On the wrongness of killing animals

A systematic analysis of Regan's "subject-of-a-life" conditions

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Submission date 31.05.18

Lausanne, academic year 2017-2018

Index:

In memory of Haitham Kandil,
My philosophical partner in crime.

Introduction

Over the past few years, the population's opinion on the moral status of non-human animals has shifted. Larger numbers of people have been adopting vegetarian or vegan lifestyles and a growing need for alternatives to meat and other animal-derived products has arisen. This market trend has been called "ethical eating" [1].

In order to meet these ethical concerns of a more demanding consumer, there has been an increase in supply of a variety of food products labelled as "free-range" and "humanely-raised", which have been advertised by the animal agriculture industry and have been met with success amongst a significant percentage of the population [2]. The success of these products seems to indicate that some consumers are more aware of their supermarket choices and concerned with the suffering and living conditions of the animals they eat. However, this might also show that the death of the animals itself is not of primary importance for these consumers, as long as the animals are free during their lifetime. This idea is in accordance with some versions of the "welfarist" philosophical branch in animal ethics.[3]

The discussion in the literature has been focusing on the moral status/rights of nonhuman animals. But, in this thesis, I want to solely assess the ethics involved in the killing of a nonhuman animal and, specifically, which properties of living beings might be relevant for this discussion. For this purpose, I concede the welfarist premise that animals were treated and killed humanely. Although this is difficult to define, I assume that animals lived with total freedom during their lifetime and died painlessly, so that I can discard any considerations regarding the pain inflicted upon them.

The basis of this thesis is Tom Regan's "The Case for Animal Rights" [4] and Mary Anne Warren's article "A Critique of Regan's Animal Rights Theory" [5]. Regan and Warren argue for two different animal rights theories (strong and weak, respectively).

Warren starts by summarizing Regan's "strong animal rights theory" and then constructs a critique and an alternative to his theory titled as "weak animal rights theory" which, in spite of being "weaker" - in the sense that it gives weaker rights to

most animals -, it actually encompasses the wider class of all “sentient beings” and not only subjects-of-a-life (a term to be defined next) under its jurisdiction.

Regan’s position begins with the assertion that all normal mammals over a year of age have the same basic moral rights. Nonhuman mammals have essentially the same right not to be harmed or killed as we do. To justify it, he firstly claims that normal mature mammals are not only sentient but have other mental capacities as well. These include the capacities for emotion, memory, belief, desire, the use of general concepts, intentional action, a sense of future and some degree of self-awareness. Creatures with such capacities are said to be subjects-of-a-life. They are not only alive in the biological sense but have a psychological identity over time and an existence which can go better or worse for them. Thus, they can be harmed or benefitted. This part of Regan’s thesis is generally viewed favourably by Warren: “These are plausible claims and well-defended”.

In the second part of his thesis, he then claims that “subjects-of-a-life have inherent value [...] independent of both the value they place upon their lives or experiences and the value others may place upon them. Inherent value [...] does not come in degrees”. Mary Anne Warren opposes this claim stating that inherent value is an “obscure term”, only defined in negative terms and, otherwise, ill-defined. I agree with this view. In fact, Warren states: “If inherent value is based on same natural property, then why not try to identify that property and explain its moral significance without appealing to inherent value?”.

Having this in mind and given that the conditions for a being to be a subject-of-a-life are reasonable, I use them as a starting point - not for the general case of an animal rights theory (nor to assert the “obscure” existence of any inherent value emerging from them), but to answer the question of the problematic and reformulate it. It now becomes, more specifically: which of the conditions for a being to be a subject-of-a-life are relevant for the ethical considerations regarding the killing of an animal, given the assumptions already detailed? Which one(s) is(are) the most important?

After reaching an answer on this subject, it then becomes a matter of studying which animals possess the properties described in order to create a possible (although always difficult and unclear) spectrum of the wrongness of killing different animals.

Thesis Outline

My thesis will begin by detailing the full list of conditions given by Regan for a being to be a subject-of-a-life.[4] Using this list, the problematic described in the introduction will be evaluated for the case of human beings, since Homo sapiens surely fulfil these conditions.

The following setup experiment will be proposed: suppose Sarah lives a free life, alone, in a mountain, and does not have family or friends (this is to preclude any suffering that might be caused to her loved ones if she dies). One day, John, a mountain climber who is passing by, meets Sarah and puts a deadly powder in her drink before she goes to sleep, however Sarah is unaware of it. That same night, Sarah dies without pain.

Intuitively, we would agree that what John did was unethical, and we can quickly come up with reasons why it is so, but I would like to extensively assess which properties - from the ones that constitute Regan's list - would deem John's action as immoral. For this purpose, I will propose different situations – e.g. "What if Sarah had Amnesia?" (no memory). Other questions will be proposed to determine which properties are irrelevant, sufficient or sufficient and necessary.

While trying to reach a satisfactory set of properties, I will transpose this reasoning to the case of nonhuman animals - questioning how and to which degree the properties that answered the problematic for the case of humans can change for this new case and making analogies with the different Sarah/John proposed situations. - Then, I will assess weather it is possible that John's action becomes less unethical when performed in a nonhuman animal that does not possess one or more of these properties. Using Darwinian considerations, I will argue that this is no different than the corresponding Sarah/John situation where Sarah does not possess this property (e.g. has amnesia, in the case of the memory property).

Additionally, I will try to evaluate which of the properties is(are) the most important. Specifically, I will focus on the three properties which have been most prominently referred in the literature – sentience, memory and the ability to have a sense of future/plan into the future. This will lead me to construct a formula on the wrongness of killing a being, which will be a way of summarizing the reasoning made up until that

point. Then I will present a section on further questions, which will address some of the other properties.

