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A Pedestal of Power: Analyzing Consciousness in Nonhuman Animals

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A Pedestal of Power: Analyzing Consciousness in Nonhuman Animals

Conner Lee Varnell

Senior Thesis Spring 2014

Directed by Jesús Ilundáin-Agurruza

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Introduction

The world as we know it continues to exponentially expand, cramming life forms in between masses of cement and steel. Sky scrapers kiss the edges of the sky. Housing complexes are stamped over swamps, fields and forests. I currently have a device by my side that can connect me to a person on the other side of America or the world. This device can open up the doors to a digitalized world known as the Internet, compute numbers, tell me the temperature, what direction I am looking in, and entertain me with movies and games.

Humanity is a marvel in itself. We are this complex life form that has discovered how to connect basic elements in order to build structures. We take algae and create energy. We form metals and create vehicles that propel us faster than any other animal. We even have the mental capacities to interpret life! There is no doubt that human beings are intelligent. Just look at everything we have created! There are gadgets and gizmos galore! Yet are humans the only intelligent beings when intelligence is seen as a mark of evolutionary achievement that confers special ontological and moral status? All animals have some form of intelligence, whether it is building a creative home or just conducting practices of survival. So, let's take this thought a step further.

Humans have an understanding of a concept called consciousness. This idea of consciousness has been the main separating factor between animals and humans regarding humankind's purported superiority of intelligence: humans are conscious and other animals are not. Specifically, it is self-consciousness, awareness of oneself *as* oneself, that is. Yet extensive research throughout the last few decades shows that this may not be the case. Animals and humans alike show a variety of forms of consciousness and self-consciousness based on the structure of their bodies, brains, habitats and other contributing factors of survival. Hence, I will

argue presently that humans are not the only beings on this Earth that have the ability of sophisticated consciousness and even self-awareness that we take as the result of a seemingly higher power of intelligence. To do so, I will examine a variety of cases where animals show various levels of consciousness. These animals include the four types of great apes, dolphins, horses, corvids, cephalopod mollusks, cows, lions and canines. Such examples of higher consciousness derived from these animals include a being's understanding of self, creating non-heritage based friendships, tool-making abilities, functional memory usage, and spatial awareness. Us humans must now act upon this inheritance of knowledge regarding animal consciousness. If we know that other animals behold higher levels of intelligence, we must learn to treat them justly. My mother once told me that "respect earns respect." It is time to respect our fellow beings

Consciousness

Before delving into this discussion, the definition of consciousness must be clarified. There are a variety of ways to understanding consciousness. The Merriam-Webster Dictionary defines it as “the normal state of being awake and able to understand what is happening around you” (Merriam-Webster, 2013). Looking at consciousness from this sense, it seems as if any living creature has consciousness. If a life form is able to react to its surroundings then it is able to understand its surroundings. For example, if a plant is able to take in sunlight in order to help it grow, then it is reacting to its surroundings. Hence, it is arguable that the plant has an understanding of its surroundings and therefore has consciousness. I would like to analyze a more in-depth understanding of consciousness, though. This type of consciousness can be termed as higher consciousness. Author and psychologist Dr. Susan Blackmore defines the “heart of consciousness (as being) about visual awareness, hearing, thinking, feeling emotions and suffering” (Blackmore, 247). The author goes on to note that there are categories within these attributes as well. Spatial cognizance is a factor of visual awareness. Self-recognition is an aspect of thinking. Mourning is connected with suffering. Friendship is also a sub-category of feeling emotions, suffering and thinking. These aspects of higher consciousness are apparent in a variety of animal groups.

Consciousness has long been the dividing factor for humans as what separates us as superiors from the rest of the animal kingdom. Yet now scientists have found that this is not the case, as animals have showed signs of legitimate intelligence which results in the aptitude for higher consciousness. Specifically, the final “barrier”, if you will, of what humans felt to be higher consciousness is the ability of being self-aware. Self-awareness represents a higher form of consciousness which makes it possible for beings to become the object of its own attention.

This enables a being to acknowledge its own existence (Morin, 2002). Yet there is a variety of nonhumans that can perform self-reflection as well, such as the great apes, dolphins and elephants. But despite such evidence, there are still gaps in evaluating another being's consciousness.

The most difficult aspect of evaluating consciousness is understanding that there are a variety of consciousness types that humans can't fully comprehend. It is impossible to know exactly how another person feels. We just don't know. I can make assumptions about how another person may feel, but I can't truly know unless I actually become the other person. Yet there are still universal feelings that humans share. For example, if Bob told me that he was thirsty and drank a refreshing glass of water, I can imagine what it is like. I have had a refreshing glass of water before. Thus, I can recall that feeling of refreshment and relate it to how Bob feels. Even though I don't know exactly how it felt for Bob, I have a pretty solid idea of it:

When presented with behavior, it is not as if we are faced with mere bodily processes that can then be interpreted any way one likes. When you see somebody use a hammer, or feed a child, or clean a table you don't have a problem understanding what is going on. You may not necessarily understand every aspect of the action, but it is immediately given as a meaningful action (in a shared world). It is not as if you are first confronted with a perceived exterior, and then have to infer the existence of an interior space. In the face-to-face encounter, for example, we are neither confronted with a mere body, nor with a hidden psyche, but with a unified whole. When I see another's face, I see it as friendly or angry, etc., that is the very face expresses these emotions. This does not rule out that some mental states are covert, of course, but not all mental states can lack an essential link to behavior if intersubjectivity is at all to get off the ground. (Gallagher & Zahavi, 167).

