emotions related to that are an older phenomenon evolutionarily seen than morality in the human sense.

One of the reasons that cooperation cannot be the source of true morality, according to critics like Buchanan and Powell (2015), is related to the earlier mentioned discussion that evolution cannot explain true altruistic behaviour. Proponents of this view say for example that morality is an adaptive valley. With that they mean that in populations where selfishness initially reigned, any sense of occasional altruism from otherwise egoistic and cruel individuals would be selected against, by such sentiments causing the individuals with some morality to be treated worse than those with no morality.

As pointed out earlier in the discussion about cooperation by O'Hear, I would say that multilevel selection instead could favor the more moral groups. Inclusive fitness theory or kin selection might be an easier conceptual framework to understand this, although it is mathematical equivalent to multilevel selection (H. Doekes, personal communication, January 13, 2022). This theory argues that when individuals that show more moral (or altruistic) behaviour direct this towards individuals with whom they share more genes than average, this behaviour can evolutionary spread. This because those latter individuals have a higher chance of also carrying altruistic genes. Which means that the benefits of altruistic behaviour end up by individuals that also show altruistic behaviour. However, this debate is too much to deal with extensively. It is nevertheless important to take into account in this discussion that the role of cooperation as driving force behind morality is still seriously debated. Whereas De Waal himself does not focus very much on the mechanism behind this, there is research which focuses more on the evolutionary mechanisms (van Schaik et al, 2014).

3.5 Conclusion critics

Main points of critiques on De Waal focus on his emphasis on cooperation as the driving force behind morality. It is argued that cooperation is either not sufficient to account for full human morality or that there is not a small gradual difference between humans and non-human animals with regards to cooperation. I think that the attack on cooperation is merely an attack on evolutionary mechanisms behind the evolution of morality. De Waal himself does not deal with that extensively, but mainly points out that cooperation is present in many non-human-animals.

Another question related to cooperation is whether an explanation for this behaviour also says something about what ought to be done. Is the appeal to cooperate there because evolution has shaped humans to cooperate, or are there also other sources for this appeal? (discussed in 4.4.4).

Besides, O'Hear is arguing that even though traits like primary consciousness, or first order intentions, or unintentional empathy might be present in animals, a higher order of those traits is present in humans, which for him reflects a transition to another dimension or order. O'Hear also attacks the emphasis of De Waal on the emotions: reason also is a strong force that motivates our actions. Whether emotions or reasons drive us to moral action is discussed in more detail in the next chapter.

4. Synthesis

First I analyse the view of de Waal and his critics in short. Then I search for the main agreements and disagreements between them. Subsequently I try to make a synthesis of both views and formulate my own views on them. The main purpose is to answer my research question whether there is difference of degree or kind between human and non-human-animal morality.

4.1 Reflection on De Waal's view

For most traits I am convinced by De Waal that indeed animal parallels or even roots of human morality do exist and that it is likely that the human traits originated in a shared common ancestor with those non-human-animals. In most cases I was even surprised about the amount of evidence and was sometimes stupefied that I was unaware of it. I also do consider the main point of De Waal, that morality is rooted in emotions which can be seen in other animals, as quite strong. However, I do have questions. Some doubts I have already expressed when dealing with specific moral traits. A more general remark is that I think that De Waal maybe indeed emphasizes the role of emotions in morality too much: some humans make their (moral) decisions more rationally based, whereas others make them more emotionally I would say for example. I mean, can we generalize the point of De Waal that most morality is based on emotions to all people or is it more nuanced? However, I also think that it is important that people do not become too rational and should take emotions into account regarding moral issues. I see that one of De Waals points, that we should be somewhat more compassionate to each other instead of fighting with each other on the basis of rational arguments is important for morality. But that might be personal and thus subjective preference. I think that De Waal is overemphasizing his point in order to get it through (4.4.3).

So De Waal answers my main research question for a great part: it seems that for many moral traits evolutionary explanations at least give a partially good explanation. For many traits there is a gradual difference rather than a difference of kind. For the more complex traits there is more research needed in order to give a good answer.

4.2 Reflection on O'Hear and other critiques

In my opinion O'Hear does a good job in pointing out that emotions are not everything with regards to morality. He therefore acts as a perfect balance to nuance the emphasis of De Waal on emotions. I think that O'Hear's point that the mind and reason are important for morality is strong and persuasive, as was perfectly illustrated with the example of Socrates.

So his point is that there can be an ought which is a motivation for moral behaviour (4.4.4). O'Hear mainly acts as critique and does not offer a good alternative hypothesis: besides arguing that there is a moral ought he does not say where it comes from. This might be considered a weakness: it is easier to criticize than to build a model. He emphasizes rationality as an alternative motivation for morality, but he does not propose a model for why rationality has led to the current moral behaviour of humans, what the source of moral behaviour is so to say.

Sometimes he is wrong about biology or even too sceptical in my opinion. And I am sceptical about why he is so sceptical. To give two examples: first he dismissed group level selection too easy as an explanation for altruism. Besides, he is sometimes too

derogatory about animals and especially apes capacities, for example when talking about the level of consciousness and autonomy they possess. Nevertheless, when compared to other philosophers in his line of thought, such as Frey, he takes animal and apes capacities more seriously.

