

Between The Species

Issue IX

August 2009

<http://cla.calpoly.edu/bts/>

The Epistemic Irresponsibility of the Subjects-of-a-Life Account

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Abstract

In this paper I will argue that Regan's subjects-of-a-life account is epistemically irresponsible. Firstly, in making so many epistemic claims. Secondly in making the claims themselves.

Introduction

I will assess the epistemic responsibility of Regan's account. A lot depends on whether a being is an experiencing subject-of-a-life. I will look at the capacities required to be a subject-of-a-life and then assess Regan's epistemic responsibility as a whole.

I. Beliefs and Desires

Stich argues we cannot say what animals' beliefs are and if beliefs are necessary for desires we cannot know what desires animals have (1979, pp. 17-18). Infallible knowledge of the mental states of others is not possible. However, we do manage relative certainty with humans including those who do not use language. We ascribe beliefs and desires to small children. Also we do know that when the dog believes it

is dinnertime or that there is food in the bowl. Until a relevant difference can be shown with animals the burden of proof lies with Stich.

Related to beliefs are concepts. It has been thought animals lack concepts because they lack language (Aristotle 1986, 428a; Fellows 2000, p. 593; Leahy 1991, p. 79). Some do argue that animals possess concepts even though they lack language (Regan 1983, p. 74; Rollin 1992, p. 48). However, animals' behaviour makes it reasonable to think they have concepts: "animals do anticipate and remember... that... is how they learn" (Rollin 1989, p. 50). There is other evidence animals possess simple concepts. Pigeons "can learn to categorise slides depending on whether those slides contain a triangle or not, or depending on whether they contain a human" (Carruthers 1992, p. 131). Vervet monkeys use different alarm calls for different predatory species (Ristau 1992, p. 130). Alex the parrot must have some comprehension of "same" and "different" as he can compare shapes and colours and answer with the category name. He is performing with new objects and colours so he cannot simply be remembering the answers (Ristau 1992, p. 130). Chimpanzees appear to understand "middle object" something "many three- and four-year-old children, though accomplished language users, cannot" (Singer 1986a, p. 302).

II. Welfare interests and An Individual Welfare In The Sense That Their Experiential Lives Fare Well Or Ill For Them, Logically Independently Of Their Utility For Others And Logically Independently Of Their Being The Object Of Anyone Else's Interests

That animals have a welfare is uncontroversial (Dawkins 1980, p. 10; DeGrazia 1996, p. 211; Frey 1980, p. 79; Leahy 1991, p. 43; Regan 1983, p. 88, p. 95; Singer 1995; VanDeVeer 1979, p. 57). Entire books have been written about animal welfare (Palmer and Paterson 1989; Spedding 2000). In order to have a welfare animals must be able to be benefited and/or harmed (Bernstein 1998, p. 13; Regan 1982b, p. 108). In order to have experiential welfare of the kind Regan implies animals must

be conscious. For their experience to fare well or ill for them they must be experiencing their lives; they must be conscious of them. In the next section I will argue animals are conscious. Animals do have a welfare and so welfare interests.

III. Perceptions and consciousness

Perceptions are the basis of our comprehension of the world around us. That most animals have some perceptions of the world around them will strike most as obvious. Many agree some animals can perceive (Aristotle 1986, 415a11; 428a10; 1986, 434b; Locke 1975; Pegis 1948, p. 33; Scruton 2000, p. 9-10). Though some think animals cannot perceive (Frey 1980, pp. 118-120; Leahy 1991, p. 148).

The only time Regan mentions perception is when he is explaining what a subject-of-a-life is (1983, p. 243). What he means by perceptions is not altogether clear. I take him to mean conscious awareness of the world around (see for example 2004, p. 54). It is consciousness not self-consciousness is required to be a subject-of-a-life (1983, p. 243, 2001, p. 201, 2004, p. 46).

III a. Definitions of consciousness

One of the few things those working on consciousness (both philosophers and scientists) seem to agree on is that it is all but impossible to explain it (Dawkins 1998, p. 4; DeGrazia 1996, p. 101; Gorman 1997, p. C5; Greenfield 1995, p. 196; Griffiths 1999, p. 117, 118; Leahy 1991, p. 109; Page 2001, pp. 43-4; Pinker 1997, p. 146; St Augustine 1961, p. 264; Sutherland 1989). Despite this there have been many attempts (Dawkins 1980, p. 24, 1998, p. 5; Flanagan 1992, p. 31; Griffin 1976, p. 5; Hubbard 1975; Humphrey 1978; Nagel 1974, p. 438; Natsoulas 1978, p. 910; Scruton 2000, p. 177; Shallice 1978, p. 117; Walker 1983, p. 383).