Humans understand humans, for the most part. Therefore, humans understand human consciousness. Yet how do humans interpret the intelligence, consciousness and lives of other animals?

For right now, a more important question may be: Why does it matter to us humans what another animal thinks or feels? Humans play a pivotal role in the world's ecosystems. The way we live affects all other beings around us. We expand the walls of our communities and develop land, which affects the living situations of animals in those areas. We consume resources that nonhumans wish to use, which affects how those beings eat, nest and migrate. Furthermore, we use nonhumans as resources. This relationship can involve unfair exploitation of the nonhumans, such as with factory farming. I believe that it is necessary to understand how these beings think to create a productive relationship. Therefore, a sense of equality can be sought. Humans have long expressed the importance of equality within the realm of our species. Entire social movements have been constructed to do so, such as with the Civil Rights Movement and Women's Rights Movement. Fair treatment of our fellow inhabitants of Earth is the next movement.

Background on Human Supremacy

Humans have an extensive history working together with nonhumans. During the most recent Ice Age, which was about 20,000 years ago, humans and wolves learned to hunt together. They found that they all had more to eat if they worked together to take down large prey, such as bison. Over the course of time, humans learned to harvest the resources that certain animals provided. For example, humans began herding sheep, cattle, pigs and goats as a source of food (History World, 2014). Seeming that these animals were being assembled and used beyond their will, the animals were being exploited for the benefit of humans. How did people morally justify using other beings in such a way?

Legendary philosopher Aristotle believed humans were superior to other animals. This is because he thought that the most intelligent beings should be the leaders of other creatures. He also had a hierarchical view of abilities and goods where rationality was at the cusp: he thought that animals had sensitive souls while humans had rational souls (Bos, 2010). This idea of a sensitive soul meant that animals only used their senses for momentary perception. Thus, animals didn't have a sense of self-reflection or didn't create deeper meaning with certain events/feelings. There was no abstract thinking for the nonhuman. To him, animals reacted to what their senses were telling them at that very moment. They had no idea what was best for them in a long-term situation. Therefore, animals were not rational beings to him. On the contrary, humans had rational souls. Hence, humans had the ability to reflect, analyze and conduct rational thoughts and practices. Therefore, in his mind, humans had the right to "run the world" as to make sure that the most intelligent decisions are being made. As a result, animals were viewed more as tools rather than equal beings.

This practical use of animals has remained fairly constant since Aristotle's analysis. Animals are used for manual labor, testing drugs, sports, creating clothing, and human consumption. Often, animals are seemingly mistreated because they are used as tools; there is no compassion. René Descartes and, in particular, his influential Cartesianism only emphasized this tendency when he separated the mind from the body, and ascribed mentality only to humans, relegating animals to the role of mechanical entities. These views have deeply influenced today's attitudes toward the treatment of animals. For example, factory farming in America has exploited various animals as financial generators. Beef cattle often are locked in stalls too small for them to move in. By doing this, cows are unable to be active enough to develop muscles and burn calories. They become as plump as can be. The more meat a cow produces, the more profit the company creates. Many cows are eventually unable to stand. Due to obesity and a lack of nutrition, some cows' bodies simply give out on them. They are beings that have been locked in a cage to make as fat as possible. How fun does that sound? The better question is: How could this happen? How can living beings be treated as nothing but tools? Why isn't this a problem? Many people believe that animals don't have the conscious intelligence for it to matter. The cow can't self-reflect. Therefore, it doesn't know how bad its life is right now.

It is a problem. These are living beings. They are conscious, as I will argue; in fact some animals are arguably self-conscious. There are a variety of examples that prove that nonhumans withhold such abilities. We humans just have to look a little harder. And some people already have.

Analyzing Animal Consciousness

A common misconception that is created by humans is trying to imagine what it is like for a person to be an animal. Thomas Nagel describes in his book *What is it Like to be a Bat?* that this is a mistake:

It will not help to try to imagine that one has webbing on one's arms, which enables one to fly around at dusk and dawn catching insects in one's mouth; that one has very poor vision, and perceives the surrounding world by a system of reflected high-frequency sound signals; and that one spends the day hanging upside down by one's feet in an attic. In so far as I can imagine this (which is not very far), it tells me only what it would be like for *me* to behave as a bat behaves. But that is not the question. I want to know what it is like for a *bat* to be a bat. (Nagel, 531)

And as much as a person would like to speculate what it is like for a bat to be a bat, it is impossible to truly know. A bat's brain is different from a human's brain. A bat's body is different than a human's body. A bat's way of survival is different than a human's way of survival. Hence, a bat's perception of the world is different than a human's perception of the world. As much as a human would like to imagine what the life of a bat is like, it is truly impossible. The way that a bat interacts with its environment is entirely different than that for a human. This goes for all other types of animals in relation to humans. For example, a green tree python has "heat-sensing pits along (its) lips to detect warm-blooded prey" (Blackmore, 235). A human has no idea what it is like to track an animal by using heat-sensors. One can try to imagine, yet there is no way of actually knowing. Hence, a human cannot replicate what it is like to be another animal. The nonhuman lives in an entirely different world mentally. It will react to situations much differently than a human would. Therefore, it is not fair to say that if an animal does not react the same way a human does to a situation that it is not conscious. It is just a different type of consciousness that a human cannot fully understand.