Finally, having as a basis the constructed formula, in line with views shared by Mary Anne Warren and Peter Singer, I will defend that there is a continuum in the wrongness of killing, depending on the degree to which some nonhuman animal possesses each of the properties that resulted from my thesis (with most weight given to the most important ones). In this spectrum, a normal human being will be the highest in the scale and the inexistence of a clear boundary will follow from Darwinian considerations, i.e., the acknowledgement that these properties evolved continuous and slowly across time (as will be explained later, in more detail). In accordance with Araron Simmons [6] and Peter Singer, I will also argue that, even if the beings are free during their lifetime, it is not permissible to kill a great portion of animals for food, since I do not share the view that there are practical conflicts with animals that would make it impossible for us to grant them the right to life, without sacrificing necessary human interests (as was defended by Mary Anne Warren [5]). This will be justified.

Initial thoughts

To begin this thesis, I will address some points regarding the complexity of this topic and how the questions raised generate various subtleties that must be dealt with carefully. This will be useful for the discussions ahead.

In order to have a clearer idea on the complexity part, notice first that the thesis must reflect upon both philosophical as well as scientific considerations. To address only the philosophical questions, I will always try to provide the reader with examples focused on humans. As stated, my thesis is only based on properties of living beings and the answers do not have, in principle, to consider the particulars of any species. However, this thesis is aimed at humans and since we know what it is like to be a human being (see "What is it like to be a bat?" [7]) and how it "feels" subjectively, it is thus easier for us to analyse ethical questions and engage in thought experiments concerning humans. Evidently, there is still a lot of debate in the scientific community about the extent to which different species possess some of Regan's properties such as sentience, memory, etc. so, by drawing the parallel with the human case, we will be able to put aside (temporarily) scientific considerations. In the case of memory, we cannot avoid mentioning some conclusions from the field of cognitive psychology, at the beginning, in order to get a better grasp of the problem.

On the other hand, all of us, to a greater or smaller extent, can have biases regarding ethical questions concerning non-human animals, since there seems to still exist in society the prevalent idea of a clear separation/boundary between humans and all other animals, with respect to the different properties. In other words, most of us have been raised in a society where animal exploitation is normal and that has (implicitly) lead us to think of animals as inherently much less worthy of consideration or "valuable". Thought experiments aiming humans, (that can be later analysed – more scientifically than philosophically - for the case of other animals), eliminate the effect of these biases.

Considering Darwinian evolution, these properties of living beings can only evolve slowly and in continuation across time as a result of mutations and environmental pressures. Therefore, the existence of a clear boundary separating humans from other animals does not seem to hold ground. However, we could still argue that, even though

these changes are slow, they might be enough to create big discrepancies in properties between humans and other animals, thus rationally justifying a diminished (but not inherent) value of non-human animals. Studying this claim, by verifying to which degree non-human animals possess different properties, will compose one of the sections of this thesis.

Being restricted to the human case can also facilitate the isolation of different properties. As an example, If I want to address restricted range of motion and its importance for the ethical questions raised ("Is it less unethical to kill a living being if it has a restricted range of motion?"), as will be done later regarding "the ability to initiate action in pursuit of their desires and goals " - one of the conditions given by Reagan - , it is easier for us to think of a handicapped person than thinking of a fish (which has no arms or legs), since the fish, apart from the restricted range of motion when compared to "normal" humans, also has several other properties that are present in a smaller scale than in humans (such as intelligence).

However, in some cases, it might still be difficult to clearly separate properties. When analysing, for example, the condition stated by Reagan of "having beliefs", we can ask: "Is the ability to believe in a higher power (God), relevant to our question?" If we think about the human case, we can see how difficult it is to separate the belief in God from other properties, since beliefs induce emotional and mental states such as desires. We could say, for example, that a catholic that believes he will almost certainly be in heaven in the afterlife, he/she would be more peaceful and happy and would also have the goal of "working" to indeed end up in heaven. So, clearly belief is attached to happiness, goals, etc. Similarly, a "desire" is something that is attached, in most cases, to a conception of future.

Adding to these subtleties, putting pain and suffering aside, which is a basis assumption of this thesis, also makes the question more complex. In fact, a part of Regan's arguments is based on suffering. As he states, while explaining different existing animal rights theories: "A second possibility is that though both humans and your dog are hurt when kicked, it is only human pain that matters. But, again, no rational person can believe this. Pain is pain wherever it occurs. If your neighbour's causing you pain is wrong because of the pain that is caused, we cannot rationally ignore or dismiss the moral relevance of the pain that your dog feels." [8] I agree with this statement. Putting pain and suffering into the equation would certainly make the

conclusion of the thesis tend more to the unethicality of animal exploitation for food (although the extent of this bias is uncertain).

A remark is necessary to conclude this section. As we saw, taking the human case as a starting point has several advantages. But to do this, we rely on two basic assumptions: that the capability of experiencing a given range of emotions and conscious states does not vary (substantially) across “normal humans” - where we are defining a “normal” human as a healthy adult -, and that we can rest assured that the “normal” human being surely possesses all properties that fulfil the “subject-of-a-life” conditions. For each property, these assumptions can be scientifically validated: for example, in the case of memory, by verifying that humans are able to recall past events and that this ability is not significantly different from person to person. They are also intuitive and easy to accept. Having these assumptions as a basis, will later allow us to propose thought experiments regarding special human cases such as mentally impaired or handicapped people that possibly do not fulfil one or more conditions that might be relevant to the discussion, in the interest of trying to reach the desired conclusions - that is, the importance of the corresponding property for our question.

Let us now return to our thought experiment: suppose Sarah lives a free live, alone, in a mountain, and does not have family or friends (this is to preclude any suffering that might be caused to her loved ones if she dies). One day, John, a mountain climber who is passing by, meets Sarah and puts a deadly powder in her drink before she goes to sleep, however Sarah is unaware of it. That same night, Sarah dies without pain.

I will refer to this example throughout the thesis.

