Review

Recognising Mental Aptitudes That Accompanying Sentience and the Repercussions for Human Exceptionalism and Moral Obligations, Illustrated by a Cows Concerns About Death

Marthe Kiley-Worthington *

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Recognising Mental Aptitudes That Accompanying Sentience and the Repercussions for Human Exceptionalism and Moral Obligations, Illustrated by a Cows Concerns About Death

Marthe Kiley-Worthington

Independent Researcher; marthekileyworthington@gmail.com

Abstract

Today, in many countries mammals are recognised as sentient in law. The question addressed here is: "is a cow's death considered by her similar to how I perceive mind, where is it similar and where different?" It is pointed out how sentience is a necessary requirement for many mental attributes including learning, memory, acquiring knowledge and beliefs, having experiences, consciousness and self-consciousness, having a social contract, communicating, knowing others intentions (theory of mind), and being a moral agent. Some of these mental attributes have and still are considered unique to humans. Therefore, recognising sentience necessitate a re-examination of humanism and human exceptionalism. On re-examination, the fundamental human exceptional skills are bipedalism (which allows developing elaborate manipulative skills) and a context independent language. The mixing and merging of these two skills have given rise to the sciences and religions. By understanding the implications of sentience and recognising the resulting mental similarities between humans and cows, and where their differences really are. it is possible to assess the cows or any mammals, concerns about how she lives and dies and our moral obligations to each other and the world. Each species has an exceptional ontology which ways which can be assessed by careful study. The Anthropocene demands that we al-so take careful account of the environmental effects of the life and death of cows and humans to fulfil our moral obligations.

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1. What Mental Attributes Are Required for Sentience?

The attribution of sentience to mammals means that non-human subjects feel and have emotions. Because emotions have entanglements with other mental attributes, recognising mammalian sentience has repercussions on other mental attributes.

Sentience is not an "add on" to other intellectual abilities, rather, sentience often enables them and is the glue that sticks them together (e.g. [1]. Paul and Mendl 2018, [2] Kiley-Worthington 2019 [3] Kremer et al 2020). We examine how this occurs with mental attributes some of which have been considered unique to humans. First, sentient Mammals of which we are one, have many common physical (e.g. [4] Young 1950) and mental attributes (e.g. [5] Kiley-Worthington 2017, [6] Zentall 2023) which define mammals. These are:

1) All sentient mammals try to avoid feeling negative emotions such as fear, terror, panic, anxiety and prolonged frustration. There is behavioural and neurophysiological evidence that all mammals suffer fear and terror. Humans' moral duty to sentient mammals is therefore to avoid them experiencing these emotions during their life and death. To do this it is necessary to know when they may be suffering by reviewing how emotions and feelings are embroiled with other mental attributes.

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2) All mammals have an innate tendency to learn in similar ways. A tacit understanding of this is illustrated by how rats learning is applied to humans (e.g. operant conditioning (e.g. [7] Leeder 2022), the discovery of latent learning, cognitive processes, spatial learning (e.g. [8] Horne 2012) and cognitive maps (e.g. [9] Tolman 1948)) even though species and individuals differ in what they learn (e.g. [10] Paatucci et al 2018).

3) Voluntary learning does not occur unless there is a motivation to drive a behaviour towards a goal. Motivation is an emotion, and without it no mammal can learn a voluntary action: "motivation is fundamentally a strong want or desire that acts as the driving force, or "energy," to start, guide, and sustain goal-oriented behaviours," (Google 2025).

4) All sentient mammals must acquire knowledge and understanding. In the process of learning, all mammals acquire **knowledge,** defined as: "facts, information, and skills acquired through experience or education; theoretical or practical understanding…. Understanding is the key to knowledge". (Google 2025).

All mammals acquire knowledge and understanding by operant conditioning, trial and error, social learning, observation, imitation and latent learning, thus every sentient mammal, domestic or wild, becomes a **natural ecologist** because s/he learns about where s/he lives, what to eat, where and when to find food, shelter, water, how to find her way around; even when s/he is kept in intensive husbandry systems, although the knowledge and understanding s/he has differs.