Also, I am not sure whether the sharp distinctions that O'Hear and other philosophers in the Kantian tradition make are really useful or realistic. For example the distinction between first- and second-order intentions seems at first useful. But I think two points can be made against it: 1) absence of evidence is not evidence. It is not known whether apes are able to reflect on a first-order intentions like laying in the sun, and instead go for a second-order intention, like becoming an alpha. Also the marshmallow tests in apes might point in another direction. 2) It seems to me that sometimes this line of thought in it's search to distinguish makes distinctions that are at least not as clear as they are described. The philosopher Frey has for example been accused of denying animals traces of mind (Regan, 2004). Besides that he denies animals some capacities which animal in fact do have (De Waal, 2016).

O'Hear himself is more nuanced, but still is sometimes too sceptical about animal capacities, I would say, for example when dealing with empathy. I think he is drawing conclusions too fast when he says that apes do this unintentional and humans do it intentional, because also for humans it is often not as black-and-white as presented here. More importantly, I think it is too bold to say that apes do it unintentional.

The debate about cooperation as driving force for morality and as a gradual step between apes and humans is interesting. I would say that where there is smoke there is fire. So cooperation might play an important role, but maybe De Waal overemphasizes its role. I would not be surprised if other factors play a role, since reality is often more complex than humans think.

4.3 Main points of agreement

Surprisingly, the main point of agreement is that all scholars described in this essay agree that for some moral sense traits there is a gradual difference between the animal and non-human-animals, which already is a partial answer to my main research question. Evolutionary explanations are often accepted by both sides even though O'Hear is more critical. I think that all authors also would agree that both emotions and ratio play a role in morality, which I will discuss in the next section, because the extent to which those factors play a role is a point of disagreement.

4.4 Main points of disagreement

Since my main research questions is whether there is gradual difference between humans and non-human-animals with regards to morality I will first describe the main differences on this point. Subsequently I will discuss other differences which are also important and follow from the points that are discussed earlier in this essay.

4.4.1 Degree versus kind

In general I can say that there is a difference in emphasis between De Waal and O'Hear with regards to the overarching research question (difference in degree or in kind?): whereas De Waal focuses mainly on the less complex morality traits and argues that the more complex traits follow or evolve logically from the less complex ones, O'Hear touches only briefly on the less complex ones and focuses his argument on the more complex traits. In table 1 below I describe for the main traits that were discussed whether both De Waal or O'Hear thinks there is a difference in degree or in kind.

Table 1 A schematic representation of the different views of the main authors that were discussed. Per trait it is noted whether there is a difference in degree or in kind according to the author. The moral traits are chosen based on emphasis by the authors or because of importance for morality and in order to represent the full spectrum of morality in the best way: from lower to higher complexity.

Trait	De Waal	O'Hear
Cooperation	Degree (Reason for evolution of morality)	Degree (Not sufficient to explain true morality)
Empathy	Degree	Degree
Fairness	Degree	Not discussed
Inhibition	Degree	Not discussed
Rationality	Degree	Kind (important for moral behaviour).
Out-group care	Kind	Kind

For those authors degree mainly means that an equivalent of this behaviour is present in animals. So they do not discuss in detail how this trait evolved from the one species into another. However, they do discuss sometimes, for example in the case of cooperation, empathy, fairness and inhibition whether there are evolutionary mechanisms to account for the evolution of these traits. So in most cases degree does not only mean equivalent traits are present in both humans and non-human-animals, but also that there is an evolutionary explanation. However, those explanations are except for cooperation not empirical, but are hypothesis and reasonable inferences.

In answer on my research question I can therefore say that for most moral senses there is most likely a difference in degree between human and non-human animals. There are evolutionary explanations for many of those traits. However, it is not black and white, and for some behaviour like out-group care there was not found any animal equivalent. Even though this might not mean that there is no evolutionary explanation, it can be said that this a really uniquely human trait.

Nevertheless, even though the general answer might be a difference in degree between non-human animals and animals moral senses, it also became clear during this essay that this does not say much about a difference in degree or kind for full morality, including for example normativity. Therefore, I return to the question what morality actually is. This because for the different authors the focus on what morality is differs quite a lot, as I will explain in the next section.

4.4.2 Definition: moral sense versus morality

One of the main points of disagreement between De Waal and O'Hear is that they have a different view or definition of morality. For O'Hear the capacity to reflect on the moral instincts or senses is crucial, whereas De Waal defines morality as mainly being this primary moral sense. De Waal even argues that this reflection is often only secondary behaviour that occurs after the action, and that our ability to reflect on our actions does not alter our behaviour to a great extent. To this latter point I will come back in the next section (4.4.3).

De Waal does not only see moral sense as the origin of morality, he also identifies moral sense as a source of morality and goodness. Moral sense is according to him not only necessary for morality, but morality also consists mainly of moral sense. To discuss this in more detail I focus on his emphasis on the moral sense trait of empathy to show this. De Waal seems to say 'I cannot be a moral being without empathy'. Besides the quote in an interview that I have quoted in the empathy section (2.1.2) he does not say that explicitly in his books as far as I know. Nevertheless, I think he says it implicitly as I will illustrate with some examples. He is at least making clear that empathetic behaviour is good and makes a value judgment there as is seen by the dualism he sketches between the empathic good animal opposed to the self interested behaviour of another. "This leads to caricatures, for example when he describes bonobo's as gentle and sexy, chimpanzees as brutal and domineering, and humans as "bipolar apes" with characteristics of both" (Van der Weele, 2011).

