

## Science and Religion

### Workshop 5: Humans

**Q1** In your group, discuss what makes humans different from animals.

#### The Traits that Make Human Beings Unique

By Melissa Hogenboom 6 July 2015

[www.bbc.com/future/story/20150706-the-small-list-of-things-that-make-humans-unique](http://www.bbc.com/future/story/20150706-the-small-list-of-things-that-make-humans-unique)

1 In recent years, many traits once believed to be uniquely human, from morality to culture, have been found in the animal kingdom. So, what exactly makes us special? The list might be smaller than it once was, but there are some traits of ours that no other creature on Earth can match.

2 Ever since we learned to write, we have documented how special we are. The philosopher Aristotle marked out our differences over 2,000 years ago. We are "rational animals" pursuing knowledge for its own sake. We live by art and reasoning, he wrote. Much of what he said stills stands. Yes, we see the roots of many behaviours once considered uniquely human in our closest relatives, chimpanzees and bonobos. But we are the only ones who peer into their world and write books about it. "Obviously we have similarities. We have similarities with everything else in nature; it would be astonishing if we didn't. But we've got to look at the differences," says Ian Tattersall, a paleoanthropologist at the American Museum of Natural History in New York, US.

3 To understand these differences, a good place to start is to look at how we got here. Why are we the only human species still alive today whereas many of our early-human ancestors went extinct?

4 Humans and chimpanzees diverged from our common ancestor more than six million years ago. Fossil evidence points to the ways which we have gradually changed. We left the trees, started walking and began to live in larger groups. And then our brains got bigger. Physically we are another primate, but our bigger brains are unusual. We don't know exactly what led to our brains becoming the size they are today, but we seem to owe our complex reasoning abilities to it.

5 It is likely that we have our big brain to thank that we exist at all. When we – Homo sapiens – first appeared about 200,000 years ago we weren't alone. We shared the planet at least four other upright cousins; Neanderthals, Denisovans, the "hobbit" Homo floresiensis and a mysterious fourth group.

6 Evidence in the form of stone tools suggests that for about 100,000 years our technology was very similar to the Neanderthals. But 80,000 years ago something changed. "The Neanderthals had an impressive but basically routine material record for a hominid. Once H. sapiens started behaving in a strange, [more sophisticated] way, all hell broke loose and change became the norm," Tattersall says.

7 We started to produce superior cultural and technological artefacts. Our stone tools became more intricate. One study proposes that our technological innovation was key for our migration out of Africa. We started to assign symbolic values to objects such as geometrical designs on plaques and cave art.

8 By contrast, there is little evidence that any other hominins made any kind of art. One example, which was possibly made by Neanderthals, was hailed as proof they had similar levels of abstract thought. However, it is a simple etching and some question whether Neanderthals made it at all. The symbols made by *H. sapiens* are clearly more advanced. We had also been around for 100,000 years before symbolic objects appeared so what happened?

9 Somehow, our language-learning abilities were gradually "switched on", Tattersall argues. In the same way that early birds developed feathers before they could fly, we had the mental tools for complex language before we developed it. We started with language-like symbols as a way to represent the world around us, he says. For example, before you say a word, your brain first has to have a symbolic representation of what it means. These mental symbols eventually led to language in all its complexity and the ability to process information is the main reason we are the only hominin still alive, Tattersall argues. It's not clear exactly when speech evolved, or how. But it seems likely that it was partly driven by another uniquely human trait: our superior social skills.

10 While both chimps and humans cooperate, we will always help more. Comparative studies between humans and chimps show that while both will cooperate, humans will always help more. Children seem to be innate helpers. They act selflessly before social norms set in. Studies have shown that they will spontaneously open doors for adults and pick up "accidentally" dropped items. They will even stop playing to help. Their sense of fairness begins young. Even if an experiment is unfairly rigged so that one child receives more rewards, they will ensure a reward is fairly split.

11 We know that chimpanzees also work together and share food in apparently unselfish ways. However, Michael Tomasello of the Max Planck institute for Evolutionary Anthropology in Leipzig, Germany, says they will only cooperate if there is something in it for them.

12 "Humans do that too, but in addition they care about what their partner gets. In some experiments we have children as young as 14-18 months who seem to expect their partner to collaborate in certain ways and who share in ways chimps don't." Human children are less selective about who they share with. Chimpanzees though, largely only share with close relatives, reciprocating partners or potential mates. Felix Warneken of Harvard University in Cambridge, US, differentiates it like this. Children are "proactive", that is, they help even when presented with only very subtle cues. Chimpanzees though, need more encouragement. They are "reactive": they will hand over objects but only after some nudging.