5) Sentient Mammals must acquire beliefs: "an acceptance that something exists or is true, without proof and held with various degrees of certainty" (ibid.).

The cow believes that if she goes into the milking parlour she will be given food, because she has learnt this…. But it is possible that she does not receive food, or has a bad experience, like slipping on the concrete. Next time, s/he may not enter the parlour readily, because her belief has been modified and its degree of certainty changed

6) Instrumental or Operant learning requires a memory. Since all mammals learn, they have memories. Memories change within and between individuals either when acquired, or when replayed, because what individuals pay attention to and how they combine experiences and thoughts varies, that is "the truth" or "reality" varies between individuals.

7) Sentient mammals must have some Imagination. When memories change are added to or recombined in different ways, it is an "imaginative truth"; that is "I**magination" is: "** the mind's powerful ability to form new ideas, images, or concepts not present to the senses, blending memories and feelings to create novel experiences, solve problems, envision possibilities, and drive innovation, essentially allowing us to conceive of what isn't real to understand and shape what is real. It's fundamental to creativity, going beyond simple perception by generating internal mental worlds." (AI Google).

Differences in lifetime experiences, memories and sensory abilities may be "imagination" to one, but to another "the way it is", but this does not mean that they can write science fiction stories.

8) Normal alive mammals, when awake, are conscious of the world around them, and respond to it. What Consciousness is and whether nonhumans have it, has long been debated (e.g. [11] Peper 2020), and some argue it does not exist (e.g. [12] Dennett 1993). But, an awake mammal *is* awake and aware/conscious of the world about him; so, unless authors mean something quite else by "consciousness", these debates range towards the farcical. In 2012, a group in Cambridge UK decided that nonhumans must have this obvious mental attribute and are conscious ([13] Francis Crick Conference 2012).

9) Mammals are also conscious of themselves: "self-conscious". One of the particular altercations around consciousness are backed by some curious influential experiments (e.g. [14] Gallop 1968). As a result of these, it has been concluded that only great apes, elephants and some cetaceans are "self-conscious" ([15] de Waal, [16] Poole et al., 2023 [17] Reiss 2001). This, despite the well-known fact, for example, that when in pain, **every mammal is aware of his/her pain and where it is in his/her body** so must be **aware and conscious of him/herself** (see also [18] Kohda 2025).

Whether non-human mammals are "reflectively conscious", that is do they cogitate about themselves and their purpose in life, we do not know, but there are many humans who do or cannot

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do this, yet are still considered to be "reflectively conscious". Today, is a subject of considerable debate (e.g. [19] Marulis 2025)

10) Learning, conscious beings must have experiences. These are "conscious events, perceptions, and practical knowledge acquired through personal involvement in events or situations" (ibid).

Individual experiences differ; they are private personal affairs that no other can actually feel or experience exactly the same way (e.g. [20] Wittgenstein 1988 & [21] Skinner 2014), although we can make guesstimates what another might be feeling, even if each individual is a unique subject in the world.

11) Every sentient mammal has a unique personality. Each of our combined body/brain "beings" is the result of the species and the individual's genetic components, their personal knowledge, experiences and beliefs, so all sentient mammals must be individual subjects and have unique personalities.

12) Sentient learning mammals are rational. When any mammal performs a voluntary act, a rational decision has to be made: **IF this then THAT** should follow. All mammals make rational choices based on their expectations, beliefs and knowledge. The type, complexity and the degree to which this rational thinking and decision making occurs, varies between individuals and species. "Rationality" has been wrongly attributed only to humans.

13) Sentient mammals who must have these mental attributes "consider" and make "judgements" and can be "uncertain". Since mammals make decisions and choices they must consider and make judgements and have a **"what if"** uncertainty. The cow who slips on the concrete going into the parlour "considers" before she goes in and is "uncertain" whether to proceed or not. To make the "rational decision", she gathers further information, and "judges" if the concrete is dry, wet or icy before she makes a "decision" and "chooses" to enter, or not.