He makes his point that empathy is good even stronger by using examples from World War II. He writes that "the greatest heroes are not those who think like everyone else but whose *empathy* for others makes them disobey ghastly orders (…). A Polish nurse, Irena Sendler, smuggled hundreds of Jewish children one by one out the Warsaw ghetto. She did so not based on some lofty moral principle but out of natural *empathy* (2019, p. 111). As a sidenote: I do not know how he knows that she did this out of natural empathy. But given that she did it because of that, it is also very well possible that others performed similar deeds because of other reasons. However, my point here is that De Waal makes empathy equivalent to good behaviour. Hence, for De Waal the capacity of empathy is not only an important origin for morality but it also becomes the identity of good or moral individuals to some extent.

And here it becomes hard, because for example people with Autism Spectrum Disorder could be immoral beings on the basis of this reasoning, since they can have trouble with empathy and Theory of Mind (Harmsen, 2019). Whereas I think that indeed it can be harder for those people to be moral, they still can be moral, or even be more moral just because they work hard on it, and have to put more intentional effort into being empathetic. So if we would follow the reasoning of De Waal and see moral sense, in this case empathy, as necessary for morality, I would say that empathy (or other moral sense traits) become the identity of the morally good. And then we are in the field of ethics and thus morality. And here it becomes clear that De Waal has two projects: "the first is to understand how moral norms and behaviour evolve. The other is to judge good and bad motives in human nature. The merging of these projects creates confusions" (Van Der Weele, 2011). I think that Van Der Weele is right here: she points out that De Waal in his second project is not talking about moral sense anymore, but about morality and ethics.

Darwin can be helpful at this point. He is including more than only the sense in morality and would say that empathy and sympathy are maybe more than only senses. This is in line with the idea that there is also cognitive or intentional empathy (section 3.2.3; Harmsen, 2019). He emphasizes for example the importance of the worry about others' opinions in reflecting on actions and being empathic. He thought that even though "the capacity to be emotionally affected by the situation of others is an important place of origin for the development of morality, this origin leads to moral norms and moral goodness through a complex system of mechanisms" (Van Der Weele, 2011). Therefore, empathy or sympathy is not the source of good or moral behaviour, it is merely a tool for good behaviour. In this way also people with ASD can be moral. I do not say that De Waal would say they can not, because also De Waal writes that sympathy is often rooted in empathy but goes beyond it (2019, p. 107).

I think here we arrive at the definition of O'Hear, who would say that our moral sense might be part of morality, but that there are reasons beyond that. So he also would agree that empathy can be a tool for morality, but not more than that. I think it can be helpful to go again back to Darwin here, because he seems to be on the side of O'Hear. According to Darwin moral sense is not yet morality, since morality requires normative judgment: a moral being is "capable of comparing his past and future actions and motives, and of approving and disapproving of them" (Darwin, 1871, p. 135). So for Darwin moral sense is not morality in itself and it is certainly not normative. He also saw a role for the reflectiveness that O'Hear emphasizes and seems to say that this reflectiveness is related to normative judgment. I will discuss this in section 4.4.4. But before that I will describe that this difference in definition also leads to a difference in emphasis on what drives morality: emotions or ratio?

4.4.3 Emotions versus ratio

In my opinion an important difference between O'Hear and De Waal is a different value judgment about the ratio versus emotions as drivers for morality: for O'Hear morality is for a large part rational. For De Waal rationalization comes mainly afterwards. So for O'Hear ratio is the motivation for moral behaviour, for De Waal it is mainly the evaluation. This also has implications for my research question. Most scholars agree that emotions have at least some evolutionary root and therefore are gradually different between species. The ratio part is considered more unique for humans than the emotions and would earlier be a difference in kind than of degree.

The big question that de Waal asks to O'Hear, Kantian philosophers and other 'rationalizers' is to what extent humans are purely rational autonomous beings. And if so, what this means for where our morality comes from: so the question of De Waal is: "if ought cannot be derived from is, where can ought than be derived from? Is ethics an entirely "autonomous" or maybe even "subjective" field of inquiry? Or are ethics grounded in our cognitive architecture, our biology?" (2013, p. 162). I will come back to this point in the next section (4.4.4).

Free will

Related to this is the question of free will. Emotions seem to be at least partially not free. We have them whether we want it or not. The point that O'Hear stressed is that humans are free and rational beings. This is in line with philosophers like Frankfurt. But De Waal is not happy about this line of thought: "Frankfurt made his claim that animals do not monitor their own desires without any indication that he knew what he was talking about (…). We know a lot more about future orientation and emotional control in animals (..) and the situation is not nearly as simple as we once thought. First of all, the popular notion that animals are captives of the present, that they live entirely in the here and now, has been blown up by recent work on 'time travel'" (2019, p. 225).