It is usually defined as being aware in some way (Dawkins 1998, p. 5; Flanagan 1992, p. 31; Natsoulas 1978, p. 910; Scruton 2000, p. 177; Walker 1983, p. 383). The

normal definition is Nagel's: a "conscious experience... means, basically, that there is something it is like to be that organism... something it is like for the organism" (1974, p. 436). He says "the essence of the belief that bats have experience is that there is something that it is like to be a bat" (1974, p. 438). This is a common sense understanding and one Regan could agree to (see DeGrazia 1996, p. 115).

III b. Are animals conscious?

Some doubt whether we can know if animals are conscious in any sense (Dennett 1996, p. 18). Many argue animals are conscious (E.g.: Baars 1997 p. 33 (says the scientific community agree animals are conscious); Carruthers 1992, p. 184; Darwin 2004; Deacon 1997, p. 442; Edelman 1992; Flanagan 1992, pp. 142-5; Fox 1986, p. 4, 72 (thinks even animals like fish and reptiles possess some limited consciousness); Frey 1980, p. 108; Griffin 1976, p. 104, 1991, p. 15, 2003, p. 106; Lehman 1998, p. 315; Midgley 1983, p. 11; Miller 2000 (thinks "[a]lmost every member of the American Philosophical Association would agree... all mammals are conscious, and... all conscious experiences is of some moral significance" (2000, p. 443); Nagel 1974, p. 436; Narveson 1987, p. 32; Rodd 1990, p. 28; Ryder 1975, p. 9; Scruton 2000, p. 21; Searle 1998, pp. 49-50; Singer 1995; Sprigge 1979, pp. 119-120; Wise 2000). Most agree mammals are conscious (Baars 1997, pp. 27-33; Carruthers 1992, p. 184; Edelman 1992; Frey 1980, p. 108; Nagel 1974; Regan 1983; Scruton 2000, p. 21; Wise 2000, p. 141). Some think birds are (Edelman 1992; Sprigge 1979, pp. 119-120). Some think reptiles are (Edelman 1992; Fox 1986, p. 4, 72). Others think all vertebrates are (Flanagan 1992, pp. 142-5). Some limit consciousness to anthropoid apes (and maybe dolphins) (Bermond 2003, p. 79).

III c. Regan's argument that animals are consciously aware

Whether animals are consciously aware has received much attention (E.g.: Dol et al.

1997; Frey 1980; Lehman 1998; Carruthers 1989; 1992; Pluhar 1995; Robinson 1992; Rollin 1989; Singer 1995). Descartes infamously said animals are automata and not aware of anything – sights, sounds, smells, heat, cold, fear or pain (Descartes 1989). Regan has several arguments for animal consciousness (1983, 2003, 2004).

III c (i) Analogy – humans are conscious

The only consciousness of which any of us can be absolutely sure is our own. If we think other humans are conscious because they are like us (see below) the same can be said about animals (Dawkins 1998, p. 12; Griffin 1976, p. 85, 2003, p. 111; Singer 1986a, p. 285; Sprigge 1979, p. 119; Walker 1983, p. 339; Wise 2000, p.). The argument from analogy is especially strong in the case of the great apes who have very similar DNA and brains (Walker 1983, p. 339; Wise 2000, p. 132). The analogy in the case of other animals is not as strong as in the case of humans – animals differ more – but that animals are sufficiently similar to us to in some ways makes it likely they are conscious. Dawkins argues it is parsimonious to describe animal behaviour as conscious because if we think animals are not conscious we have to allow other humans may not be either. Special arguments are needed to show similar behaviour requires differential explanations (1998, p. 176).

III c (ii) Common sense

It is a common sense belief that animals are aware (Regan 1983, p. 25, 2004, p. 54; Rollin 1992, p. 56). Compelling reasons must be given against a common sense belief before it is reasonable to abandon it. The point of appealing to common sense is to put the burden of proof on those who deny it.

III c (iii) The way we talk about animals

The way we talk about animals suggests they are conscious, insofar as we talk about them having wants (Regan 1983, p. 25, 2004, p. 55). Indeed, according to the

“psychologist Hebb... we simply could not deal with animals if our license to talk in these terms [of consciousness] were revoked” (Rollin 1992, p. 56). When Hebb and his associates used language that did not attribute mental states like fear, hate etc. they found it impossible to describe what animals were doing (1946).

III c (iv) Behaviour

Some animals' behaviour is relevantly similar to ours (Regan 2004, p. 55). Griffin argues when animals' behaviour is complex we often conclude it is accompanied by conscious thinking (1989, p. 51). When animals' behaviour is adaptable this suggests they are consciously thinking (1989, p. 52). That animals' behaviour often involves complex patterns suggests they are thinking rather than responding mechanically, especially when the steps taken vary (1989, p. 53). Animals' ability to adapt to novel and challenging situations is good evidence for conscious thought, therefore a “criterion of conscious awareness in animals is versatile adaptability of behaviour to changing circumstances and challenges” (1989, p. 54). For example a raven “picked up small rocks in its bill and dropped them at the human intruders” (1989, p. 54). Similarly, that “intention movements so often evolve into communicative signals may reflect a close linkage between thinking and the intentional communication of thoughts from one conscious animal to another” (1989, p. 55). For example, Vervet monkeys react differently to different alarm calls of their conspecifics which indicate different predators (Griffin 1989, pp. 56-7, 1976, p. 85).