Thus, wouldn't being able to communicate with these animals be rewarding? Imagine the knowledge us humans could acquire by asking different animals how they experience the world. Unfortunately, we can't do that. So how can we communicate with nonhumans?

Linguistic Barriers

Consciousness is based on experience. One must experience something to create an understanding of it. An experience is about something. For example, a bird flies by. My experience is about a bird flying by. I then interpret the experience in my own unique way. The bird was an eagle. My high school mascot was an eagle. Thus, this bird flying by reminds me of home. It makes me feel happy. Experience is structured around perception. Perception, or the way you see something, is heavily influenced by language. Language is a tool used to communicate feelings, thoughts and experiences. It enables people to relate.

Language can also be a social barrier. If you and I speak different languages, we cannot relate precisely. Different languages hold different meanings with different subjects. Thus, your idea of something is different than my idea of something, even though it is the same thing. For example, I say that I want to be a political leader. I am from America and speak English. Therefore, my idea of a political leader is a senator, governor, Congressman, and/or the President of the United States. I envision myself communicating with communities of people in order to help their best interests. I envision myself in a suit and tie while sitting in an air-conditioned office. I envision myself attending fancy banquets. I envision helping my society. It seems like a pretty cool gig and something I would want to do. Well, the idea of being a political leader in a different culture likely holds different meaning. Imagine a society where the political leader is a tyrant of sorts. He/she uses members of society to their advantage. The leader persecutes members of the society, even, such as Adolf Hitler did with Jewish peoples in Nazi Germany. Thus, when I say that I want to be a political leader, the person from a different cultural background may think of me as a malicious tyrant instead of a person that wants to give back to their communities. A simpler example would be a bird. I think of a bird as a rat with wings. Yet

a different culture may put specific meaning behind a bird. A bird may be a sign of courage or happiness. Thus, language has a heavy influence on the interpretation of someone's reality. We interpret things differently depending on our language and cultural background. Hence, our perception of life is formulated around language, as language brings an understanding to terms, ideas and objects. Therefore, our consciousness is dependent on language.

“If language makes human consciousness the way it is, then the consciousness of other creatures must be quite different from ours” (Blackmore, 247). Other creatures use all types of different “languages” and come from a plethora of varying backgrounds. Therefore, the way they interpret life is going to be unimaginably different from how us humans do. Hence, I believe that this language barrier has been played a pivotal role as to why humans have subjected animals to inferior circumstances such as factory farming. Humans haven't known how to communicate properly with animals. Thus, the marvelous intelligence of other beings has been looked over simply because humans don't understand it. For example, “bees can communicate detailed information about the direction and distance of a food source by dancing” (Blackmore, 248). Yet to most, it just looks like a bee erratically buzzing around.

Yet there is one fairly universal language: Body language. By analyzing the body language of certain animals, scientists have been able to interpret certain levels of intelligence and emotion. “[W]e see or more generally perceive in the other person's bodily postures, movements, facial expressions, directed gaze, gestures, and actions what they intend and what they feel, and we respond in a tightly coupled way with our own body movements, gestures, facial expressions, gaze, etc. [...] These embodied practices constitute our primary way of understanding others, and they continue to do so even after we attain more sophisticated abilities in this regard” (Gallagher & Zahavi, 208-9). Even though we may not be able to think like a

nonhuman, we can still interpret their behaviors to a degree. Body language is universal, for the most part. It isn't difficult to tell when a being is excited, happy, scared, angry and/or tired. We can judge these mental states through the body language exhibited.

Animals have a certain perception of the world just as humans do. These emotions, then, turn into reactions. These reactions correspond with exhibited behavior. Analyzing these reactions and behaviors gives humans a better understanding of the consciousness levels of animals. If the animals are able to create deeper meaning out of happenings – an understanding of reality – then there are obvious signs of higher consciousness. Therefore, scientists have explored a variety of tests to track the behavior of animals in certain situations. One such example is testing a nonhuman's ability of being self-aware.

Self-Recognition

Seeming that consciousness is based on experience, the perception of that experience is what enables scientists to attempt to make sense of animal intelligence. Scientists have developed tests to try to understand if nonhuman animals have levels of higher consciousness. One such observation is analyzing self-recognition in animals. I will discuss cases of self-recognition that can be used to argue for self-consciousness. In particular I will consider primates, dolphins, and elephants.

Self-recognition means that one is aware of itself. Understanding that you are indeed you provides proof of rational thinking. To think that you were not you would be irrational. Being self-aware proves that a being has exceptional understandings of itself. "Consciousness is awareness of your body and your environment; self-awareness is recognition of that consciousness – not only understanding that you exist but further comprehending that you are aware of your existence" (Jabr, 2012). Thus, self-awareness seems to be an important aspect for analyzing a being's level of consciousness.