De Waal then describes studies on for example orangutans that, the evening before they migrate, call in the direction in which they will set off the next morning. He also describes also the marshmallow test. De Waal concludes that even animals can override their urges by cognition and "fighting the impulse to take one course of action and replacing it with another that promises a better outcome is a sign of rational agency. (…) Why do we think we're the only ones with the freedom to determine our future? Given the above evidence, the reason for the presumed difference can't be control over our emotions and impulses, or even awareness of our own desires. (…) My tentative conclusion is that if we humans did evolve free will, it is unlikely that we were the first ones " (2019, p. 231).

It is important to note that ratio is the reason according to De Waal that there is no reason to think that the naturalized ethics that he describes are a prison from which we can not escape (2013, p. 235). So even though he emphasizes the role of emotions in morality, he still also acknowledges the role of ratio. Nevertheless, I still think that O'Hear and others value the ratio more when it comes to morality than De Waal.

I would say that Darwin maybe could help here as well: "In chapter 4 of The descent of man, Darwin describes the development of morality in four steps. First, the social instincts lead an animal to take pleasure in the society of its fellows. Second, as soon as the mental faculties become highly developed, the brains of an animal will have to deal with images of past actions and motives, which invariably results in feelings of dissatisfaction or even misery. Third, as soon as language develops, the common opinion can become a guideline for behaviour. And fourth, there is the formation of habits" (Van Der Weele, 2011). Besides providing 4 interesting steps for the evolution of morality, it also becomes clear that, as already discussed in the definition section (4.4.2) reflection and ratio also play an important role in morality.

4.4.4 Is versus ought

Even though it does not answer my research question, a question that arises times and again when comparing the views of De Waal and O'Hear is whether an evolutionary explanation for moral behaviour also says something about what ought to be done. This refers to a distinction that is made between is (fact (about nature)) and ought (values) (Hume, 1739, p. 335). O'Hear argues that ought can be derived from other values than evolutionary ones, and that the existence of this ought points towards other sources of morality.

De Waal would say that it is indeed important to be cautious to assume that is and ought are the same. Therefore, morality is not simply a reflection of human nature. Nevertheless, to be cautious does not mean that it is prohibited: "For one thing, there would be no

point in designing moral rules that are impossible to follow, just as there would be no point in making traffic rules that cars can't obey, such as ordering them to jump over slower cars. Among philosophers this is known as the "ought implies can" argument" (2013, p. 163). According to De Waal "values are embedded in the way we are. It is sometimes thought that biology falls entirely on the 'is' side off the moral equation, but every organism pursues goals. Survival is one, reproduction is another, but there are also more immediate goals like keeping rivals out of one's territory or avoiding extreme temperatures. Animals 'ought' to feed themselves, escape predators, find mates, and so on. While having a full belly is obviously not a moral value, the distinction becomes harder when we get to the social domain. Social animals 'ought' to get along. Human morality develops out of sensitivity to others and out of the realization that in order to reap the benefits of group life we need to compromise and be considerate of others."

He then argues that evolution predisposed us for our morality: "not all animals share this social sensitivity. Even if they were as smart as us, piranhas or sharks would never acquire our social code." Here he refers to the fact that they are emotionally radically different and thus never can become as social as other animals are with a brain further developed for social emotions. Furthermore, he argues that morality will be far more reliable if genuine prosocial feelings constitute its driving force, rather than duty. He says that Kant placed too much emphasis on duty because De Waal himself would rather marry a women who really loved him instead of someone who married him out of duty (2013, p. 164).

We can rephrase the is/ought question in the following way: is the appeal to cooperate and be moral there because evolution has shaped humans to be cooperate and moral, or are there also other sources for this appeal? De Waal would say that indeed it is partially shaped by evolution of our moral senses. Besides he also sees driving forces like our hierarchical nature and social pressure, which he sees as rule enforcements.

He even says that ought, or normativity is also present in other animals. He defines normativity as adherence to an ideal or standard, and says that there is ample evidence that animals treat their social relationships in this manner. "Animals pursue social values. There is evidence that nonhuman primates actively try to preserve harmony within their social network by, e.g., reconciling after conflict, protesting against unequal divisions, and breaking up fights amongst others. In doing so, they correct deviations from an ideal state."(De Waal, 2014). So in essence he says that evolved behavior, including that of other animals, is not entirely devoid of normativity.

To me the points of both men are important. O'Hear is completely right in being very cautious to derive ought from is. I would say that indeed this can be dangerous, leading to a naturalistic fallacy, which can have detrimental results as was shown by Social Darwinism. On the other hand I also agree with de Waal that duty or whatever values we have never really work without taking human nature into account, and even can lead to psychological harm. I think it is important to find a good balance between the two, which will be a slow question that I cannot answer in this essay.

4.5 Synthesis/Conclusion

In my opinion I can summarize the view of de Waal in saying that cooperation and emotions are the key to morality for him, even constituting part of what really is good and normative. Besides, that there is difference in degree between humans and non-human animals morality. For O'Hear rationality and free will are most important, and even though he acknowledges evolutionary roots for some 'moral sense' still human morality is of another kind than that of animals. His point of is/ought is important also because its relatedness to the naturalistic fallacy, since De Waal now argues that the 'is' is something which we judge as positive (cooperation, empathy etc.), but the 'is' was also sometimes seen as not so positive (competition, survival of the fittest) which resulted in really bad outcomes (Social Darwinism and eugenics). So, our interpretation of the is can in this way become fatal.