III c (v) Bodies and brains

Some animals' bodies are relevantly similar to ours i.e. similar anatomy and physiology (DeGrazia 1996, p. 104; Regan 1983, p. 18, 2004, p. 56). Animals have similar brains and nervous systems:

Conscious awareness... is thought to require coordination between the medial temporal lobes of the brain, which includes the hippocampus and its supporting structure, and the cortex. The brains

of all mammals have both (Wise 2000, p. 141).

Ryder argues consciousness “is a function of the central nervous system” thus it reasonable to assume those animals with similar central nervous systems to us are conscious (1975, p. 9).

Lord Brain, an eminent neurologist said “the diencephalon is well developed in (vertebrates) animals and birds, I... cannot doubt that the interest and activities of animals are correlated with awareness and feeling in the same way as my own” (quoted in Ryder 1975, p. 10).

There is “[p]hysiological evidence of brain functions that are correlated with conscious thinking” (Griffin 2003, p. 111). There is no good evidence there is a part of the human brain (that only humans have) that is responsible for consciousness (DeGrazia 1996, p. 114; Dennett 1991, Ch. 5). Instead, available evidence suggests consciousness is associated with complex central nervous systems (CNSs) if this is right vertebrates and possibly cephalopods (octopi, squid and cuttlefish) are conscious (Flanagan 1992, pp. 142-5). Similarly, there are no fundamental differences between the brains and nervous systems of humans and other vertebrates (Griffin 1976, p. 104; Rodd 1990, p. 28). It, is therefore reasonable to think, at least, all vertebrates are conscious.

III c (vi) Evolutionary theory and consciousness

We share the same evolutionary origins as many animals (Regan 1983, p. 18, 2004, p. 57). Darwin says “the difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind” (2004, p. 151). Regan argues:

Natura non facit saltum (nature does not make jumps) is central to his [Darwin’s] understanding of how existing species of life, including the human, have come into being. Evolutionary theory teaches that what is more mentally complex evolves from what is less mentally

complex, not that what is more mentally complex, the human mind in particular, springs full-blown from what lacks mind altogether (2003, p. 35).

Many agree the differences between humans and animals are in degree (DeGrazia 1996, p. 104; Gallup 1977, p. 311; Hebb 1946, p. 104; Regan 1982c, p. 159; Rollin 1992, p. 56). Matthews makes a similar point: “By ‘the unity of psychology’... the psychology of human beings is part of the psychology of animals generally” (1978, p. 437). Plato and Aristotle both accepted this principle (Plato 1975, 81d-82b; 2000, 90e-91c, Aristotle 1986, B3). If we assume humans are conscious given evolutionary theory it would be remarkable humans alone are conscious (Regan 1983, p. 18). As Page puts it “[t]hose who hold doubts about consciousness and emotions for animals must explain how it is that these attributes arrive in the natural history of *Homo sapiens* like a bolt of lightning with no precursors in the animal world” (2001, p. 214). (Though it may be that humans have a degree of self-consciousness, though not unique, is much less developed in other species.)

Consciousness has survival value (DeGrazia 1996, p. 104, pp. 113-4; Griffin 1976, p. 85; Page 2001, p. 217; Regan 1983, p. 19; Rodd 1990, p. 54; Singer 1986a, p. 286; Weiskrantz 1988, pp. 183-99; Wise 2000, p. 132). Consciousness helps its bearers survive by increasing their ability to deal with complicated and novel circumstances (DeGrazia 1996, p. 104; Griffin 1989, p. 57). Consciousness is economical (Griffin 1989, p. 58). One reason consciousness may help animals survive is that it enables them to learn about their environment (Scruton 2000, p. 183). As Popper put it consciousness “allows our hypotheses to die in our stead” (quoted in Page 2001, p. 217).

These reasons make a strong cumulative case for animal consciousness (Regan 1983, p. 28). Regan argues mammals are clear cases of conscious animals (1983, p. 29). However, all the evidence that suggests mammals are conscious suggests vertebrates (and possibly cephalopods) are. By ignoring this evidence Regan is being

epistemically irresponsible.