As promised, I provide here the full list of conditions given by Reagan for a being to be considered a subject-of-a-life:

“[It] involves more than merely being alive and more than merely being conscious... individuals are subjects-of-a-life if they have beliefs and desires; perception, memory, and a sense of the future, including their own future; an emotional life together with feelings of pleasure and pain; preference- and welfare-interests; the ability to initiate action in pursuit of their desires and goals; a psychophysical identity over time; and an individual welfare in the sense that their experiential life fares 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. Those who satisfy the subject-of-a-life

criterion themselves have a distinctive kind of value – inherent value – and are not to be viewed or treated as mere receptacles." [4]

In the excerpt above, many of the statements could be seen as slight variants of the same property (e.g. memory and a psychophysical identity over time), and I will thus group them into the same section, for the sake of simplicity. In the next section, the analysis of these properties will take place with the objective of answering the initial problematic:

Which of the conditions for a being to be a subject-of-a-life are relevant for the ethical considerations regarding the killing of an animal, given the assumptions already detailed? Which one(s) is(are) the most important? Should we add any condition(s) to the ones given by Regan?

*****no suffering or pain is caused to the killed living being nor to others that had him under their "blanket of compassion" (e.g. owner of dog, family relative)

The thesis

Sentience

“An individual welfare in the sense that their experiential life fares well or ill for them [...] an emotional life together with feelings of pleasure and pain” (Tom Regan)

Let us begin with sentience – a property of foremost importance to our discussion and the only one that Mary Anne Warren considers when conferring rights to animals.[5]

Definitions of this term vary across sources. In this thesis, I will take the Merriam-Webster dictionary definition, where sentience is defined as “feeling or sensation as distinguished from perception or thought”.[9] Notice that, according to this definition, sentience only refers to the ability to feel, which is in contrast with reason (the ability to think). In other words, it refers to the ability of feeling a “range of emotion”. In philosophy of the mind, this term is generalized as qualia.

This property has been profusely discussed in the literature. As Jeremy Bentham famously said about this topic:

“The French have already discovered that the blackness of the skin is no reason why a human being should be abandoned without redress to the caprice of a tormentor. What else is it that should trace the insuperable line? Is it the faculty of reason, or, perhaps, the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day, or a week, or even a month, old. But suppose the case were otherwise, what would it avail? The question is not *Can they reason?* nor, *Can they talk?* but, *Can they suffer?*”.[10]

But why is sentience important for our discussion? Let us first agree that subjective experience, specifically the ability to feel a range of emotions, is of upmost importance for our lives. Having this in mind – and going back to our thought experiment – if we suppose Sarah is a fully sentient person, then John’s action of killing her would rob her of a future possibility of “experiencing subjectively”, i.e., of having future sentient

experiences (even if she does not have a sense of future) and that would lead to the conclusion that his action was unethical.

We could claim that the degree to which different animals are able to feel pleasure or pain might vary (continually?) according to their sophistication and thus already claim the existence of a spectrum in the “wrongness of killing”, depending on the degree of sentience of an animal.

To analyse this claim, we must ask ourselves how sentience generated. From our current understanding of life on earth, it seems to require the capacity to sense and process stimuli. However, the mechanisms that transform this into experience are not known. This is precisely the hard problem of consciousness: how sensations/stimuli are transformed into subjective experiences, or qualia.[11]

In his monograph, when asking “which animals are sentient?”, Gary Varner [12] reviewed the literature on pain in animals and compiled a list of properties that animals have to fulfil in order to experience pain, which included “having nociceptors, possessing a brain, having the nociceptors and brain linked, the presence of endogenous opioids, analgesics affecting response of the animal, and the response to damaging stimuli being similar to that of humans”. He concluded that all vertebrates, including fish, probably experience pain, but invertebrates apart from cephalopods probably do not experience pain. Varner used a safe approach: using a hard boundary to infer animal sentience. It is indeed easy to accept that if an animal fulfils all the properties above than he is sentient. However, we do not know how sentience is affected once you remove some of these properties and, specifically, we do not know if removing them creates a continuous “sentience spectrum” or if sentience disappears once you remove one or more properties - precisely because of the hard problem of consciousness.

Varner’s claim is, in fact, based in argument by analogy: if an animal possesses a similar physical and structural response to noxious stimuli to humans, then they are like to have an analogous experience.

We could certainly say that humans are more sentient than mosquitos, because these creatures do not even have nociceptors [12], but once you include nociceptors into the equation, from that point on, it is difficult to make conclusions. Affirmations about sentience in animals become easier again once the animal possesses all the properties in the list given by Wagner, but the intermediary ground of an animal

possessing only some of the properties if very unclear… In this case, I defend that the best option is to give the being the “benefit of the doubt” and abstain from killing.

Someone could also claim that certain emotions seem to be generated spontaneously, without any external stimuli, as is the case with emotion-induced memories or when a problem is solved. Thus, in this case, “exterior stimuli” sensors, such as nociceptors, would not even required. But, I would argue that, for this emotion to be generated, a being already must have had sentient experiences in the past that resulted from a response to external stimuli and be capable of high-level processing which, from a Darwinian point of view, should have evolved as an attempt to understand and interpret external stimuli (to create an adaptive advantage).

I will come back to these remarks in the next section, and discuss them in more detail, since they will be important to discuss how memory and cognition might influence sentience.

In this section we saw the importance of sentience for the wrongness of killing a being, discussed the requirements for sentience and analysed the weather it is possible that sentience comes in degrees (as a spectrum).

In the next sections, we will answer the following important questions:

How do other properties such as memory and a sense of future, influence sentience? Is sentience the only property that matters or does the importance of other properties go beyond their possible influence on sentience?

Memory and Cognition

“Memory**,** and a sense of the future, including their own future […] perception […] a psychophysical identity over time” (Tom Regan)

We will now turn to memory and cognition - I am grouping the two concepts since memory is, in most sources, regarded as part of cognition.[13] Some of the other processes that make up cognition are judgment, reasoning and problem-solving skills. The reason for this grouping is that it makes sense, from a Darwinian standpoint, that these other processes evolved together with memory, since only this way can they

promote present and future adaptation of an individual, which represents an evolutive advantage. Therefore, addressing memory and the other components of cognition separately seemed to be a more complex (but not necessarily more fruitful) approach.