13 Something must have happened in our evolution, Tomasello says, to make humans increasingly reliant on each other. Our brains needed fuel to get bigger and

so collaborative hunting may have played a key role in that. Our advanced teamwork may simply reflect our long history of working together to get food. The fact that our nearest relatives share too simply shows that it is an ancient trait. It was already present in the messy branch of early humans that led to us, but none of these other species were as hyper cooperative as we are today.

14 These cooperative skills are closely tied to our incredible mind reading skills. We understand what others think based upon our knowledge of the world, but we also understand what others cannot know. The Sally-Anne task is a simple way to test young children's ability to do this. The child witnesses a doll called Sally putting a marble in a basket in full view of another doll, Anne. When Sally leaves the room, Anne moves the marble to a box. Sally then comes back, and the experimenter asks the child where Sally will look for the marble. Because Sally didn't see Anne move the marble, she will have a "false belief" that the marble is still in the basket. Most 4-year-olds can grasp this, and say that Sally will look in the basket. They know the marble is not there, but they also understand that Sally is missing the key bit of information.

15 Chimps can knowingly deceive others, so they understand the world view of others to some extent. However, they cannot understand others' false beliefs. In a chimpanzee version of the Sally-Anne task, researchers found that they understand when a competitor is ignorant of the location of food, but not when they have been misinformed. Tomasello puts it like this: chimpanzees know what others know and what others can see, but not what others believe.

16 We are unique in the level of abstractness with which we can reason about others' mental states. This tells us something profound about ourselves. While we are not the only creatures who understand that others have intentions and goals, "we are certainly unique in the level of abstractness with which we can reason about others' mental states", says Katja Karg, also of the Max Planck Institute for Evolutionary Anthropology.

17 When you pull together our unparalleled language skills, our ability to infer others' mental states and our instinct for cooperation, you have something unprecedented. Us. Just look around you, Tomasello says, "we're chatting and doing an interview, they (chimps) are not." We have our advanced language skills to thank for that. We may see evidence of basic linguistic abilities in chimpanzees, but we are the only ones writing things down. We tell stories, we dream, we imagine things about ourselves and others and we spend a great deal of time thinking about the future and analysing the past.

18 There's more to it, Thomas Suddendorf, an evolutionary psychologist at the University of Queensland in Australia is keen to point out. We have a fundamental urge to link our minds together. "This allows us to take advantage of others' experiences, reflections and imaginings to prudently guide our own behaviour. "We link our scenario-building minds into larger networks of knowledge." This in turn helps us to accumulate information through many generations. Of course, we pass on the good and the bad. The technology that defines us can also destroy worlds. Take murder. Humans aren't the only species that kill each other. We're not even the

only species that fight wars. But our intelligence and social prowess mean we can do so on an unprecedented scale.

19 Charles Darwin, in his book *The Descent of Man*, wrote that humans and animals only differ in degree, not kind. This still stands true but Suddendorf says that it is precisely these gradual changes that make us extraordinary and has led to "radically different possibilities of thinking".

## **The Human Difference: How Humans are Unique Compared to All Other Animals**

<http://www.godandscience.org/evolution/imageofgod.html>

**by Rich Deem**

### **Introduction**

20 The Bible makes the claim that humans alone are "created in the image of God." What exactly does this mean? Some have equated the image of God as being the physical characteristics of our bodies that make up the way we look. In fact, the Mormons have taken this interpretation to extreme by saying that God is just an exalted man, who has "a body of flesh and bones." However, the Bible says that both males and females are created in the image of God. Unless God were a hermaphrodite (having both male and female sexual organs), this phrase could not refer to just physical characteristics. In addition, there are various verses in the Bible that describe God as having non-human physical characteristics, such as feathers and wings. Should we think of God as being an overgrown chicken? Certainly not! God is so unlike humans physically, that the Bible often paints word pictures to give us a glimpse of what God is like.

### **Creativity**

21 So if the "image of God" does not refer to physical characteristics, what does it refer to? It is certainly likely that part of the "image of God" refers to the ability of humans to be creative. Anthropology tells us that sophisticated works of art first appeared in the fossil record about 40,000-50,000 years ago, at the time that modern humans first appeared. No other species of animal, including the apes, are able to create and understand images of art and drawing.

### **Consciousness**

22 Human consciousness is a mystery that has evaded decades of intensive research by neurophysiologists. According to a recent article:

23 When an organism's neural pathways grow sufficiently complex, materialists insist, their firings are somehow accompanied by consciousness. But despite decades of effort by philosophers and neurophysiologists, no one has been able to come up with a remotely plausible explanation of how this happens--how the hunk of grey meat in our skull gives rise to private Technicolor experience.