The main point for this synthesis is that I think that both authors overemphasize their view: the one pointing out that emotions are most important for morality, the other the mind or ratio and values. To me it seems that there is a way in between. Both emotions and rationality are important for morality and are evolved. I think that our reasons might be informed by emotions, and that the Waal is right that this might be more so than we often think.

Whereas human moral sense can be explained for a large part in evolutionary terms in my opinion, there remain factors of the full-blown morality of humans to be explained, mainly because our intelligence, culture and language capacity is not fully explained. Hence, although I tend to conclude that explanations of degree for human morality are more parsimonious than explanations that morality mainly originates in the human ratio, I do think that the difference of degree might be larger than De Waal argues. Therefore it is useful to shortly discuss the factors that cause that the difference in degree is quite large.

I think that the difference in degree might be larger than differences of biological evolution usually are because in humans other processes happened which resulted in a unique evolutionary process. Albeit that humans might perceive their evolution as unique because they are of course biased: it is an interesting and worthwhile question to investigate whether this process and the resulting gap is really unique, or that this gap might be similar to the gap between for example bonobo's and orang oetangs (See appendix III). That question aside, I think that the uniqueness of human evolution is due to cultural evolution and evolution of intelligence. I will shortly discuss whether evolutionary theory can account for those two factors and how these influence human morality.

Greater intelligence causes more complex morality

Our intelligence is key for the rational part of human morality: humans can anticipate the consequences of their actions, make value judgments and have the ability to choose between alternative courses of action. I do not exclude all animals of being capable of doing this as mentioned earlier, but I would say that our greater intelligence allows us to do those things to a greater extent. We can for example presumably anticipate the consequences of our actions over a longer time due to larger intelligence. There are many hypothesis for the evolution of human intelligence. Hypothesis range from smarter ancestors being selected by the other sex (sexual selection) to intelligence making ancestors able to better deal with dynamic situations (Wills, 1993). Another important hypothesis is that advanced intellectual capacities were favored by natural selection because the construction and use of tools, made possible by intelligence, improved the

situation of human biped ancestors. So becoming more intelligent to design smarter tools, gave such a biological advantage that smarter ancestors were selected (Ayala, 2010). Even though both authors do not discuss this, I would think that they both agree to a large extent that human intelligence was favoured by selection in some way during evolution and that this has influenced human morality.

Cultural evolution causes more complex morality

Darwin wrote: "there can be no doubt that a tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to give aid to each other and to sacrifice themselves for the common good, would be victorious over most other tribes; and this would be natural selection. At all times throughout the world tribes have supplanted other tribes; and as morality is one element in their success, the standard of morality and the number of well-endowed men will thus everywhere tend to rise and increase" (Darwin, 1871).

Darwin is touching here on gene-culture co-evolution. This process goes quite far and can even account for genetic changes because of culture. In certain dairy farming cultures for example, humans have evolved the capacity to persistently produce lactase (an enzyme that degenerates lactose, the sugar in milk) into adulthood. This enzyme is usually not synthesized in humans after childhood, because usually then the nursing with milk stops. It has been shown that the dairy farming culture has been the reason for this evolution (Richerson & Boyd, 2008, p. 191). So c6ulture really is a selection pressure. Besides, it also means that organisms are not passive subjects of natural selection; they actively construct the environment in which they are selected and pass these ecological and cultural legacies on to their offspring. Personally I think that morality also has a lot to do with our upbringing which is of course related to culture: human and primate children are born helpless and therefore need a lot of instructions for how to survive and deal with other humans. Instructions also include some form of morality; how to behave well in a group for example.

Conclusion

I think that the gap between De Waals emphasis on gradual explanations and O'Hears and others on that the gap might be larger can be bridged by this gene-culture co-evolution. Also the evolution of intelligence might play a role. So the synthesis would be that emotions are important for our morality, that they are enforced and made more complex by gene-culture coevolution and that human's greater (social) intelligence increased the role of ratio in moral decisions. This made the evolution of humans unique and accounts for our unique morality and other unique traits, even though there is a gradual explanation. Together, these gradual explanations seem to account for a large part of human morality, even though questions remain because for example the evolution of intelligence is only explained with hypotheses. Therefore I would answer my research question by saying that a difference in degree is more likely than a difference of kind, until maybe a good alternative hypothesis is offered.

I say more likely because at this point still we have to assume, as Aquinas said, that "the internal passions of animals can be gathered from their outward movements" (Aquinas, 1265; I-II, q. 34). Maybe once we will be able to know what happens in the mind of other animals, since neurobiological approaches seem to be promising. But still, as Darwin observed in The Descent of Man, in trying to understand the evolution of human mental abilities from the mental powers of our animal ancestors, we face "the impossibility of judging what passes through the mind of an animal" (Darwin; 1871).