14) Sentient mammals can make plans, that is they must have some idea of the future as well as what has happened in the passed from memories. The cow is "planning" something like "the food will come soon, therefore I will get close to the feeder, but, I remember that last time it came, the man hit me when I got close, so I will stay a little further away than I did before"; she is not planning this in words, but has "ideas" about the passed and the future.

15) Thinking, and having ideas is the way in which different emotions, experiences, beliefs and other mental attributes combine. Since every species of sentient mammal is different, it is done in different ways. Every sentient mammal "thinks" even though we do not know much about how or what they think about (e.g. [22] Lea and Kiley-Worthington 1996), but a study of the ontology of different species and individuals, allows some reasonable guesstimates

Human "thinking" is usually considered to be done in human verbal language, combining beliefs, knowledge and experiences in areas of the pre-frontal cortex such as the Brocas and Wernickes areas. These areas exist in the pre-frontal cortex of every mammal (e.g. [23] Carter et al 2006), and must have some function. The function "thinking" depends on the sensory abilities, mental aptitudes, beliefs, experiences, knowledge, body, habits and subjectivity of individuals ([6] Zentall 2023). For example, large herbivores are very visual aware and likely to prioritise the interpretation of visual information, where as humans prioritise verbal language and can be less aware of their surroundings. Normal adult dogs are visually aware, but they also have an exceptional olfactory consciousness, at present outside human understanding.

But each individual of any mammal, if s/he spends enough time with another of her own or another species, will gain experiences, knowledge and understanding from the other and might change some of his/her "thinking". For example, dogs, equines and cattle can learn to listen and learn the meaning of words and phrases that humans use, not just its emotional content. Humans, if they spend enough time with dogs, equines, sheep or cattle can begin to "think" a bit like them; more conscious of their differences and similarities of being. We are a long way from understanding how or what any other species "thinks" and what "ideas" s/he may have, but we can learn, as they can learn about ours.

16) Recognition of the difference between an animate and an inanimate object. All adult normal mammals treats a rock differently from another living being and aware when an animate

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being becomes inanimate; that is dead, because it no longer responds; with these mental attributes, minded normal adult mammals learn the difference between an "animate": a minded alive individual with feelings, and an "inanimate" one, that is a non-minded or dead …. One without feelings.

17) Accompanying these general mammalian mental attributes, are species unique mental skills. Humans are best at being humans; rats or cows best at being rats or cows. They all have mental similarities but also differences. Unfortunately, to date, we have usually only compared their mental aptitudes to humans, rather than investigating their own species ontology. We do know however, from mammal species whom we have much to do with (e.g. dogs, cats, horses, elephants, cattle) that other species are able to learn a considerable amount about human ontology and learn to understand some of their languages.

18). Every mammal is also a social being, that is: "an individual who has power and resources ……and has a social role". (ibid). Mammals are social from birth when the mother and infant must interact for the infant to suckle and survive (e.g. [24] Midgley 1978).

Social, sentient beings have general social mental attributes which are: **a) To live in a group sentient mammals must have a social contract** The social contract is defined by rules (e.g. [25] Rousseau 1762). These rules are learnt and vary according to 1) the species, and 2) the environment. Since each individual has to learn the rules, s/he becomes a good or bad **natural psychologist** by acquiring information concerning others sex, age, individuals personality and role in the group so s/he can read and predicts others intentions.

Details of the social contract differ between groups in different environments; it is these differences that define the group **culture** (e.g. [26] Bonnor 1980, [27] Brakes et al 2025).Different cultures exist in all species of mammal societies which have so far been studied (e.g. [28] Cantor & Whitehead 2013, [29] Kiley-Worthington 2005).

b) To live in a group, know the rules and communicate every mammal must be a moral agent, because each can choose to obey, that is **do right by the social contract, and know it, or do wrong by not obeying the rule** and suffer the consequences (which can be to be thrown out of the group).

Some fundamental general mammalian social rule are: "do not kill infants of your own species", "court females if you wish to mate", "watch others and learn the appropriate behaviour", and "do not aggress another unsolicited". The rules may include learning about the "dominance hierarchy", (a human conception of societies organisation which has been widely and sometimes inappropriately, applied to many species of mammals) and all mammals learn the role of other individuals in their society.