It is important here to consider the different types of memory/learning and how each one is defined. For this, a quick summary on psychology of memory is in place. All the information provided next comes from Michael Eysenck's book "Cognitive psychology: A Student's handbook".[14]

When it comes to its "storage", memory can be subdivided into working and long-term memory. Regarding its functionality, the current psychology standard is to divide long-term memory into explicit (or declarative) and implicit (or non-declarative) memory or learning. One of the arguments for this separation comes from different areas of the brain being active under these two types of learning - in reality, most tasks involve a combination of these two systems.

Explicit memory involves knowing that something is the case and generally involves conscious recollection; it includes memory for facts, people, general knowledge of objects, word meanings (semantic memory) and memory for events (episodic memory). Remembering what we ate yesterday for lunch is an example of episodic memory and knowing what a cat is an example of semantic memory. In other words, semantic memory involves "knowing awareness" rather than the "self-knowing" associated with episodic memory.[14]

Implicit memory influences behaviour but does not involve conscious recollection; priming and procedural memory are examples of non-declarative memory. For example, the word "nurse" is recognized more efficiently after the word "doctor" was shown than the word "dog". So, this type of memory is manifested when an individual's behaviour is affected by a previous series of stimuli (in this case the word "nurse"), even though they are unconscious of it. As an example of procedural memory, consider someone learning how to ride a bicycle. We would expect their cycling performance (a form of behaviour) to improve over time even though they could not consciously recollect what they had learned about cycling. This is our skill-learning ability, i.e., when there is a gradual improvement of performance with practice.

In this thesis, for the sake of simplicity, I will analyse a possible reduction in overall memory/cognition capacity and not of a specific type of memory system (I will still refer to the individual memory systems when considering the effect this reduction), although nothing indicates that the decrease in memory capacity of different animals equally

affects implicit and explicit learning: some animals might rely more on “trial and error” (implicit learning) while others rely more on mimicry, as observed in mimic octopuses.[15] A more detailed analysis would consider the relative importance of the two types of learning.

For this purpose, we might think that Sarah having amnesia could provide us with a good analogy in our attempt to draw a parallel with the Sarah-John situation. However, I do not think this is the case: although amnesic patients have poor explicit learning, they generally have a reasonably intact implicit learning, i.e., they can still learn new information, particularly non-declarative knowledge. This means that some cognitive abilities (as in perceptual identification tasks) can be as intact in patients with amnesia as they are in normal people, which makes them still able to live with quality and, for example, keep good linguistic functions and as sense of humour, as was the case with HM (the most studied amnesiac patient of all time), even though he was described as “forgetting the events of his daily life as fast as they occured”.[14]

Maybe a more suitable approximation would be of if Sarah had a severe cognitive impairment, which would affect her memory capacities - would John’s action be less unethical in this case?

An obvious first observation that comes to mind is that memory induces emotional states and that might be of value in and of itself. Nonetheless, this can be desired or not. Suppose, for example, that Sarah remembers how good it was to meet someone else, such that, in the future, she will try to meet more people so as to maximize her happiness. We could also imagine another scenario in which Sarah was raped in the past and becomes highly traumatized, needing hundreds of hours of psychological therapy to start overcoming this trauma, which had completely taken over her life.

Clearly, we see that memory (in these examples, episodic) can positively or negatively impact one’s quality of life. If Sarah had been raped in childhood, amnesia could come as a blessing, since she would forget about the traumas that negatively impacted her. She might, on the contrary, want to remember the good old times in her home country, before she went to the mountain, since this memory makes her happy. This might be a trivial statement but, nonetheless, an important one for what follows.

It is thus difficult to make general conclusions regarding the actual emotional state of the person at a given moment, which can be positively or negatively impacted by memories. At any point, there will be people who have a better quality of life and others that do not. Moreover, this can be highly variable throughout an individual’s life. Of

course (if it needs mentioning), this variable quality of experience is also observed in other living beings. Lobsters' confidence and mood, for example, works with a balance of serotonin [16], similar to that of humans. When they win a fight, their levels of serotonin increase and when they loose one, they drop dramatically. Human anti-depressants work to make them more confident again (and engage in new fights for territory). These mechanisms seem to be ancient, which makes sense, given that they evolve through a slow Darwinian process.

Instead, it makes more sense to address how memory and cognition affect sentience, i.e., the range of emotional experiences of a being. We could then argue that if a being is less sentient, then it is less unethical to kill him. Note that this might not be the case once you put consent and future goals of the being at play, since these future goals might not be directly related to their range of experiences (e.g., a being can prefer knowing the truth to a state of well-being), as will be detailed later.

So, can we affirm that a decreased capacity for memory/cognition, decrease the possible "range of experience" of a being? Can we have sentience without these capacities?

This question is very difficult to answer: sentience is a subjective experience and hard (or impossible) to measure. Philosophically, it is not difficult to imagine the case of a being with very reduced memory/cognition capabilities, but which was still able to feel the same range of emotions. As was mentioned in the previous section, as long as that being can sense external stimuli (possesses nociceptors), we do not know how emotions generate from these stimuli – this is the hard problem of consciousness.[17] There might be cases of beings with capable nervous systems, but no memory-forming or cognitive abilities whatsoever. This means that we cannot say that a being with very few memory/cognitive capabilities would necessarily not be (almost) as sentient as a normal human being.

In fact, scientists usually measure other properties such as memory and infer sentience from them, without claiming that that if a being does not possess a certain property, then he will not be sentient.