Instead of purely reacting to the momentary world around it, such as what Aristotle suggested, there is significant proof that certain nonhuman animals are actually self-aware. For example, scientists have used a mirror to gage how an animal reacts to its own image. The first tests done were on great apes in 1872 by Charles Darwin (Blackmore, 240). According to Darwin, the apes went through a series of interactions with themselves in the mirror. First, they gazed at their own images. They seemingly were surprised at first, as they were constantly moving and changing their point of view in the mirror as if to double-check that the reflection was real. It is unknown if they had ever seen their own reflections before in a reflective medium

such as water. Then, they approached the mirror and protruded their lips toward the image in a kissing manner. They made various faces, touched and rubbed the mirror, looked behind the mirror, and eventually walked away. Upon these results, it is difficult to say whether the apes knew it was themselves or if they were trying to interact with “another” ape, such as trying to kiss it. It took nearly 100 years for this experiment to resume its course. In 1970, comparative psychologist Gordon Gallup used a group of preadolescent chimpanzees to conduct self-recognition tests with a mirror (Blackmore, 239). At first, the chimps thought that they were seeing another group of chimps through the mirror. Yet after a few days, they were using the mirror to look inside of their mouths or inspect other parts of their bodies that were typically unseen by them. Gallup took the test a step farther to prove that the chimpanzees were recognizing themselves in the mirror. The chimps were put to sleep and two red marks were drawn on them. One mark was placed on an eyebrow ridge and the other was placed above the opposite ear. When the chimps eventually looked in the mirror, they saw the marks and reacted to them. They tried to touch them and rub them off just as you or me would likely do. This proved that the chimps indeed looked in the mirror and recognized themselves. Through further tests, orangutans and bonobos were found to have similar results (Blackmore, 240). The fourth type of great ape, the gorilla, showed remarkable results. Koko the gorilla is a “highly enculturated gorilla who has learned to communicate with humans using American Sign Language.” When asked what she saw in the mirror, Koko responded by signing ““Me, Koko”” (Blackmore, 240-41). Koko not only learned how to communicate with humans but also was able to look at her image, recognize it was herself and communicate that answer with her interpreter.

Species not as relatable to humans have shown impressive self-recognition skills as well. Upon discovering how apes react to mirrors in relation to their self-recognition, it was thought

that humans and apes were in an intelligence class of their own. Yet studies conducted in the early 2000s proved that not to be the case. Dolphins and whales are intelligent, communicable creatures that also have shown signs of self-recognition. In 2001, Lori Marino marked two captive bottlenose dolphins with black ink. The marks were placed on parts of their bodies where they could not turn their heads see them. Once a mirror was placed in front of the dolphins, they spent much time twisting and turning in ways that would allow them to see the otherwise hidden marks (Blackmore, 241). This shows that they recognized the marks as being on their own bodies because they had to contort their bodies to view them. Furthermore, they understood how their bodies looked prior to the markings. The fact that these nonhumans were able to recognize that the marks on their bodies were not supposed to be there shows that they had previously analyzed their physical features. Thus, they have a sense of self.

Another species that has shown signs of self-recognition is elephants. Elephants are known to be highly intelligent and social creatures. Their bodies and lifestyles are radically different from apes and humans as well. In 2006, three Asian elephants were given large mirrors to use. The elephants completed the same marking test that was given to the dolphins and apes. They also “were found to go through the familiar stages of mirror use, from progressing from social responses, through physical inspections, to testing the mirror with their own behavior and finally apparently recognizing themselves” (Blackmore, 241). Elephants have been long characterized in cartoons and such as being bulky and “brainless”, yet science has proved that elephants have exceptional intelligence.

Corvids, which are members of the crow family, have also proved the ability of self-recognition. In 2008, three scientists, Prior, Schwarz and Gunturkun, used five European Magpies to conduct the mirror test. “Some were quite aggressive but then progressed to using the

mirror in other ways, and three removed marks placed on their throats by looking in the mirror” (Blackmore, 242). This is not only impressive because of their reactions but because of their brain structure. Corvids’ brains differ greatly from those of elephants or great apes. Over the past 300 million years, mammals developed a layered cortex of the brain. Birds did not; they developed a cluster of forebrain mechanisms. Bird brains are also tiny. Hence, a brain that is not comparable to mammals, those of humans comprised, can produce mental activities that show signs of self-recognition. This type of evidence suggests that there are extraordinary evolutionary conjunctions of capabilities between drastically different kinds of animals. It was long thought that humans had a special type of brain that enabled us to have enhanced cognition. Yet animals with different brain make-ups have shown such abilities as well. This discovery has opened the door for countless possibilities of understanding animals previously thought to have no signs of consciousness, such as insects, possibly. The possibilities are endless!