III d. Objections to animal consciousness

Many think animals lack conscious awareness. Bermond thinks pain and suffering are conscious experiences which require a developed prefrontal cortex and a right neocortical hemisphere and only humans, anthropoid apes and maybe dolphins therefore experience suffering (i.e. consciousness) (2003, p. 79). And Walker thinks only language users are conscious (1983, p. 387) (also see Carruthers 1989, 1992; Descartes 1989; Harrison 1989, p. 90; Leahy 1991; Malcolm 1977; Vendler 1972; Walker 1983, p. 387). However, most people agree at least mammals and probably higher vertebrates are conscious. Nowadays to hold no animals are conscious “requires some awkward intellectual gymnastics” (Midgley 1983, p. 11). I will examine these gymnastics below.

III d (i) Conscious versus Non-conscious

Carruthers is one of the few modern philosophers who thinks animals lack consciousness so I will concentrate on his arguments. He argues:

Animals are... often conscious, in the sense... they are aware of the world around them and of the states of their own bodies. Animals can be awake, asleep, dreaming, comatose, or partly conscious... They can be conscious or fail to be conscious, of an acrid smell, a loud noise... just as we can. (1992, p. 184)

This implies animals are conscious. So what does Carruthers mean when he objects to animal consciousness? Carruthers draws a distinction between two kinds of mental state: conscious and non-conscious (1992, p. 170). He thinks all animals' mental states are non-conscious. An example of a non-conscious experience is driving while not being aware what one is doing – if one negotiates a parked car yet has no recollection of so doing (1992, pp. 170-1). Non-conscious experiences do not

feel like anything.

Carruthers thinks animals' non-conscious experiences work something like blindsight in humans. (For further discussion of blindsight see: DeGrazia 1996, p. 105, p. 113; Flanagan 1992, p. 141; Nikolinakos 1994, p. 100. Harrison suggests animal experiences are all non-conscious (1991)). Humans suffer from blindsight where they have lost "conscious experience of an area of their visual field... they nevertheless have non-conscious experiences that are somehow made available to help in the control of their actions" (1992, p. 172). When a human has blindsight:

the visual information is, in a sense, available to be thought about (since if asked to guess what is there, subjects will generally guess correctly), it is not apt to give rise to spontaneous thoughts in the way... conscious experiences are. In the normal course of events the blindsight person will have no thoughts whatever about objects positioned in the blind portion of their visual field. (1992, p. 183)

Thus, for Carruthers, "not all experiences are conscious" (1992, p. 173). But what would other experiences (non-conscious ones) be like? Are they really experiences in any recognisable sense? Similarly, Bermond thinks "[i]t would be nonsensical to talk of experiences if those experiences failed to reach the domain of consciousness" (2003, p. 79). Dennett says an unconscious act is "[l]ike nothing; it is not part of your experience" (1996, p. 17). A non-conscious experience is not an experience.

Carruthers argues a conscious mental state is "one that is available to conscious thought – where a conscious act of thinking is itself an event that is available to be thought about similarly in turn" (1992, p. 180). To be conscious a being must have thoughts it is able to think about. Carruthers might mean by conscious thought what is normally meant by self-consciousness (DeGrazia makes a similar point 1996, p. 115).

Carruthers says:

Granted that animals can be conscious of events, our question is whether those states of awareness are, themselves, conscious ones. Our question is not, whether animals have mental states but whether animals are subject to conscious mental states. (1992, p. 184)

He acknowledges that animals are conscious in the normal understanding of consciousness. Animals have conscious states but they are not subject to conscious mental states. There is no real distinction here.

Carruthers thinks once he has established there is a distinction between conscious and non-conscious mental states it follows that animals' experiences are of the non-conscious variety (because they cannot think about their thoughts) (1992, p. 184). This is an extremely bizarre way of describing consciousness. This is not what we would ordinarily understand by it. When I stub my toe I think "owe my toe hurts" not "I am thinking owe my toe hurts". The first description is what it is to be conscious of pain; you are aware it hurts. You do not need to think about being in pain to feel it.

Carruthers' account fails to explain how babies can have feelings – does he really want to deny they are conscious? I doubt it.

Carruthers admits his arguments are "controversial and speculative, and may well turn out to be mistaken" (1992, p. 192). Many object to Carruthers views (Bekoff and Jamieson 1991; DeGrazia 1996, p. 112-4; Lehman 1998, p. 316; Robinson 1992). And even he even his thesis is "too highly speculative to serve as a secure basis for moral practice" (1992, p. 194). Carruthers' account is risky and so it should not be used as a basis for judging animal consciousness.

III d (ii) Language

Many think language is necessary for conscious thought (Carruthers 1992, p. 183; Dennett 1996; Taylor 2003, p. 37). It may be that language provides a more sophisticated or intense sort of consciousness. The point is that language is not necessary for consciousness per se. Regan argues that in order for human infants to learn how to talk they must be preverbally and nonverbally aware or they could never learn a language (2004, pp. 67-8). If consciousness depends on language children cannot be aware of anything. This “makes utterly mysterious, at best, how children could learn to use a language” (1983, p. 15). If children can be conscious without language we cannot reasonably say animals cannot (1983, p. 16). Dennett thinks animals and pre-linguistic children lack consciousness (1995, p. 695, 703). But he needs to explain how children acquire language without consciousness. Some may object only those with potential for language are conscious. But it is not at all clear how the potential has any bearing.