### **Personality**

24 Another thing that makes humans unique is personality. According to Joseph LeDoux, a neuroscientist at New York University: "We have no idea how our brains make us who we are. There is as yet no neuroscience of personality. We have little understanding of how art and history are experienced by the brain. The meltdown of mental life in psychosis is still a mystery. In short, we have yet to come up with a theory that can pull all this together."

### **Abstract thinking**

25 Is the human brain that much different from that of our closest "relatives," the chimpanzees? According to Daniel J. Povinelli, from the University of Louisiana's New Iberia Research Centre

26 "Humans constantly invoke unobservable phenomena and variables to explain why certain things are happening. Chimps operate in the world of concrete, tangible things that can be seen. The content of their minds is about the observable world."

27 Researchers have noted that chimpanzees do not understand the cause and effect of their actions. Apes will climb onto a box to reach fruit, but if the box is absent, will place a sheet of paper on the ground beneath the fruit and stand upon it.

28 A more recent study examined the ability of human infants and young chimpanzees to help human adults.<sup>10</sup> 18-month-old human infants and young chimpanzees were presented with four categories of problems: out-of-reach objects, access thwarted by a physical obstacle, achieving a wrong (correctable) result, and using a wrong (correctable) means. While human infants could perform all four tasks, chimpanzees could only perform the first task. As in previous studies, chimpanzees were unable to discern when an individual failed at a simple task and how he could help. The researchers concluded:

29 "A number of theorists have claimed that human beings cooperate with one another and help one another (especially non-kin) in ways not found in other animal species. This is almost certainly so, and the current results demonstrate that even very young children have a natural tendency to help other persons solve their problems, even when the other is a stranger and they receive no benefit at all."

### **Body, soul, spirit**

30 Besides the rather obvious differences in the way animals process information in their brains, the Bible (and science) confirm that there are major differences in the ways humans make moral judgments (animals don't make such judgments, as we shall see). Part of what is meant by the term "in the image of God" can be found in chapters immediately following its first usage (Genesis 1) in the Bible. Both Adam and Eve had a personal relationship with God in the Garden of Eden. Such a personal relationship is not described, nor seen, for any other animal species. It is the presence of a spirit that was instilled into humans that separates us from the animals. There are three kinds of animal life that God has created in this universe:

Creature:	Examples:
Body only	Lower life forms, including reptiles, amphibians, fish, and invertebrates
Body and soul	From the Hebrew nephesh, or soulish creatures, including birds and mammals
Body, soul and spirit	Humans and angels

31 The soul is best described as the characteristics that make up the advanced brain, including mind, will and emotion. Only birds and mammals exhibit these characteristics, which is why humans can form mutual relationships with birds and mammals.

32 The spirit is that part of humans that is able to love and experience God directly. It is found in no other animal species, since no other species can experience God or form a relationship with Him.

33 If God did create us, we would expect that He would provide a means by which we could experience Him. This area of the brain might be part of God's design to make us realise that we are more than just physical creatures. The Bible says that God has given us this knowledge of eternity, possibly involving some sort of "hard-wired" knowledge.

### **Moral judgments**

34 After Adam and Eve had sinned, they became like God in that they could distinguish good from evil. The ability to make moral judgments is also a characteristic that is found only in humans. Even the higher apes cannot make moral judgments about the behaviour of other animals. As Dr. Jerome Kagan points out in *Three Seductive Ideas*, "Not even the cleverest ape could be conditioned to be angry upon seeing one animal steal food from another." In addition, there are no non-human animal models for human pride, shame, and guilt. Recent studies have also shown that only humans, among the primates, are capable of certain forms of sin. Although a chimpanzee will exact revenge against another chimpanzee that steals food from him, they are not spiteful, no matter how researchers tried to elicit the response. Even dominant male chimpanzees will not punish or prevent a chimpanzee from stealing food from another. Christianity says humans alone are in need of redemption because of their sin.

### **Social skills and learning**

35 An experiment was designed to test the hypothesis that humans have special skills in social cognition. Two and one half year old human toddlers were tested against adult chimpanzees and orangutans for cognitive abilities in spatial, quantitative, and causality processing, along with social cognitive abilities in social learning, communication, and theory of mind (gaze following and understanding intentions). Although toddler humans and adult apes had about the same capabilities in spatial observation, counting, and causality, humans were far superior in areas of social cognition. In social learning, humans averaged close to 100%, whereas apes averaged less than 5%. The study discredits the general intelligence hypothesis that

human cognition differs from that of apes only in general cognitive processes such as memory, learning, or perceptual processing. Immature human brains operate quite differently from those of mature apes, suggesting that there are some fundamental differences in the structure and/or function of human brains. Evolutionary theory would claim that these markedly enhanced social skills were just due to some random mutations that conferred some kind of survival advantage, even though the supposed ancestors of human beings lived in habitats similar to those of the great apes. However, the Bible says that humans were designed to be different from all other animals, especially in their ability to excel at social learning and communication.