Furthermore, more tests need to be created in order to continue testing the abilities of self-recognition with different animals. The mirror test has provided scientists with proof of self-recognition amongst animals with capable eyesight. Yet what about animals that don’t have these same capabilities? Rats have a poor sense of sight and base much of their movements on smell and the feel of their whiskers. It would be a difficult task to have a rat try and recognize markings on its body in a mirror and react to them properly. The rats would not be able to clearly see the marks. Also, bats base their movements on echolocation. Echolocation is the use of echoes to be able to sense where things are. By gaging how quickly the echo returns, an animal is able to move properly. Bats are remarkably good at this, using it to hunt (Harris, 2014). Can a self-recognition test be created to test the abilities of a bat? Another concern is that there are animals that would not act like a human would when placed in front of a mirror. Even if their

senses are completely capable of seeing their reflection in the mirror, some animals may react in ways that are alien to humans. For example, Gallup put monkeys through the mirror test. The monkeys did not pass the mark test. “A possible reason is that while apes sometimes interpret staring as friendly, as humans do, most monkeys find it threatening and may not like looking in a mirror. Even so, placing mirrors obliquely to prevent eye contact did not seem to help” (Blackmore, 241). Yet the monkeys were still able to reach things seen only in reflection. They also would turn around toward someone that was behind them in the reflection of the mirror. Hence, they can still use the mirror and understand that it is a reflection.

Self-recognition is a dynamic aspect of what consciousness represents throughout different types of animals. Learning how to test animals that have different senses or reactions than humans seems to be the next step toward the progress of this study. Yet overall, impressive steps have been made in realizing that a variety of animals – some with great brain variations compared to humans – show signs of self-recognition. An animal interpreting themselves shows that there is a level of consciousness apparent within it. It understands that it is a living being.

Friendship

The ability to create friendships is an example of consciousness. To create a relationship, there must be a common bond. For example, Joe and I meet on the street corner. The common bond is that we happen to be at the same place at the same time. Now for this relationship to turn into a friendship, there has to be something that we like about each other. Maybe we want to play basketball together or we enjoy the same literature. I find some redeeming qualities in him, such as athleticism or intelligence. That makes it seem like a good decision to continue spending time together. Maybe I enjoy the activities we could do or the things we could learn from each other. Hence, there is some sort of deeper analysis about the situation and the other being. I took the time to think about the quality of the being. Because I have an understanding of myself through self-reflection, I know that this other being is beneficial to me in some way. It is a rational decision of sorts. Hence, there is intelligence involved with this decision. Thus, to make a friend, the two beings must display some level of consciousness in order to analyze the character of the other being and the potential of the relationship (Zimmer, 35).

For evolutionary biologists and anthropologists, friendship has been considered one of the core traits of only one species of ape: us:

The conventional thinking held that, along with our capacity to feel love, loyalty and compassion, our ability to forge long-term, meaningful bonds with friends set us apart. To the degree that nonhuman animals have exhibited such traits, they're really just making a genetic calculation. They'll protect family members, but only because they share so many genes. They'll help an unrelated member of their species too, but that's an even colder transaction known as reciprocal altruism: I'll do you a favor today, but I expect one in return tomorrow. Humans do this kind of interpersonal ledger balancing too. It's not for nothing that if a friend lends you \$10, you feel a faint sense of unease until you pay it back. If we didn't all feel that, *Homo sapiens* would not have become as cooperative a species as it is. But reciprocal altruism is to friendship as reproduction is to romance. In both cases, we start with a primal impulse and then embroider deep feeling

into it. Animals, we've always told ourselves, do nothing of the kind. Mitani and his colleagues now know better. (Zimmer, 35).

John Mitani, a primatologist at the University of Michigan, has been studying the relationships of wild chimpanzees. One specific relationship that was intriguing was between two male chimps, Hare and Ellington. They seemed to have formed a friendship. When they went on hunting trips with other males, they'd share food with each other rather than compete for it. "If Ellington reached out a hand, Hare would give him a piece of meat. If one of them got into a fight, the other would back him up. Hare and Ellington would spend entire days traveling through the forest together. Sometimes they'd be side by side. Other times they'd be 100 yards apart, staying in touch through the foliage with loud, hooting calls. 'They'd always be yakking at each other,' say Mitani" (Zimmer, 35). These two chimps created a non-heritage based friendship, shared with one another, defended one another, and seemingly loved one another.

Friendship is a beautiful aspect of life. Losing that friend is a painful one. In 2002, Ellington died. Hare lost his friend. I believe that a so-called being without consciousness wouldn't have any sort of emotion regarding this situation. It would just move on for the situation and look for the next satisfaction, such as food. Hare did not display those types of actions. Rather, he reacted terribly negatively; he reacted with emotion. "For all the years Mitani had followed him, Hare had been a sociable, high-ranking ape. But when Ellington died, Hare went through a sudden change. 'He dropped out,' say Mitani. 'He just didn't want to be with anybody for several weeks. He seemed to go into mourning'" (Zimmer, 35). This removal from his society is a sign of the impact the loss of Ellington had on Hare. There must be something deeper than just temporal consciousness occurring within Hare.

Apes are not the only animals to display such connections with unrelated beings. Scientists have studied durable friendships between unrelated dolphins, hyenas, elephants, baboons, dogs and horses. “No one can say how many more species – mammals and others – will be added to the list” (Zimmer, 35). An animal friendship is more than just the neighborhood dogs’ wrestling when their owners take them to the park. The same is true when humans have a pickup soccer game. There’s a spontaneous quality to these interactions. They are sociable interactions, but limited to the moment. A true animal friendship exudes an enduring bond that is made possible by sharing, sacrificing and grieving. Not all animal friendships portray these exact behaviors, but they consistently exhibit enough of them for researchers to realize that something there is something deeper going on than just momentary sensations. There is a sense of higher consciousness. There is an interpretation of a happening and a reaction to it. There is deep-seeded emotion and reason connecting these animals (Zimmer, 35).