Many argue language is not necessary for conscious thought (Dawkins 2003, p. 94; Grandin 2005, p. 262; Matthews 1978, p. 447; Walker 1983, p. 383). In addition there is proof that language is not required for conscious thought. Temple Grandin, who is autistic, thinks in pictures, not in words but few would deny she is conscious (2005, p. 262). Grandin says “Obviously I *am* conscious, even though I don’t think in words, so there is nothing to say an animal can’t be conscious just because an animal doesn’t think in words” (2005, p. 262). Grandin designs whole structures without a single word entering her head, she says, “words come in... *after* I’ve finished thinking it through” (2005, p. 17). When she talks to others she “translates” her pictures into words (2005, p. 18). Grandin is not alone. Einstein and Samuel Taylor Coleridge both thought (though not entirely) in pictures (Wise 2000, p. 159). There are deaf-mutes who say they were conscious before they acquired language and who thought in pictures and signs (Wise 2000, p. 160). Such people can relate their pre-linguistic experience (Walker 1983; Wise 2000, p. 160-1). It is hard to see how this would be possible if they were not conscious at the time of having the experiences. Ildefonso a deaf mute who was language-less herded goats and sheep,

harvested and planted sugarcane, slaughtered chickens, begged and worked on airplane parts before he learned sign language (Wise 2000, p. 160). Ildefonso only learned to use (sign) language late in his adult life yet he “was conscious, and he had no language at all” (Grandin 2005, p. 262).

There is evidence animals think in pictures (Louie and Wilson 2001, p. 145-56). Researchers implanted electrodes into mice’s brains and taught them to run round a maze. They found the brain wave patterns were so precise they could see just what a mouse was doing at any given point. When the mice were in the REM phase of sleep they found the same pattern of brain waves as when the mice were running through the maze. Given that humans dream in pictures during REM sleep this is good evidence animals do too. If they dream in pictures it is reasonable to think they think in pictures when awake.

III d (iii) Instinct

Some are sceptical of animal consciousness because they put all animal behaviour down to instinct. But there is nothing to say we cannot be aware of an instinct. Take sneezing for example (Page 2001, p. 213).

III e. Degrees of consciousness

It is possible there are degrees of consciousness and animals have a lower degree of consciousness than humans (Griffin 1998, p. 5; Lehman 1998, p. 321; Page 2001, p. 124; Wise 2000, p. 127). This is a problem for Regan because inherent value does not admit of degrees and nor does the criterion (being a subject-of-a-life) it is based on. It is very likely consciousness admits of degrees for as animals (and humans) develop it is unlikely that consciousness suddenly sparks into existence, rather it must come on gradually. There are likely to be differences in degrees of consciousness in fully developed individuals. A dog is conscious, but I am self-conscious. This is a difference in degree. This undermines the categorical nature of

inherent value. If the criterion it is based on (consciousness is an aspect of being a subjects-of-a-life) comes in degrees it is hard to justify the categorical nature of inherent value.

III f. Differences in consciousness

As well as different degrees of consciousness it is highly likely there are differences in content. Grandin believes animals perceive the world in a different way to most humans (Grandin is autistic and thinks autistic people perceive the world in a similar way to animals). All the details normal humans filter out make it into the consciousness of animals (and autistic people). Animals are conscious of details. Normal humans are not. Humans are “abstract in their seeing and hearing. Normal human beings are abstractified in their sensory perceptions as well as their thoughts” (2005, p. 30). Most humans process the information their senses take in into an abstract picture in their mind; normal humans see “their ideas of things” (2005, p. 30). Animals, and autistic people, just see the raw data, they do not process it in the same way. Animals “see the actual things themselves” (2005, p. 30). Autistic people are more focused on details than whole objects (Minshew and Goldstein 1998). That people only see what they expect to is supported by work on inattention blindness. For example, many people did not see a woman dressed as a gorilla when watching a basket ball game (Mack and Rock 1998). Thus, Grandin thinks, animals perceive the world in a totally different way to most humans.

Two factors are involved in the different perceptions of humans and animals. First they sometimes have different sense organs that function more or less well; second they process the information in different ways (Grandin 2005, p. 59).

Many animals see things differently to normal humans, for example, most prey animals have panoramic vision (Grandin 2005, p. 40). Some animals see different colours and contrasts (Grandin 2005, p. 42). Different animals have different sense

organs and sensory abilities we don't have and vice versa (Grandin 2005, p. 59). Our colour vision is much better than lots of animals. Dogs and cats have better hearing, bats and dolphins use sonar. Human and Old World primates have a poor ability to smell pheromones (Grandin 2005, p. 61).