There is discussion concerning what constitutes moral agency, other than the ability to use human language. It has been argued that unless "empathy and compassion" (e.g. [30] Ueno et al 2018) , "shame" or "guilt" are displayed, no sentient being can be a moral agent (e.g. [31] Hanoğlu 2021), This is however irrelevant (e.g. [32] Biscoff 2022) because if the individual knows the rules of the society s/he lives in, s/he knows the consequences of doing right (obeying the rules) or wrong (disobeying the rules) and is therefore a moral agent.

c) Social mammals must be aware of others' intentions because they communicate. If they are aware that others have intentions, then they have a **"theory of mind"** that is: ***recognise that others have feelings and intentions and a mind to have them with.*** For example, Daisy the cow, knows she has approached too near Buttercup, because Buttercup swishes her tail and turns her head towards Daisy that is threatens her not to come closer, or s/he reads that Buttercup is friendly today, and extends her head towards her and moos quietly showing intention to be amicable. But both Daisy and Buttercup can also make mistakes and misinterpret. Mistake making is another example of "mindedness", not instinctive "robotidness".

This "mindedness" has been denied non-human mammals (with the exception of some apes, elephants and cetaceans (e.g. [33] Terrace & Metcalf 2005, [15] de Waal 2016). But, if an awareness of others' minds and intentionality is denied, then social life is also denied since individuals will not recognise or communicate desires and feelings, have a social contract or know what it is.

Social play is where "mindedness" and a "theory of mind" is very apparent and it is engaged in by all mammals, particularly young ones. Whatever reasons have been given for "play" (e.g. learning necessary practical skills), it is engaged in *for enjoyment* and sometimes individuals "invite" others to

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play (e.g. [34] Bekoff 1984). The "rules of play" and when it becomes "not play" are defined, the most important is "do not hurt the playmate". But when playing aggressively, there has to be an element of **"pretend":** a pretence to attack but without causing pain. If pain is felt, it is no longer play but becomes an aggressive encounter and behaviours change (e.g. [34] Bekoff 1984, [29] Kiley-Worthington 2005) and the game ends. Sometimes mistakes are also made in play, with or without intention and pain is inflicted. "Pretending" is another example of how the mental aptitudes that sentient mammals have are complex, moulded and mixed in non-human mammals and humans.

d) Individual and collective beliefs. Every mammal has his/her own individual beliefs, memories, conceptions and world awareness which are partly shared by others of their own and different mammal species, but, there are also **collective beliefs** more commonly, although not exclusively, held by humans. They are nearly always the result of being *told in a verbal context independent language;* such as being told about death. As far as we know, non-human mammals do not discuss death or have a collective belief about it, but humans acquired a pandoras box of beliefs **told to them by others and** hold many collective beliefs and pre-conceptions. Other mammals have some collective beliefs acquired by experience and social learning, but fewer and are discovered by each individual's experiences. For example, a group of cows hold the "collective belief" that they must not cross the stream in a particular place because one was attacked by dogs when she tried previously, so they all go to another place. Nor, as far as we know, do they do tell each other to fight another group because they do not hold the same collective beliefs. Humans also hold a collective belief that h*omo sapiens* conception of the world is the *only* possible one.

Studies of where the similarities and differences are between different mammals species attitudes to the world, that is, their species ontology, is still in its infancy (although see [15] de Waal for apes, [35] Poole et al for elephants 2023, [29] Kiley-Worthington 2005 for equines).

Clearly, since the attribution of sentience to mammals ensures they have many mental aptitudes that have previously been considered unique to humans, a re-examination of humanism and human exceptionalism, as well as our resulting moral obligations for the keeping and killing of other sentient mammals is obligatory.

2. Humanism and Human Exceptionalism

Humanism, the belief that the life of humans (even infants or mentally defectives), is more important than that of any other species, results in trivial human interests trumping life threatening interests of any other mammal. Human interests which trump other mammals life threatening interests include economic, social gain, more high protein food, manufacturing, advertising and selling more objects, proselytise a desire for greater comfort and more goods. Apart from causing many unsolved and often unaddressed environmental problems (e.g. [36] Jamieson 2025), the result is that billions of sentient animals are abused and suffer throughout their lives and during their death.