5. Afterword and acknowledgments

This project was not a standard project. I wanted to do this project because of a story that I will describe below. I was raised as a Christian creationist and also was really trying to convince myself that a divine creation occurred some ten thousand years ago. This because this would be a strong argument to believe in my Christian God. During my studies however I realized that that the evolutionary story is really sound and based on evidence which I cannot reject. Even though for many people nowadays it is logic and a fact that evolution occurred I will describe shortly some of the main arguments that convinced me that evolution indeed is a fact, also since it is a major assumption underlying a difference in degree account for morality:

There are several lines of argument for evolutionary theory and common descent. There is for example a pattern of homology, according to which patterns of common descendance can be determined based on how many traits species share (Darwin, 1859, p. 448; Hirasawa & Kuratani, 2015), which can be determined on a morphological and genetics basis. Humans for example share genetic flaws, unitary pseudogenes and endogenized retroviruses (ERVs) with primates but not with other mammals (Keller et al., 1999; Zhang et al., 2010; Grandi et al., 2018), in such a way that older versions of pseudogenes and ERVs occur in a broader range of species. This pattern of shared traits is consistent with the fossil record (Norell and Novacek, 1992). The fossil distribution is moreover ordered in a certain way: for example the first trilobites are found in lower, older layers; giant insects and ferns higher up in younger layers; the dinosaurs higher still in younger layers; the first mammals in even younger layers, with humans only appearing the most recent layers. This is even accepted by those who are critical about evolution (Junker and Scherer, 2006).

Another point for me is that the creationist model is far weaker than the evolutionary model. For example the evolution of highly specialized predators and carnivores must have started in the creationists model at most 10.000 years ago. Besides, the creationist point that since a quite recent global Flood a very fast speciation must have happened from the few species that were on board of the Ark to the millions of species today, is very unreasonable.

To accept evolutionary theory has many implications. Realizing that the evolutionary theory was far more parsimonious than the creationist account, resulted in my opinion that the Thora, or at least my interpretation of it was not inerrant. I began to read and study this first part of the Bible more critical. I learned that certain things could not be true, for example that Moses could not have written it. I became more critical to many of the concepts that I had learned, and this is a process were I am still in. I am reviewing my convictions one by one.

Even my feelings had to be revisited. For example, I often felt fear when thinking or reading about evolution. It felt toxic and dangerous. I still remember that during the genetics class when lecturer Fons Debet talked about human and apes chromosomes I felt really uncomfortable. However, I reasoned that nature is one of the most reliable sources, which is even acknowledged in the Christian tradition (nature and scripture). I felt fear when I observed bonobo's, but that couldn't be realistic since these creatures are as real as they are. Interestingly in light of this essay, feelings are clearly informed by rational concepts.

To accept evolutionary theory also has implications for my view of myself. I am not a purely rational being, but full of emotions which might have evolved. You might have sensed my wonder about this in the essay. In some way the view of De Waal is very realistic and a revelation for me: I am raised in a situation where the view of humans is very high, which also means that there are very high standards; the primary goal of life is in some sense to have a good afterlife. For me this was very urgent and in some way I became detached from 'natural emotions'.

To give two examples: to become angry towards anybody felt as a big sin, or even to say no to someone else (Matthew 5:41). But De Waal simply explains that this is part of close social relationships and serves to negotiate the terms of social relationships, and that there is also please for reconciliation afterwards (De Waal, 2005, p. 190). Another example is that to drink coffee after visiting church, where the sermon was about that we have to find peace soon because we can suddenly die, was for me too down-to-earth. It felt not consistent: I should be busy with this eternal afterlife instead of talking about the clothes of the woman in front of us. Whereas De Waal simply explains that one of the main needs of a human is to be in a group. Relationships with people are simply one of the main goals of life, since we depend on people for our survival and we are a social species. For me the main goal in life was to become serene, peaceful, because that was what God promised me in the Bible. But now I am realizing more and more that I do have emotions, feelings, and that this is all very natural. It is better to deal with them, than to exclude them.

All in all I am still trying to understand the implications of evolutionary theory and I think and hope I can work on this for a large part of my life. For now I am grateful that I had the opportunity to work on this project, which helped me to oversee some of the implications. I am grateful because I was supervised by wonderful people. They learned me to be critical and not too black and white above all. This will be a lifelong lesson and skill of immense value. Thank you, Duur, Hilje and Jan for teaching me this lesson! I also want to thank you for reading my essay several times and providing me with feedback. Thank you also for sharing your knowledge for example about cooperation, evolution and philosophy. Besides, I also want to thank you for being empathetic and helpful in hard times that I endured during the writing of this project. It was of immense value for me, to get support from you all. I will remember it!

Finally I want to thank my best friend on earth, Marcelle van Wijngaarden. You accept me in who I am, not judging me when I try to be honest about reality. You also support me in finding answers on the questions I have. I am thankful for the fact that you are always critical, which I really need. I hope we will be really good for each other (and I think that includes being empathetic and cooperative, but also reflective on ourselves, learning from our mistakes and trying to be better, but also loving each other as Jesus from Nazareth loved humans).

Appendix

I. Conversations about the subject

During writing of this essay I talked with several scholars about this topic. Below I give short summaries of three inspiring conversations.