Regan does not seem to be aware of the differences in perception; in the content of consciousness. Do these differences make a difference? Is all that matters that they are conscious? These are questions Regan needs to answer.

IV. Memory

Regan argues it is reasonable to think animals have memories because it is reasonable to think they have preference-beliefs:

dogs are [not] born knowing how bones taste. To find this out, Fido... had to get his mouth on one... suppose the dog lacks memory... Fido could not form the preference-belief or behave as he does because of what he believes about the connection between the taste of the bones and satisfaction of his desires. (1983, p. 73)

There are some who deny animals can have memories. But most, myself included, agree that higher animals, at least, have memories (Aquinas thinks animals have memories (Pegis 1948); Darwin 2004, p. 95; Dawkins and Manning 1998, p. 256; DeGrazia 1996, p. 159; Fouts and Fouts 1993, p. 37-8; Grandin 2005, p. 263; Herman 1975, pp. 43-8; Herman and Thompson 1977, pp. 501-3; Page 2001, p. 177; Walker 1983, p. 78).

It is reasonable to think animals have memories because memory is adaptive in that it allows the animal to acquire new information (beyond instinct) about what is pleasant (helps survival) and unpleasant (dangerous). Memory has survival value for those that live long enough to benefit from it.

Some might argue that memory is dependent on language. But babies have memories, for example, they remember the faces of their parents, so memory cannot be dependent on language. Humans must be able to remember without language or they could not learn a language (Rollin 1992, p. 50).

There is much physiological evidence animals have memories; they have “oxytocin [which] is the hormone that lets animals remember each other” (Grandin 2005, p. 106). Similarly, the areas of the brain that are responsible for some parts of memory, such as the hippocampus are present in the brains of humans as well as animals including rats and pigeons (Dawkins and Manning 1998, p. 256; Walker 1983, pp. 320-5).

There is evidence animals have both short-term and long-term memories (Dawkins and Manning 1998, p. 303). Three types of memories have been identified in chicks and rats – short-term, intermediate-term and long-term (Dawkins and Manning 1998, p. 304). Not many people doubt that animals have memories but for those who doubt it I shall list a small number of examples.

Birds have amazing memories for where they have hidden food. The Clark’s nutcracker (a type of crow) buries up to 30,000 pine seeds in the autumn in an area of 200 square miles and finds find over 90% of them during winter (Grandin 2005, p. 263). Marsh tits and chickadees may hide hundreds of seeds in one day and find them all days later (DeGrazia 1996, p. 159). The most parsimonious explanation for this is that they remember where they stored the food (DeGrazia 1996, p. 160).

Birds fly long distances when they migrate. The artic tern has the longest route – an 18,000 mile round trip from the North Pole to the South Pole and back again (Grandin 2005, p. 285). Birds “have to learn these routes... they learn the routes with almost no effort at all [they only have to fly them once]” (Grandin 2005, p. 285).

Chimps can recognise individual people after many years absence (Fouts and Fouts 1993, p. 37-8). There are carefully controlled studies showing the memory capacities of dolphins (Herman 1975, pp. 43-8; Herman and Thompson 1977, pp. 501-3). Gray squirrels bury hundreds of nuts in different places and remember each one (Grandin 2005, p. 287). Pigeons can “memorize hundreds of pictures and remember them months later” (Page 2001, p. 79). A “sheep can remember more than fifty members of its flock” (Page 2001, p. 177). Fish and reptiles will return to the place they spawned to mate. Octopi are good at remembering their way round mazes.

Most of these animals have to fend for themselves (i.e. migrate, store food etc.) well before age one. If memory is to count all who have a memory should count (at least to some extent). This includes not only mammals and birds below one but fish, reptiles and other vertebrates and some cephalopods (such as octopi) who have good memories.

V. A Sense Of The Future, Including Their Own Future

Some deny animals have a sense of the future (Bennett 1988, p. 199; Wittgenstein 1958, p. 650). Narveson implies having a sense of future requires being self-aware (1977, p. 166). But evolution gives us good reason to think conscious animals have a sense of time (DeGrazia 1996, p. 169). Anticipation is useful for predicting events and deciding what to do (Midgley 1983, p. 58). Grandin argues the “single most important thing emotions do for an animal is allow him to predict the future” (2005, p. 201). Apes use signs to refer to future events (Singer 1993, p. 112).

The capacity to experience fear suggests a sense of future because fear is fear of what may happen in the future (DeGrazia 1996, p. 170; Grandin 2005, p. 203). Likewise desire is future-oriented. There are studies that demonstrate mammals and birds represent temporal intervals (Allan & Gibbon 1984; Church & Gibbon 1992, pp. 23-

540; Gallistel 1990; Gibbon 1977, pp. 279-335; Gill 1988; Killeen 1975, pp. 89-115). Animals can predict the future behaviour of conspecifics it is likely they can anticipate their own behaviour (Griffin 1976, p. 44).