## **Conclusion**

36 In conclusion, it seems likely that "in the image of God" refers to the characteristics of the human spirit and the ability to make moral judgments - things that are not found in any animal species, even those to whom we are said to be closely related. Even evolutionists are beginning to recognize the uniqueness of human beings. Dr. Ian Tattersall, in 'Becoming Human - Evolution and Human Uniqueness', says humans represent a "totally unprecedented entity" on Earth, and "Homo sapiens is not simply an improved version of its ancestors - it's a new concept." It is the ability to make moral judgments that convinces us of our inability to "measure up" to the intended moral standards laid down by God. However, it is the spirit of man that allows us to communicate with God's Spirit through Jesus Christ so that we can once again be in fellowship with a Holy God and experience the ultimate relationship in the universe.

**Q2** How do these articles agree with each other and how do they differ?

**Q3** How would your group now answer the question, 'What makes humans different from animals?'

**Q4** The following three passages from The Bible touch on differences between humans and animals. In the light of the above articles, these passages, any other sections of scripture you think relevant and your own beliefs, consider the following:

- a. Why do you think these differences between humans and animals exist?
- b. What effect, if any, does this have on your thoughts about the origins of humans?
- c. How does your faith influence your answers?

## **Genesis 1:26-31 (NRSV)**

Then God said, "Let us make humankind in our image, according to our likeness; and let them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the wild animals of the earth, and over every creeping thing that creeps upon the earth." 27 So God created humankind in his image, in the image of God he created them; male and female he created them.

28 God blessed them, and God said to them, "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth." 29 God said, "See, I

have given you every plant yielding seed that is upon the face of all the earth, and every tree with seed in its fruit; you shall have them for food. 30 And to every beast of the earth, and to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food.” And it was so. 31 God saw everything that he had made, and indeed, it was very good. And there was evening and there was morning, the sixth day.

### **Genesis 2:4b-9 & 15-25 (NRSV)**

In the day that the Lord God made the earth and the heavens, 5 when no plant of the field was yet in the earth and no herb of the field had yet sprung up—for the Lord God had not caused it to rain upon the earth, and there was no one to till the ground; 6 but a stream would rise from the earth, and water the whole face of the ground— 7 then the Lord God formed man from the dust of the ground, and breathed into his nostrils the breath of life; and the man became a living being. 8 And the Lord God planted a garden in Eden, in the east; and there he put the man whom he had formed. 9 Out of the ground the Lord God made to grow every tree that is pleasant to the sight and good for food, the tree of life also in the midst of the garden, and the tree of the knowledge of good and evil.

15 The Lord God took the man and put him in the garden of Eden to till it and keep it. 16 And the Lord God commanded the man, “You may freely eat of every tree of the garden; 17 but of the tree of the knowledge of good and evil you shall not eat, for in the day that you eat of it you shall die.”

18 Then the Lord God said, “It is not good that the man should be alone; I will make him a helper as his partner.” 19 So out of the ground the Lord God formed every animal of the field and every bird of the air, and brought them to the man to see what he would call them; and whatever the man called every living creature, that was its name. 20 The man gave names to all cattle, and to the birds of the air, and to every animal of the field; but for the man there was not found a helper as his partner. 21 So the Lord God caused a deep sleep to fall upon the man, and he slept; then he took one of his ribs and closed up its place with flesh. 22 And the rib that the Lord God had taken from the man he made into a woman and brought her to the man. 23 Then the man said, “This at last is bone of my bones and flesh of my flesh; this one shall be called Woman, for out of Man this one was taken.”

24 Therefore a man leaves his father and his mother and clings to his wife, and they become one flesh. 25 And the man and his wife were both naked, and were not ashamed.

### **Psalms 8:4-8 (NRSV)**

4 what are human beings that you are mindful of them, mortals that you care for them? 5 Yet you have made them a little lower than God, and crowned them with glory and honour. 6 You have given them dominion over the works of your hands; you have put all things under their feet, 7 all sheep and oxen, and also the beasts of the field, 8 the birds of the air, and the fish of the sea, whatever passes along the paths of the seas.