Scientists such as Richard Dawkins (see [18]) have even argued that it is possible that animals are able to feel more pain than humans, given that their reduced cognitive capability might imply that they need a bigger stimulus in order to avoid dangerous

situations. For example, if a small child gets an electric shock when they touch the electrical socket, they will most likely figure out immediately the cause of that shock and deduce rapidly that if they touch it again, they will probably get another one. An animal, however, with less cognitive capabilities could not learn as fast to not approach their predator's territory. Therefore, evolution might have provided them with a higher capability to feel pain such that they learn faster, since they cannot indulge in human-level thinking. It is not difficult to deduce that it is also possible that some animals can feel more pleasure after rewards than we can, since they would need a bigger stimulus in order to "learn" more quickly to repeat those actions which might be, for example, advantageous for the species survival.

In summary, we do not know if Sarah could experience the same range of emotions as a normal human being, even if she had very poor memory/cognitive abilities and thus could not understand or comprehend these emotions. Her experience would certainly be less complex but memory might only affect emotion intensity at any given moment, but not its range (sentience).

Hence, we can state that a lower level of cognition might not lead to a reduced range of emotional experience, as long as the animal possesses nociceptors. Indeed, in this thesis I cannot affirm something about the relationship between lower memory-processing/cognition and sentience. But, the following statement can be made:

If a lower memory capability reduces sentience, then it is less unethical to kill a being with that condition.

Note that it might be argued that animals can feel as much pain as normal human but not pleasure, thus relegating their life to a constant avoidance of pain. However, this does not seem to be a founded claim. From a Darwinian perspective, it does not make sense that only humans can have feelings of well-being. Going back to our lobster example, how could we say that high levels of serotonin in lobsters cannot generate a feeling of well-being in those creatures, as well? I think we cannot….

Up to this point we only spoke about how memory and cognition might influence the current experience of a person as well as sentience. But another question should be addressed:

Is memory/cognition importance only restricted to its possible influence on sentience?

No, since memory and cognition introduce a new, distinct, layer from sentience: perception. This allows for one more degree of freedom – the ability to identify, categorize and understand experience. Indeed, memory is inevitably associated with learning and our comprehension of reality which in turn has a tremendous impact on our life experience.

So, putting the (possible) influence of memory and cognition in sentience aside, we now have the following two scenarios: in both, Sarah is as sentient as a normal human being, but in one of them she possesses a much lower level of cognition and memory (if that is possible). Is it less unethical for John to kill her? I would argue that yes, claiming that the new layer of perception introduced by memory and cognition does have an importance beyond sentience to our question.

To see this, let us imagine what it would be like if Sarah had very little or no cognitive/memory abilities. Without these abilities, she would have no type of control over experience, due to her lack of perception and, consequently, no intentional action would be possible; she could not have any grasp of concepts, since semantic, explicit, memory would be necessary for that; she would not remember faces or places, since that would require episodic memory; she would not be able to develop skills over time (even unconsciously), since that would require procedural memory. Even the ability to walk would be questioned; she would be, most likely, almost reduced to a newborn, with no hopes for improvement and in a state of constant confusion, i.e., reduced to an ephemeral state machine with a complete lack of self-continuity or cognitive feedback; she would have no self-recognition (as is the case of children up to one year old), no “psychophysical identity over time” (one of the conditions given by Regan). The existence of a moral agent is put in question and it would be difficult to talk about any kind of consciousness. For all of these reasons, Eysenck mentions that “If we could not remember past events, we could not learn or develop language, relationships, nor personal identity”.[14]

In summary: a non-existence of memory puts everything that makes up "life" in question. It is of crucial importance.

Moreover, without memory and cognition, Sarah would have no possibility to plan into the future. Shettleworth writes (see [19]): “Episodic memory, like other memory, evolved not for idle reminiscence about the past but because it promotes adaptive action in the present and future”. Indeed, memory is necessary to have some control over the present, create and pursue future goals. This last case is tightly related to a having a sense of future, goals and desires, which we will cover in the next section.

Sense of future and ability to plan into that future

“Memory**,** and a sense of the future, including their own future” (Tom Regan)

Let us consider now consider a sense of future**.** Philosophers like Peter Singer give much relevance to this property: “If you are just focused in the wrongness of killing a being, if a being has the capacity to plan their life into the future, and you kill them without their consent, you are doing them a wrong, which is arguably a greater wrong than you could do to some other animal that does not have that capacity.” [20]

Now, there is a lot to unwrap in this sentence, so I will come back to it. Here, Singer poses two distinct conditions: the capacity to plan into the future and the lack of consent. The lack of consent will be discussed in a later section. For the moment, we focus on the first.

Note that the statement mixes two of the properties mentioned by Regan: One is “having a sense of future, including their own future” and the other being the ability to plan into that future, that is, having “goals and desires”. Note that the first property is difficult to isolate from the second: if a being has a sense of future, they will most likely have goals and desires for that future. For now (and the sake of simplicity), I will again consider these properties together. Once again, from a Darwinian point of view, this is plausible: a sense of future only together with ability to plan into the future can promote adaption. However, in a further analysis, it would still be interesting to answer our question for the case of a being that had a sense of future, but not the ability to plan into that future.

Concluding the initial remarks on Peter Singer’s statement, note that he does not assert that it is unethical to kill a being only if he has the capacity to plan into the future but that, by doing so, you would do a greater wrong than if the being did not have the

capacity. So, he opens up the possibility of this action still not being ethical when performed on individuals who do not have this capacity.

I will start by defending Peter Singer's claim: if a living being does has a sense of future, including their own future, and has goals and desires for that future, then killing him is unethical. Using a similar argument as was used for sentience, we can state that If Sarah has a sense of future and the capacity to plan into the future, killing her would rob her of the opportunity to achieve those goals. As Regan mentions: "any creature whose natural mode of life includes the pursuit of certain satisfactions has the right not to be forced to exist without the opportunity to pursue those satisfactions".