Many experiments have demonstrated animals do appear to anticipate painful events:

Rats will learn to jump on sight of a warning light which indicates that an electric shock will follow shortly. Monkeys will stay awake (and develop stomach ulcers) in order to press levers on command to avoid painful shocks. (Rodd 1990, p. 131)

It is, therefore, reasonable to think some animals have a sense of the future (though Regan himself presents no empirical evidence for this).

VI. An Emotional Life

It used to be thought talking of animals in terms of emotions was just anthropomorphism. Even now some believe animals cannot have emotions because they cannot have beliefs (Frey 1980, p. 122). Animals' behaviour used to be described solely in terms of instincts and drives (Grandin 2005, p. 136). Instincts are fixed action patterns and drives are built-in urges that make animals seek necessities like sex and food. The idea of instincts and drives seemed to explain animal behaviour from an external viewpoint. But the idea of a drive was problematic when it came to mapping the brain because single unified brain circuits that underlie particular drives could not be found (Panksepp 1998, p. 168). It was found that drives like hunger had two different circuits, one for physical aspects and the other for emotional aspects (Grandin 2005, p. 136). Physical aspects like bodily needs are not enough on their own. Animals (like people) need the emotion of seeking to motivate them to hunt or gather food. It is now commonly accepted that almost everything animals (and humans) do is driven by some kind of emotion/feeling.

It is widely accepted by those who work with animals that “[m]ammals and birds have the same core feelings people do” (Grandin 2005, p. 88). In Grandin’s book she devotes three chapters to animal emotions. Animals are believed to have at least eight emotions: rage; prey chase drive; fear; curiosity; sexual attraction; separation distress; social attachment; play (2005, pp. 93-4; see also: Bateson 1972, pp. 38-9; Clark 1977, p. 101f; Darwin 1989, pp. 28-9, chaps. III and IV; Hare 1963, pp. 222-4; Harlow 1965, p. 90; Hebb 1946; Leahy 1991, p. 128; Midgley 1983, p. 57; Rachels 1989, p. 215; Rodd 1990, p. 5; Scruton 2000, p. 15; Wittgenstein 1967, p. 486). More may yet be identified. Researchers are now discovering that lizards and snakes probably share most of these emotions (Grandin 2005, p. 88). For instance “snake mothers take care of their babies” (Grandin 2005, p. 88). There are several reasons for this.

VI a. Evolution

Emotion has adaptive economy (Dawkins 2003, p. 97; DeGrazia 1996, p. 118; Grandin 2005, p. 95; Radcliffe Richards 2000, p. 64; Rolls 1999). Emotional responses are good at keeping animals safe. If a rat is shocked if it turns in a certain direction and then the experiment changes so it is shocked if it goes in the other direction the rat learns to do this. This cannot be accounted for by hard-wiring (Dawkins 2003, pp. 97-88). Because “[s]pecific rules (such as always turn right...) would be very much less effective than more general rules (repeat what leads to feeling better...)” (Dawkins 2003, p. 98). General emotional states are more effective at helping an animal adapt. Emotions are necessary because they reinforce learning (Dawkins 2003, p. 98).

Curiosity helps animals (and humans) find beneficial things like food and shelter and avoid dangerous things like predators (Grandin 2005, p. 95). This is supported by the fact our brains are relevantly similar to other animals (especially vertebrates),

for instance, the “part of the brain... associated with seeking is the hypothalamus – a part which we share with other mammals” (Grandin 2005, p. 95).

The hormones (oxytocin, and vasopressin) that control sex, motherhood fatherhood and love in humans (and other animals) are similar (only one amino acid different) to those that perform the same functions in frogs and other amphibians (Grandin 2005, p. 106).

Love is not exclusive to humans “[a]nimals love other animals” (Grandin 2005, p. 109). There are good evolutionary reasons to think animals experience social attachment; it is a survival mechanism, which evolved partly to keep warm (Grandin 2005, p. 112). Nearly all mammals and probably most birds make friends (Grandin 2005, p. 130; Rodd 1990, p. 62). Indeed, “virtually everything people and animals do is driven by some kind of feeling” (Grandin 2005, p. 136).

VI b. Arguments against animal emotions

It has been argued the more complex emotions require language (Frey 1980, pp. 123-4; Leahy 1991, p. 134; Scruton 2000, p. 14). Frey argues beliefs are part of emotions and this is demonstrated by the fact we can argue people out of their emotional responses (1980, p. 124). Because animals cannot use language, Frey argues, they cannot form beliefs and therefore cannot have emotions. It is not obvious beliefs require language. We can affect animals beliefs too, for example, we can train them not to be scared by showing them it is safe by rewarding them. Frey argues thoughts are insufficient for emotions because emotions require judgments (1980, p. 125). (Fortenbaugh argues something similar (1975, p. 26ff)). But there is a wealth of evidence that it does – as argued above many humans think without language.