Prof. Gerrit Glas:

Vragen over wie we zijn beantwoorden vanuit de wetenschap gaat te ver. Wetenschap richt zich op delen van de werkelijkheid, zoals het brein. Dat heeft wel betekenis, omdat het bijvoorbeeld veel verklaart over onbewuste processen in ons. Veel van die onbewuste processen beïnvloeden ons gedrag. Frans de Waal en de evolutie theorie schetsen ook een beeld waarin de mens minder exclusief wordt, en het dier minder als egoïstisch impuls volgende machine. Dat wij uit de dieren zijn voortgekomen is aannemelijk, maar hoeft echter niet te bekenen dat we dieren zijn. Dat laatste heeft ook met een metafysisch wereldbeeld te maken, waarin vaak erg gereduceerd wordt. Hoewel delen van ons geheel wel tot dierlijke componenten gereduceerd kunnen worden, kan ons geheel wel van een heel andere orde zijn. Een voorbeeld is onderzoek over cocaïne verslaving in ratten. Als die dieren verslaafd worden, is dat dan hetzelfde als de verslaving bij mensen? Als we specifiek naar moraal kijken dan is er in ons een altruïsme dat van een andere orde is dan in dieren. Ook vind ik over De Waal dat er bij hem gebeurt wat vaker gebeurt: topwetenschappers gaan extrapoleren naar domeinen vanuit eigen vakgebied. Daar schiet het meestal door. Desondanks denk ik wel dat zijn visie de mens wat nederiger zou moeten maken: allerlei ideaalpolitiek zou wat realistischer worden als we de evolutionaire kant van ons leven zien.

Dr. Jelle Zandveld:

De wetenschap weet nog lang niet alles, ook niet over de evolutie van de mens. Maar het is wel de beste methode om er meer over te weten te komen, en ik denk dat de wetenschap er ook wel achter komt. Andere bronnen hebben minder verklaringsvermogen. Wat mensen uniek maakt is misschien de ratio, dat we praten over dingen die er nu niet zijn, hoewel meerkatten ook grapjes kunnen maken over dingen die er nu niet zijn. Op andere gebieden moeten we het weer afleggen tegen bijvoorbeeld de chimp (tellen). Ik denk dat evolutie veel dingen kan verklaren en ik vertrouw er ook op, hoewel de miljoenen jaren wel onvoorstelbaar zijn. Omdat evolutie zoveel verklaart wordt het ook door religie eng gevonden. Soms vind ik evolutionair verklaren te ver gaan: bijvoorbeeld over schoonheid en muziek. Qua moraal denk ik echter wel dat er goede evolutionaire verklaringen zijn: bijvoorbeeld de **tit-for-tat strategy** is een hele succesvolle in game theory. Dit duidt erop dat coöperatie een evolutionair stabiel model is en leidt ook tot bijvoorbeeld reputatie opbouw. Ik denk dat er ook niet genetische overerving van bepaald gedrag, zoals conformisme, is en doe daar onderzoek naar in Drosophila.

Prof. Frans De Waal:

Mijn agenda is om het verschil tussen mensen en primaten en andere zoogdieren weg te werken. Voor een bonobo is de mens niet unieker dan een orang-oetang, wij zijn ook gewoon dieren voor hem. Oftewel, het gat tussen mensen en bononbo's is niet unieker dan het gat tussen bonono's en de orang oetang. Toch hechten we veel waarde aan het feit dat wij op twee benen lopen en taal hebben. Maar dat is artificieel. Als je zelf veel met apen werkt verandert je perceptie. Alle onderzoek rondt sentience, ook in invertebraten is waardevol en moreel belangrijk, ook al is het niet overal welkom.

II. Brain similarities

There are of course differences: the brain of humans is for example larger than primates in absolute terms, weighing on average 1,352 grams, compared to approximately 384 grams in a chimpanzee (Robson and Wood, 2008). However, research has shown that the size of our brain does not say a lot about intelligence and that brain size should be correlated to body size, since elephants and whales have far larger brains than humans, but are not necessarily more intelligent. When corrected for size, the numbers of neurons in a human match those expected for a primate of human proportions (Azevedo et al., 2009).

It is proposed that our neocortex (especially the prefrontal part) makes us most unique: it is considerably larger in humans, even in comparison with chimpanzees. It is involved in cognition and language. However, research has shown that humans do not have relatively more neurons in the neocortex than primates: only 19% of all neurons are located in the cerebral cortex (representing 82% of total brain mass), whereas 23% of all neurons are located in the cerebral cortex of an average primate (representing 94% of total brain mass) (Herculano-Houzel, 2009). Another location of human uniqueness was thought to be the prefrontal cortex, since it was thought to be disproportionally larger than primates and also the place where moral decisions are made (Anderson et al., 1999). When the actual volume of the frontal cerebral cortex was measured, it was indeed shown that the size of the frontal cortex is larger in humans than in primates (values in humans ranged from 238.8 cm3 to 329.8 cm3) and in the great apes from 50.4 cm3 (in a chimpanzee) to 111.6 cm3 (in an orangutan). But in relative terms (compared to overall brain size) this is not the case: it was found that some primates (lesser apes and monkeys) had a relatively smaller frontal cortex than humans, but great apes did not (Semendeferi et al., 2002).

To what extent are humans really unique? The recent Nobel Prize winner Svante Pääbo has discovered a uniquely human mutation that makes more neurons during brain development when we put this change into a mouse or ferret. Are humans unique in this sense, that they have new mutations which resulted in more brain capacity? (Pinson et al., 2022).

III. Is the 'human gap' unique?

There is a gap between humans and their closest relatives in terms of morality, but also between those closest relatives. The difference in moral behaviour between bonobo's and chimpanzees is quite large, according to Frans de Waal, whereas they diverged a shorter time ago than that humans and the last common ancestor of those closest relatives diverged. Therefore it is an interesting question how large this gap is relative to the time that they have diverged from each other?