Another species that has shown qualities of friendship are baboons. Baboons are far more distantly related to humans than great apes. In the late 1990s, UCLA anthropologist Joan Silk paired with Princeton primatologist Jean Altman to conduct a long-term study of savanna baboons in Kenya’s Amboseli National Park. The team discovered that there is a complex social world that they hadn’t noticed before. Specifically, different baboons had varying relationships with one another. Female baboons displayed strong relationships with some females and weak relationships with others. Most of the strongest bonds were between unrelated females, which lasted for years. They would consistently choose to groom, play and sit with certain baboons instead of others (Zimmer, 36). These behaviors are examples of friendship because the baboons are choosing to benefit specific others with acts of kindness. There is an unquestionable loyalty between the pairs of baboons.

Dolphins, an aquatic mammal, have also shown their abilities to create friendships with one another. And again, these friendships aren't heritage based. Randall Wells, a biologist with the Chicago Zoological Society, conducted research on bottlenose dolphins off the coast of Florida. He found that unrelated male dolphins would spend significant amounts of time together in pairs. Wells says that male dolphins form initial friendships when they are young. These pairs will remain friends for years. When one of the friends dies, the survivor will swim alone for a few months until finding a new friend. The females act differently, though. "Only when they're in their 50s and no longer reproducing do female dolphins develop enduring bonds, and those are just with one or two other female friends" (Zimmer, 36). Wells has witnessed these female dolphins pair together in specific groups. They will hunt together, which is arguably for the benefit of cooperative hunting; three hunters will allow all the dolphins to eat better. Yet the dolphins do more than get dinner together: They simply hang out. Wells will find the same specific groups swimming in tight formation, apparently keeping one another company (Zimmer, 37). They go on long swims together. They ride the tops of waves together, seemingly because it is fun to have the forces of water propel you. They do more than just hunt together, which is an act of survival. They spend time in each other's company outside of just trying to survive. It's as if they enjoy the company. Life is seemingly a little better when you can share experiences with another being, thus creating the ability to relate to one another. Friendship is that shared experience on a consistent level. Since the dolphins spend time mainly with specific others, it seems as though they have created friendships with one another.

Horses have also shown similar skills in creating friendships. Elissa Cameron of the University of Tasmania studies feral horses. She found that pairs of mares would establish

lasting bonds that endured for years of her studies. These horses would run around playfully together, use their teeth to groom one another and rest their heads on each other (Zimmer, 37).

So, why would these unrelated pairs of animals be friends? What is the point? Silk, Wells and Cameron all found that there is reproductive success involved with friendship. They discovered that the animals with close relationships also had the greatest success with their babies' survival rates. The more relationships they created, the more protection that they had for themselves and their young. Also, more food was produced by groups than individuals. Thus, the young were fed better too when their parents had close friendships with other animals. Also, adults seemed to have longer life spans if they had close relationships. For example, "On average (...) the survival rate to age 15 for female baboons with strong friendships is four times as high as that of those with weak ones" (Zimmer, 37).

Even though the friendship of animals was broken down to survival and reproductive reasons, I feel as though they still exhibit the concept of friendship. This is because I believe that humans conduct the same actions for the same reasons. By having more friendships, a person is able to create a support system for themselves. These friendships provide happiness, financial support, business opportunities, and a trusted partner to watch after the children if the parents are away. Studies have been conducted on the longevity of people with close friendships as well. One such examination, which was completed in 2010 by scientists at Brigham Young University, reviewed 148 studies that analyzed the link between social relationships and morality. The studies involved more than 308,000 participants in total. The subjects were followed for an average of 7.5 years. The results showed that people with strong social relationships increased their odds of survival over a certain time period by 50 percent. "That's on par with ceasing smoking, and nearly twice as beneficial as physical activity in terms of decreasing your odds of

dying early” (Rettner, 2010). Friendship can certainly feel good because it is fun to play with your pals. Yet there are also immensely valuable reasons why beings should create strong friendships, such as survival rates and reproductive purposes. It seems as though humans and nonhuman animals alike understand this. Thus, animals – just like humans do – obtain lasting friendships.

Tool Making

The ability to create and use tools has separated humans from other beings. Even though humans are not the most physically strong animals, humans have compensated for such with tool making. Thus, humans can kill a more powerful animal than them. For example, look at your finger nails. And now slide your tongue around the teeth in your mouth. Does either of those bodily tools feel sharp enough to tear through a bison's thick coat of fur and skin? Humans don't have the physical abilities to tear into the flesh of a being with tough skin. Thus, humans formed blades to be able to do so. Those blades were used in a variety of ways, such as attaching it to the end of a stick to make a spear. With these tools, humans were able to hunt large prey, such as bison. Now we have guns to hunt and/or fend off animals that are more physically imposing than us. Tool-making was what enabled humans to survive in the wild. Because of this ability, humans have put themselves on an intellectual pedestal above the rest of the world's beings.