Frey acknowledges some people have irrational fears which they cannot be argued out of, but, he says, “an understanding of them is possible, I think, only because we can stand back and contrast them with normal cases, where belief is present” (1980,

p. 124). Unfortunately, Frey does not offer any explanation of how the presence of beliefs in one case throws any light on the apparent lack of beliefs in the other. It is arguable the existence of such cases undermines Frey's case especially as he does not explain how the idea beliefs are essential for emotions can accommodate cases where, as with irrational fears, there seems to be no belief upon which the emotion is based.

Frey argues that to feel emotions like shame requires judgments that require concepts that require language. Animals cannot use language and so cannot feel shame (1980, pp. 125-6). But even if shame does involve judgment it is not clear other emotions do.

If animals did not feel emotions in much the same way humans do it would make a mockery of experiments psychologists perform on animals. Such experiments assume animals, have a psychology that's similar to ours (for examples see Sharpe 1988, Ch. 6; Singer 1995, Ch. 2; *Journal of Comparative and Physiological Psychology*; *Journal of Comparative Psychology*).

Thus, it is likely most animals experience emotions. But it is not just mammals and birds, the same reasons (evolutionary fitness and behavioural evidence) suggest all vertebrates experience emotions. If emotions matter morally Regan is epistemically irresponsible for overlooking the evidence vertebrates experience them.

VII. The Ability To Initiate Action In Pursuit Of Their Desires And Goals

If we are to show an individual acts intentionally we must show it is reasonable to view them as acting with the intention of achieving a given purpose (e.g. satisfying a desire) (Regan 1983, p. 74). Regan argues animals are autonomous:

if they have preferences and have the ability to initiate action with a

view to satisfying them... (let us call this preference autonomy)... the ability to initiate action because one has those desires or goals one has and believes, rightly or wrongly, that one's desires or purpose will be satisfied or achieved by acting in a certain way. (1983, pp. 84-5)

Some think animals are agents in this sense (DeGrazia 1996, p. 172; Elliot 1987, p. 84. Some deny it: Frey 1987, p. 50; Kenny 1975, p. 19; Leahy 1991, p. 40). The fact animals use tools suggest intentional action. Some mammals (including the great apes, baboons, elephants) and birds do use rudimentary tools (See Darwin 2004, pp. 102-3; Wise 2000, pp. 190-4. A crow called Betty spontaneously bent a wire into a hook to get food out of a tube (Weir 2002, p. 981)). This is not to say those animals who do not use tools are not acting purposefully.

There are many examples of apparently intentional action. For example, some dogs have worked out how to cross roads safely (Marshall Thomas 1996). Some bulls are able to knock down fences without cutting themselves (Grandin 2005, p. 248). Plovers feign having an injured wing in order to draw predators away from their nests (Ristau 1992, p. 127). Another examples of an animal acting intentionally is a chimp waiting for an older to chimp to move so he can safely get a banana without being interfered with (Goodall 1971, p. 107). All these examples suggest animals do have preference autonomy.

The evidence that all vertebrates have beliefs and preferences is strong. Regan is epistemically irresponsible because he does not take this into account.

VIII. A Psychophysical Identity Over Time

Regan says, "we must assume... individuals, including both individual animals like Fido and individual human beings, retain their identity over time. The assumption... this is true in the case of human beings is common to all moral theories and begs no substantive moral question... Similarly, therefore, in assuming that the same is true

in the case of animals like Fido, no substantive moral question is begged” (1983, p. 83). I agree this is a reasonable assumption because it is common to all theories and thus epistemically responsible.

IX. Epistemic Responsibility in General

What we claim to know about animals’ abilities should be based on the best available information. But even with this information we can never be certain. Thus, the more epistemic claims one makes the more risk there is that one is wrong. Those theories which make fewer epistemic claims are, therefore, more likely to be more epistemically responsible. Regan makes a lot of epistemic claims, some of which are quite controversial, making his account fairly risky from an epistemic point of view. Fox accuses Regan of epistemic irresponsibility (1978, p. 111).

X. Conclusion

I assessed the epistemic responsibility of Regan’s subjects-of-a-life account. All the evidence that suggests mammals are conscious have memories etc. suggests all vertebrates (and possibly some cephalopods) are. By ignoring this evidence Regan is being epistemically irresponsible. We can never be certain of our epistemic claims thus the more such claims we make the more risk we run of being wrong. Regan’s subjects-of-a-life criterion relies on a lot of empirical evidence (some of which is questionable). His account is thus risky from an epistemic point of view.

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