So: the gap between Chimp and Bonobo is timewise quite small, approximately 5 times as small as the gap between Humans and those Hominini. Is the gap in moral behaviour also approximately 5 times as small? Relative rate test.

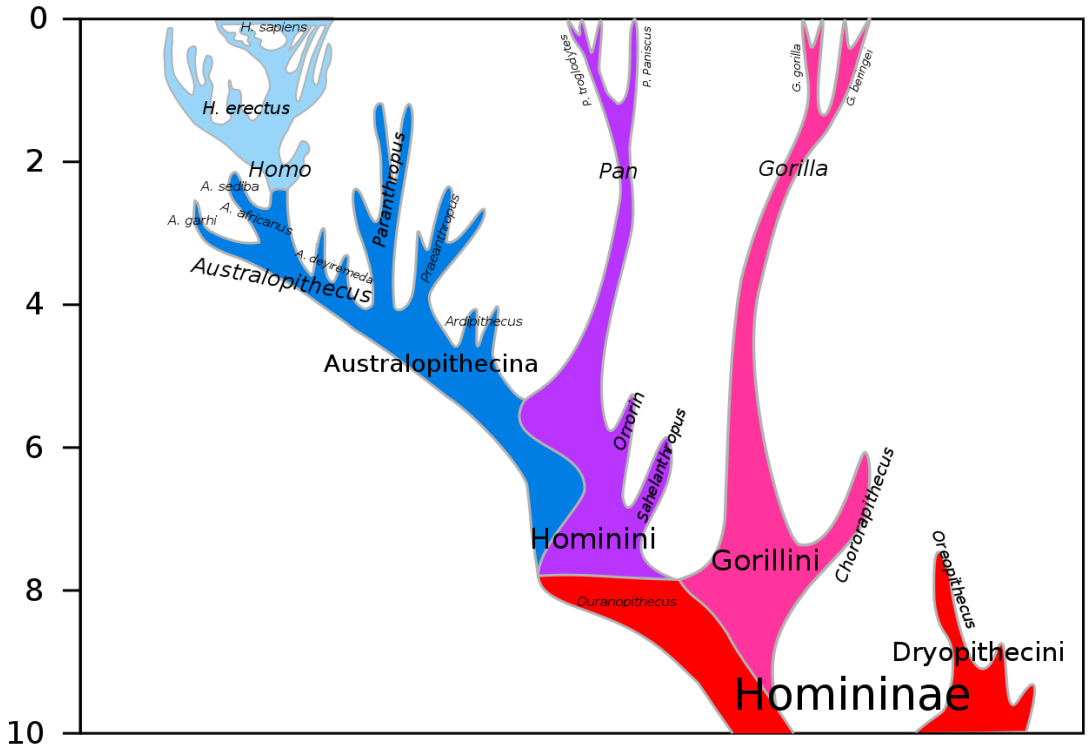

Figure 1 The gap between chimpanzee and bonobo is timewise much smaller than the gap between humans and hominini. By Dbachmann - Own work, CC BY-SA 4.0.

IV. Definition of morality:

It is important but also almost impossible to have a proper definition of morality. In order not to disturb the flow of my essay I focus not in the text but at this place on those definitions. The word morality itself refers to proper or good behaviour, whereas immorality refers to improper or opposite to good behaviour. Definitions of morality however, have a broader range. Some define morality as the existence of ideas and feelings about right and wrong conduct, leaving open the question what right and wrong conduct is. This is about the capacity of moral judgment and sense. It could be called a descriptive definition of morality and it can be observed whether this capacity exists or not. Others describe morality in terms of what is be good and wrong behaviour. This might be described as a normative description of morality (Gert & Gert, 2020). In my essay I have mainly focused on the descriptive definition of morality, focused on the existence of moral sense. Moral sense was defined in the main text as the emotional responses to experiences which we use to judge if something is moral or immoral (Prinz, 2006). However, as I have discussed in 4.4.2. this is not full morality.

De Waal uses the following, rather pragmatic definition: "morality is a system of rules concerning the two H's of Helping or at least not Hurting fellow human beings. It addresses the well-being of others and puts the community before the individual. It does not deny self-interest, yet curbs its pursuit so as to promote a cooperative society" (De Waal, 2013).

O'Hear did not give a definition of morality, but since he is a philosopher in the line of Immanuel Kant and since he is one of the most influential thinkers on morality it is interesting to give the definition by him. He argues that we are only fully moral autonomous if we do not listen to feelings or inclinations but to our ratio. His definition is focused on applicability to all rational beings (universality). The so called universal law formulation of Kant is: "Act only according to that maxim whereby you can, at the same time, will that it should become a universal law." His second imperative is that the other (also the other in ourselves) should not be a tool for a goal, or in the formal formulation: "act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means to an end, but always at the same time as an end." His third categorical imperative which is summarizing the other two to some extend says in simple words: we must will something that we could at the same time freely will of ourselves. With this third categorical imperative it becomes clear that Kant has strong emphasis on autonomy of humans. The view of Kant seems not to differ too much from the view of De Waal, because Helping and not Hurting might be part of what you want to become a universal law.

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