Yet we humans are not the only ones that have displayed such abilities. As I mentioned earlier, birds have a different brain structure than humans. It was because of this that humans attributed low levels of consciousness to birds. If their brains are different than humans, how can they have high levels of consciousness? Yet this is not the case. Certain species of bird have displayed stunning cognitive abilities regarding tool making. For example, "New Caledonian crows manufacture two types of simple tools to gain access to otherwise unobtainable foods. They trim and sculpt twigs to fashion hook tools to poke out insect larvae from holes in trees. And they make probes for finding insects under leaf detritus by stripping off pieces of the barbed pandanus leaves to sharpen them to a point" (Patton, 77). These crows can craft a variety of diverse tools. They will continue to modify their tools until perfected as well. They also can teach other members of their group to copy good designs (Patton, 78). Thus, animals with

apparent “bird brains” actually can create and reshape tools while teaching others how to make them. I believe that the birds show remarkable signs of consciousness due to their ability to teach others. If birds acted within momentary desires, what would be the point of teaching others how to do something? Why wouldn't the bird just go hunt for itself? Yet the bird finds some value in teaching its peers. Maybe it wants to insure that the others feed themselves effectively. Maybe it gets some sort of sense of pride to be masterful with its tool making and wants to show the others its abilities. Regardless, there is something occurring that is deeper than acting with momentary desires. There is a sense of higher consciousness.

The use of memory is apparent with this tool-making as well. Over time, the birds learned how to construct the best tools for the task at hand (or rather, at wing). Practice makes perfect! Then, the birds have the cognitive abilities to remember how to make a useful tool and reiterate that information to others. This is another example of impressive use of their memory. In turn, the observing birds learn how to shape such tools. Thus, they must use their memories to intake the information being provided to them, remember it, and reuse that memory to shape their own tools. Memory is a telling aspect of a being's level of consciousness.

Memory

The ability to store and reiterate thoughts and happenings is another example of consciousness. When a person interprets their surroundings, past experiences are used to make comparisons and decisions. Plenty of animals have displayed exceptional abilities in the use of memory.

Let's again turn our attention to birds. These so called "bird brains" actually have impressive abilities to store information in their memory banks. For example, scrub jays have shown such abilities in superlative manners. Nicola Clayton conducted a series of tests to gauge such abilities (Patton, 79). Clayton showed the scrub jays have the ability to stash food in a variety of hidden places and remember where each one is. Then, days later, the bird will come back to a certain spot and retrieve its food. Yet there was even more to the birds than what meets the eye:

Clayton showed that the birds can anticipate unique future events. She allowed the jays to observe others of their kind cache food and then permitted them to pilfer the caches. Later these birds cached their own food, either alone or in the presence of another jay. Birds that had acted as thieves took great precautions to conceal their food-caching activities when in the presence of another jay. Although the jays had experienced food theft only in the role of thief, they nonetheless were able to imagine themselves in the role of victim. The ability to recall specific episodes in the past and to predict future occurrences is known as mental time travel. Before Clayton's work, this cognitive ability was thought to be unique to humans. (Patton, 79).

This ability to predict and think about the future is impressive. The birds that were thieves took extra precautions with their stashes in order to fend off potential thieves. This is similar to humans. A saying that my mother has always told me about relationships is that you are only scared of what you know you can do yourself. Thus, if you think you would cheat on your spouse or steal from your friend, you will be suspicious of your spouse or friend of cheating or stealing from you. It seems as though birds conduct the same line of thinking. Birds have a higher intelligence that is impressive even to us human beings.

Furthermore, the birds displayed the ability to understand the minds of other beings. To prepare for a future event such as a bird stealing from a specific bird's food stash, a bird must be able to understand what another bird might do. Understanding what another bird might do is an example of higher consciousness. Even though one bird didn't tell the other "I am going to steal your food", the protecting bird was still able to understand that another bird might do just that. It is as if these birds are able to put themselves in another bird's perspective. Humans conduct similar processes:

The early capabilities that contribute to primary intersubjectivity do not depend on what theory of mind in each case calls inferential 'mentalizing' or 'mind-reading'. Infants, notably without the intervention of theory or simulation, can see bodily movement as a goal-directed intentional movement, and perceive other persons as agents. Accordingly, before we are in a position to wonder what the other person believes or desires, we already have specific perceptual understandings of what they feel. [...] We interpret the actions of others in terms of their goals and intentions set in contextualized situations, rather than abstractly in terms of either their muscular performance or their beliefs. The environment, the situation, or the pragmatic context is never perceived neutrally, either in regard to our own possible actions, or in regard to the actions and possibilities of others. As Gibson's theory of affordances suggests, we see things in relation to their possible uses, and therefore never as disembodied observers. Likewise, our perception of the other person, as another agent, is never of an entity existing outside of a situation, but rather of an agent in a pragmatic context that throws light on the intentions of that agent. (Gallagher & Zahavi, 210-11).

Birds, despite having different brains than humans, are able to conduct similar cognitive abilities when preparing for a future thief. It is this sort of ability to understand what another being might do that gives humans a better understanding of the high levels of consciousness found in birds.