Although the relationship between memory and sentience was unclear, in this case, a sense of future and the ability to plan into the future does not really seem necessary for sentience, possibly given that memory and cognition are present. There is nothing very special about having a sense of future that would imply that a being could not be sentient without this property: memory and cognition already provide all sufficient resources for a being to be sentient (and, as mentioned, it is not even clear that these are required for sentience). This will be clearer once I make the "Buddhist monk approximation" further ahead. On the other hand, sentience and memory/cognition seem necessary to have a sense of future: our goals are based on our past sentient experiences, explicit and implicit memory, so it is very hard to envision a scenario of having the ability to plan into the future without sentience and memory. Once again, scientifically, it makes sense that these properties evolved together to maximize survival, so it might be more of a philosophical exercise to consider these properties separately. In a similar fashion to what we did in the case of memory, the question to answer now is:

Is it really a greater wrong killing a being that has a sense of future and can plan into the future than killing a being who does not have that capacity but is as sentient and cognitively capable?

The Buddhist monk approximation

To answer our question, we can approximate the case of a being that is as sentient and cognitively capable as a human, but who does not have any goals or desires for the future, by a Buddhist monk. Consider Anapanasati - a form of Buddhist meditation

where the meditator focuses solely on the present breathing and bodily sensations.[21] People who practice this meditation can achieve tremendous capability to experience the present with an ego def and without being stuck on ideas related to the past or future.

Imagine Sarah is a Buddhist meditator, only living in the present, without caring about the past or future. Memory and sentience would be necessary for her to be fully aware of experience. We could suppose that she does not have any desires or goals and does not plan into the future, whatsoever. This is an approximation with an error, of course - we could say that Sarah has, at least, the goal of continuing her meditation practice. Having in mind that this is, in fact, an approximation, we can ask the question: would it be less unethical to kill Sarah in this case? I would say no, since she would still be capable of having a present experience as rich as a normal human. In fact, there are moments in which we are totally absorbed in the present. Sometimes, these are the best times of our lives: in these moments, we are not planning or thinking about the future; simply being. This mindfulness of the present and letting go of desires is a desired characteristic in several cultures and religions such as Buddhism.

So, I would say that the importance of this ability is, in fact, very minor. But is it important at all? In the previous section, we stated that memory is necessary for perception, introducing a new layer/degree of freedom: the identification and understanding of stimuli. A sense of future and ability to plan into that future introduces yet another degree of freedom: It is necessary to be able to gain more control over experience (even if to keep it the same), i.e., to change (or not) our current state of experience or that of others. Not being able to plan into the future, prevents us from choosing to change (or not) the current situation.

We could argue that this ability is not real and that we are, in fact, powerless to choose our future actions (lack of free-will). However, for the purpose of our question, even if there is no free-will, the illusion is sufficient: what matters is the subjective experience of a being.

Concluding, we can state that there is an added importance in the capacity to have a sense of future and planning into that future due to the introduction of yet another degree of freedom, but it is far smaller than the importance of sentience or memory. Without any of these, life would be put into question. This brings us to the next formula.

A proposed formula for the wrongness of killing a being

Next, I will present a formula that summarizes our discussion up until this point on the wrongness of killing a being. Note that it just serves for this purpose: it is, by no means, a correct quantitative calculation, but has an arbitrary nature. Notice also that we consider the terms as independent, so the considerations regarding the possible influence of memory and cognition on sentience are not expressed by this formula.

$$WK = \frac{S.M.(1 + 0.2F)}{1.2}$$

$$M, S, F \in [0,1]$$

Above, WK is the wrongness of killing, M is memory/cognition, S is sentience, F is sense of future/planning ability. The constant 1.2 in the denominator seems arbitrary, but it just serves to normalize the expression such that when M, S and F are 1, the maximum wrongness of killing is maximum.

Let's look at some extreme cases for this expression. If either memory/cognition M or sentience S are zero, then the wrongness of killing a being is zero. This is in line with our argument that the concept of life itself is put in question when either memory/cognition or sentience are non-existent. Maybe we could also consider adding a bias to the memory term so that, when M is zero, the wrongness of killing is greater than zero, but very small (given that a being is sentient – and assuming we can even have sentience without memory and cognition).

Let us take now M=1, S=1 and F=0, i.e., exactly the case of our Buddhist monk approximation of a being who is fully sentience and cognitively capable but does not have a sense of future. Then, according to this formula, the wrongness of killing is 0.83. As we said, there is an importance of being able to plan into the future, but it is not comparable to the importance of memory or sentience. Note here, that there is no implied suggestion that killing Buddhist monks is less unethical that killing another person: the case of a Buddhist monk, who still (of course) has a sense of future, was only made as an attempt to provide a human analogy for this specific case and to

precisely demonstrate that this property is of very minor importance for our question, when compared to sentience of memory and cognition.

Finally, if we take the case of a normal human being, M=1, S=1 and F=1, then the wrongness of killing has the maximum value of 1.

Further questions

"Preference- and welfare-interests" (Tom Regan)

Another detail is up for consideration: the possibility of defining goals might condemn our decision on the ethical considerations of killing a being based on his possible "range of emotion", i.e., sentience. As an example, some people might value more truth over a positive experience - take the case of a hedonic machine. This is virtual machine that would allow you to do whatever you envisioned and a highly pleasurable life. However, all of it is a simulation. Nonetheless, if you entered the machine, you would not know that this was the case, since it would feel just like real life (only much better). Some (or most) people might still choose not to enter. This would mean that they value truth more than a very good quality of life or that they even prefer having a smaller range of experience to living inside a simulation.

So, here we see how the value of memory goes beyond its possible effect on sentience to take a part in people's goals and values. I would not say it is less unethical to kill someone because they choose to work for the pursuit of truth instead of happiness (or experiencing a full "range of emotion").

Another goal of this type is the goal to live, or consent. It could be argued that, independently of the several suppositions made about Sarah, only the fact that she didn't actively consent to being killed, makes immediately John's act immoral. If a being does not consent to being killed, then this would certainly devalue the importance of other properties. In a similar fashion, if a being consents to being killed (e.g., medically-assisted suicide), then killing him would certainly be less unethical than killing a being that chooses to live. Some would even say that it would be an ethical action to abide by the being's judgment. This concerns euthanasia and is vastly studied and difficult topic in the philosophical literature. I will not pursue this line of thought further in this thesis, since consent is difficult to transpose to the case of

animals, given that they cannot clearly actively indicate to humans that they do not consent to being killed.

Having this in mind, note, however, that memory is necessary to achieve the goal of finding the truth or of consenting and this already implies having an understanding of truth (given by semantic memory) or self-recognition and, therefore, a high-level reasoning, which, in reality, would imply that the being is sentience.

"Ability to initiate action in pursuit of their desires and goals" (Tom Regan)

Note that it is very interesting that Reagan adds to having goals and desires the ability to act upon them. Another question can be asked: what if we have desires or goals, but not the ability to reach those goals? Is it less unethical to kill animals that they have less opportunities/possibilities in this world than humans? Imagine that Sarah was handicapped: would this change our answer? Well, I would say this is a non-question since, usually, the goals and desires of a being are adapted to their reality and, on the other hand, non-human animals have capabilities that we do not have, i.e., they are capable of reaching goals that we cannot. The same way it is not less unethical to kill a person that wished to fly, simply because they cannot do that is highly unethical. Similarly, killing an octopus simply because they cannot do physics would also seem immoral.

Concerning this, it is interesting to note how the levels of happiness of a handicapped person seem to approach those of a "normal" person after some time and similarly to a person who wins the lottery. This is actually the basis of Michael Eysenck's Hedonic treadmill: observed tendency of humans to quickly return to a relatively stable level of happiness despite major positive or negative events or life changes.[22] This supports the "adaptation of goals" idea which is facilitated, in the case of a human, by the fact that he/she never knew what it is like to fly or, in the case of an octopus, by the fact that he never knew what it was like doing physics.

Finally, it would be interesting to analyse another property that is not mentioned by Regan but which vastly discussed in the literature: the ability to produce language. We could ask ourselves: is it language that influences perception, i.e., does the creation of words influence our experience of the world (linguistic determinism) of is it the other

way around, i.e., do we make up language, according to our needs, in order to describe what we perceive.

To answer this question, consider that a society of people with less memory ability would necessarily have a more limited experience of the world, and thus would possess a smaller vocabulary. But the smaller vocabulary does not, indeed, seem to be a problem in of itself with respect to experience/perception. The following famous experiment was conducted: “The Dani people of New Guinea have only two words for describing color: *mili* and *mola*. *Mili* is representative of cold or dark colours and *mola* represents warm or light colours. If linguistic determinism holds true, then it’s reasonable to think that the Dani people will not be able to make detailed distinctions between colours like we do. They should only be able to distinguish them as dark or light, right? Well, the studies show that the Dani people can make distinctions between different colours just fine, despite not having terms for them.[23][24][25]

Non-human animals and Regan's conditions

Having analysed the different properties given by Regan and evaluated their relative importance (formula on the wrongness of killing), it now comes to verifying how the different properties are manifested in non-human animals.

The scientific consensus seems to be in favour of animal sentience. Darwin, for example, recognized sentience as "an essential feature of evolutionary fitness and believed it to be widespread in the animal world".[26] With respect to consciousness in animals, an important statement was made in the Cambridge Conference of Consciousness in Human and non-Human animals, in 2012:

"On this day of July 7, 2012, a prominent international group of cognitive neuroscientists, neuropharmacologists, neurophysiologists, neuroanatomists and computational neuroscientists gathered at The University of Cambridge to reassess the neurobiological substrates of conscious experience and related behaviours in human and non-human animals. While comparative research on this topic is naturally hampered by the inability of non-human animals, and often humans, to clearly and readily communicate about their internal states, the following observations can be stated unequivocally:

[…]

We declare the following: "The absence of a neocortex does not appear to preclude an organism from experiencing affective states. Convergent evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviours. Consequently, the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness. Nonhuman animals, including all mammals and birds, and many other creatures, including octopuses, also possess these neurological substrates." [27]

Similarly, Gary Varner concluded, after reviewing the literature on pain in animals, that all vertebrates, including fish, probably experience pain, but invertebrates apart from cephalopods probably do not experience pain. [12]

Regarding memory capabilities in animals, it was observed that channel catfish can remember the human voice call announcing food five years after last hearing that call and goldfish have been shown to remember the colour of a tube dispensing food one year after the last tube presentation.[28]

Concerning other types of cognition processes, such as tool use, it has been observed, for example, that wrasses (a type of fish) hold bivalves in their mouth and smash them against the surface of a rock to break them up. [29]

In the bird world, it has been documented that hummingbirds optimize their foraging by keeping track of the locations of good and bad flowers.[30] Studies of western scrub jays also suggest that birds may be able to plan ahead (i.e., may have a sense of future and ability to plan into that future). They cache food according to future needs and risk of not being able to find the food on subsequent days.[31]

These are just some examples of how animals have been shown to fulfil different properties. Many other examples can be found in the animal cognition literature.

Do we need to consume animal products?

It is important to note that our discussion would be very different if humans actually needed to eat animals for survival, since this would create major practical conflicts with non-human animals, which would necessarily influence our discussion.

Fortunately, this is not the case. The American Dietetic association states “It is the position of the American Dietetic Association that appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate, and may provide health benefits in the prevention and treatment of certain diseases. Well-planned vegetarian diets are appropriate for individuals during all stages of the life cycle, including pregnancy, lactation, infancy, childhood, and adolescence, and for athletes”.[32]

Conclusions

In this thesis, I tried to answer the question of which properties of living beings (specifically, non-human animals) were important for the ethical considerations of killing, given that the being was free during his/her lifetime ("welfarist" assumption).

A first conclusion was that there is a limited interest in isolating properties, since they greatly influence each other, due to the fact that most of them emerge together, thus providing, in combination, an evolutive advantage.