Non-mammals

It is easiest for us humans to relate cognitively to other mammals. For the most part, we can understand why they act the ways they do, such as food habits or social relationships created within their families. We understand them because they are built similarly to us. Yet other animals are a bit trickier. They have different evolutionary lineages than mammals. Thus, they are more difficult to understand; humans simply have a hard time connecting with these animals because they live their lives so differently than us. For example, have you ever looked into the eyes of a fish and understood its emotion? It is certainly more difficult than doing so with a dog. A dog will wag its tail and jump on you when it is happy to see you. It is easy to interpret. Yet because a fish is so different than us physically, it is difficult to understand what it might be feeling. Despite the differences in our physical makeups, animals such as fish, cephalopod mollusks and amphibians have displayed exceptional cognitive abilities.

Octopuses are cephalopod mollusks, a group that also includes squid and cuttlefish. Octopuses have evolved with sophisticated nervous systems and impressive cognitive abilities to match. "Behavioral studies show that octopuses can distinguish and classify objects based on size and shape, much as rats do. They can learn to navigate simple mazes and to solve problems, such as removing a tasty food item from a sealed container" (Patton, 74). Something even more impressive, though, is their abilities to learn through observation. In 1992, two Italian neuroscientists, Graziano Fiorito and Pietro Scotto, published evidence regarding this ability displayed by octopuses (Patton, 75). They trained octopuses to choose between two balls, a red one or a white one. By choosing the correct ball, the octopus got a reward. If it selected incorrectly, it received a mild shock as punishment. After the training had been completed, the scientists placed an untrained octopus opposite a glass wall to observe the trained octopus. The

trained octopus performed the task of choosing a ball. Then, the untrained observer got the chance to choose a ball. The observer octopus made the correct choices, which it only could have learned by watching. "The ability to learn by studying others has been regarded as closely related to conceptual thought" (Patton, 75). Thus, octopuses have the ability to obtain a higher level of thinking than just momentary desires. They have the ability to observe another creature, learn from it, store that knowledge in its memory bank and then reciprocate those actions later on. An animal with momentary desires would likely turn its attention away from the other octopus with the ball, proceeding to search for food or shelter of sorts. This display of observation and memory goes beyond this idea of momentary consciousness.

Another interesting discovery made about the cognitive abilities of non-mammals involves goldfish. Research in the past few years has shown that these animals display some cognitive abilities once thought unique to only mammals. Yet in 1994, an investigation team from the University of Seville in Spain "tested the spatial smarts of goldfish, a familiar bony fish. The goldfish swam through watery versions of mazes such as those traditionally used to test similar cognitive skills in rats. They showed many of the same basic spatial abilities that rodents do, including the ability to use distant visual cues to find a particular place, even when the surrounding maze has been reoriented" (Patton, 75). The fish have the abilities to find their ways to the end of the maze despite the path changing around them. Thus, this shows having the cognitive ability to understand their spatial awareness. Meaning that they understand where they are, where they want to go and how to get there. Therefore, goldfish have an understanding of themselves greater than just momentary desires. If the fish were to act within momentary consciousness, it would not have use of its memory. Thus, the fish would erratically swim around the maze, ignoring such visual cues that were presented. Yet this was not the case, as the

fish were able to strategically guide themselves through the spaces in search of the next corner, hole or alley (Patton, 75).

Conclusion

Consciousness has long been the distinguishing separation between humans and other beings. Humans have this sense of life that enables us to interpret events in a deeper way than just momentary desires. It has been long thought that animals only act within the realm of those temporary desires. Yet the past two decades have provided research examples that show that this is not the case. Animals as relatable as the great apes to more alien minds such as octopuses have all shown impressive abilities to interact with their surroundings in a deeper manner than just seeking momentary desires. Through displaying the abilities of self-reflection, creating friendships, mourning, tool-making, spatial awareness, learning through observation, and memory storage, nonhumans have shown remarkable examples of consciousness.

Animals can think outside of their own momentary desires. Thus, what else does that mean about animals? How do they feel? It is apparent that they understand and feel an exceptional amount. There are obvious signs of higher consciousness in animals that are similar to the consciousness that humans have. Because of this new understanding of animal cognition, the treatment of them must change. Our understanding of them is now different. Therefore, our ethics with how to treat nonhumans should change as well. This change of ethics should involve increased respect for our fellow intelligent beings. Just as people of different races and genders have argued for equality, different species should be able to do so as well.

Nonhuman animals both similar and dissimilar to humans have displayed exceptional cognitive abilities similar to that of humans. Humans are not the only animals with higher consciousness. Other animals, from the great apes to octopuses to birds to dolphins, have displayed abilities that were once thought to only be possessed by a human's higher

consciousness. They have shown the abilities of self-awareness, creating friendships, tool-making, memory usage and spatial awareness. They have interpretations of their surrounding worlds just as you and I do. And seeming that their surrounding worlds are much different from that of a humans, their interpretations are surely much different too. Yet this does not mean that nonhuman animals don't have the cognitive abilities of a higher consciousness. Rather, we humans just have to learn to understand their consciousness through observing body language. This relationship can be harmonious, too. As arguably the most intelligent beings, we humans can use our knowledge for the greater good of life rather than the exploitation of unwilling beings. So, with our ever conscious minds, let's take the time to appreciate the intelligence around us – not destroy it.

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