My conclusions were summarized in a "formula for the wrongness of killing". I concluded that sentience and memory/cognition were the most important properties - the non-existence of any of these properties would not make it unethical to kill a being. The possible influence of memory and cognition in sentience was analysed but a conclusion was not reached: the problem was reduced to the hard problem of consciousness. I also concluded that memory/cognition had an added value, apart from their possible influence on sentience, due to the introduction of perception/understanding (a new, very important, degree of freedom).

A sense of future and ability to plan into the future was deemed as a minor property when compared to sentience and memory/cognition and this was patent in my Buddhist Monk approximation. Nonetheless, it also gave rise a new degree of freedom that had to be taken into account in the formula.

Two further observations were made: once consent and other goals, not related to "feeling a range of emotions" are put into play, there is a devaluation of other properties and that, most likely, goals are adapted to the being's reality.

Finally, it was shown how several properties discussed above were present in birds, fish and mammals and that there were no major practical conflicts with animals related to our need to eat them to survive.[32]

My final stance on this subject will be in accordance to Varner's list [12]: it is not ethical to kill all vertebrates, most fishes and some cephalopods such as octopuses for food. In the uncertain cases, the benefit of the doubt should be given and abstinence from killing should be put into practice. In fact, for the question that I proposed in this thesis, we do not have to agree that animals have the same value as humans do, but simply ask if the value of an animal's life is greater (or not) than the

pleasure of our taste buds. I would argue that the pleasure we get from eating animals does not superimpose (in the cases of fish, mammals and birds, and some cephalopods such as octopuses) to our moral obligations towards them.

References/ Bibliography

[1] "*Top Trends in Prepared Foods"*, 2017*,* <https://www.reportbuyer.com/product/4959853>

[2] "*Free-range poultry meat market share in the Netherlands from 2010 and 2016"*, <https://www.statista.com/statistics/705268>

[3] Steiner, Gary; Lengauer, Erwin; "*Animal Ethics topic summary*", https://philpapers.org/browse/animal-ethics

[4] Regan, Tom; 1983, *The Case for Animal Rights,* University of California Press.

[5] Warren M. A.;1977, "*Moral Status: Obligations to Persons and Other Living Things"*, Oxford: Clarendon Press

[6] Simmons, Aaron; 2005, "*A Critique of Mary Anne Warren's Weak Animal Rights View"*

[7] Thomas Nagel; 1974, "*What is it like to be a bat?",* The Philosophical Review. **83** (4): 435–450.

[8] Regan, Tom; Singer, Peter; 1989, "*Animal Rights and Human Obligations*", Cambridge

[9] <https://www.merriam-webster.com/dictionary/sentience>

[10] Bentham, Jeremy; 1823, *Introduction to the Principles of Morals and Legislation*, Second edition, chapter 17.

[11] Chalmers, David; 1995, *"Facing up to the problem of consciousness*", Journal of Consciousness Studies*.* **2** (3): 200–219.

[12] Varner, G.E.; 2012, *Personhood, Ethics, and Animal Cognition: Situating Animals in Hare's Two Level Utilitarianism,* Chapter 5, Oxford University Press, Table 5.2, page 113.

[13] https://www.collinsdictionary.com/dictionary/english/cognition

[14] Michael W. Eysenck, Mark T. Keane; 2010, *Cognitive Psychology*, Psychology Press

[15] *"Mimic Octopuses, Thaumoctopus mimicus*", January 14, 2013, MarineBio, MarineBio Conservation Society, Archived from *the original* on October 25, 2007*,* Retrieved December 17, 2014*.*

[16] Huber, Robert et al.; May 27, 1997, *Serotonin and aggressive motivation in crustaceans: Altering the decision to retreat,* PNAS, 94 (11) 5939-5942

[17] Chalmers, David; 1995, *"Facing up to the problem of consciousness*", Journal of Consciousness Studies*.* **2** (3): 200–219.

[18] Dawkins, Richard; "*No Civilized Person Accepts Slavery, So Why Do We Accept Animal Cruelty?*", <https://www.youtube.com/watch?v=_4SnBCPzBl0>

[19] Shettleworth SJ. Cognition, Evolution, and Behavior. 2 Edition. New York: Oxford University Press; 2010

[20] Singer, Peter; "*The Genius of Darwin: The Uncut Interviews"*, Richard Dawkins Foundation for Reason and Science
University Press.

[21] *"Ānāpāna"*, The Pali Text Society's Pali-English Dictionary, Digital Dictionaries of South Asia, University of Chicago.

[22] Rosenbloom, Stephanie; August 7, 2010, *"But Will It Make You Happy?*", The New York Times.

[23] Darwin, Charles. *The Descent of Man and Selection in Relation to Sex*. London: J Murray, 1871.

[24] Pinker, Steven; *The Language Instinct,* Penguin, 2015

[25] Freedom in thought; "Can you think complex thoughts without language" <https://www.freedominthought.com/archive/can-you-think-complex-thoughts-without-language-1984-george-orwell>

[26] Birner, Betty; *"Does the Language I Speak Influence the Way I Think?",* Linguistic Society of America

[27] Low, Philip; Panksepp, Jaak; Reiss, Diana; Edelman, David; Van Swinderen, Bruno; Koch, Christof; 7 July 2012, "*The Cambridge Declaration on Consciousness*", University of Cambridge.

[28] Reebs, S.G.; 2008, *Long-term memory in fishes*.

[29] Coyer, J.A.; 1995, "*Use of a rock as an anvil for breaking scallops by the yellowhead wrasse*, *Halichoeres garnoti* (Labridae)", Bulletin of Marine Science 57: 548-54

[30] Healy, S. D., Hurly, T. A.; 1995, "*Spatial memory in rufous hummingbirds (Selasphorus rufus): a field test"*, Anim. Learn. Behav. 23, 63–68

[31] R. Raby, D. M. Alexis, A. Dickinson, N. S. Clayton; 2007, "*Planning for the future by western scrub-jays*", Nature 445, 919–921

[32] "*Position of the American Dietetic Association: vegetarian diets*", 2009, J Am Diet Assoc. Jul;109(7):1266-82.