A growing number of city dwellers in many parts of the world are now aware of the suffering of animals in intensive environments and choose to become vegetarians or vegans, as a result, both dairy and meat consumption is dropping annually (e.g.17% in UK in 2024-25,).

But, avoiding all animal use or killing is inappropriate. Every species must remain extant because of their role in the fabric of the functioning biosphere, but they must breed if they are to remain around but their populations must remain in balance with the environment and some individuals may have to be killed, and where other predators have been eliminated, humans take the role of predator rather than exploiter. Conditional Vegetarianism allowing the consumption of meat who has had a good life is a logical solution. Vegetarianism is conditional on the following:

1) That the mammals used or killed, have had lives of quality with freedoms to fulfil their species ontology, and are killed without suffering.

2) They are only killed when the population becomes too large to maintain species diversity and the survival of the environment (e.g. [37] Vera 2000).

If these criteria were observed, there would be fewer mammals and less meat available, but human health would probably improve (e.g. [38] Almeida et al 2023)!

The animal welfare industry employs an increasing number of scientists and veterinarians to research reducing suffering in different intensive husbandry environments, but rarely do these

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scientists recognise that the intensive husbandry system they research or in which they treat millions of animals to maintain it, is often *by definition* unacceptable to the sentient animals because they do not have freedoms to follow their own ontology and as a result not treated with "dignity" and respect (e.g. [39] Challenger 2025); hypocritical beliefs are held by many professionals involved in these industries, for example the suffering of tens of thousands of *a*nimals when transported live to other countries to be slaughtered in a way which is illegal in the country of origin. Australia, a country which recognises sentience in non-human mammals in law, legally allows thousands of sheep to be shipped live annually from the outback of West Australia, (where they live semi-wild), to the Arab Gulf. During transportation by road and then by ship, up to 30% die [40(West Australia Agricultural Statistics 2024) and those that arrive alive, are slaughtered without pre-stunning. The industry is legal because it benefits religious believers and brings meat and financial benefits to tourists and residents in the Arab countries, and economically benefits Australian farmers and their dependent industries…. even though the farming of sheep itself in Australis causes massive biodiversity loss over millions of hectares contributing to the de-stabilising of the living world and eventually threatening human survival (e.g. [41] Woinars et al 2015).

Understanding the consequences of recognising mammalian sentience requires more knowledge, less hypocrisy and greater public transparency to reduce unethical practises.

3. Humans Exceptional Characteristics and Their Consequences

Humans two fundamentally exceptional characteristics confirmed in evolution (e.g. [42] Foley et al 2016) are:

a) Humans **are bipedal and with hands freed from carrying their bodies, evolved an ability to manipulate.** Some 2 million years ago *Homo erectus* developed opposable thumbs, muscles and nerve links to the brain which allowed them to better manipulate objects. As time continued these abilities became more complex and others invented. Humans are not the only animal that manipulates or who makes or uses tools (e.g. [43] Gendrau et al 2025, [44] Scientific American 2026)), but they do it more and with greater sophistication. One of the most important reasons for this is that it is **achieved in conjunction with their other unique characteristic: verbal language.**

b) Humans developed **a verbal language** which is unique because the meaning of words are **context independent,** that is their meaning is symbolic and devoid of environmental influence: Dog means Dog in any context, whether or not there is a dog there. Over millions of years this development of the use of symbols built symbols onto symbols, eventually resulted in mathematics, making of machines, modern technology and Artificial Intelligence, all of which are devoid of emotional content, that is sentience (e.g. [45] Vries et al 2011, [46] Turing 1950), illustrating the entangled body/brain marriage evolved by these two unique human characteristics, which resulted in the sciences among other things.

By contrast, non-human mammals do not often suppress or behave without sentience (although there are cases of desire independent reason (e.g. [29] Kiley-Worthington 2005, [47] Sammons et al 2024), so sentience is a mental aptitude non-human mammals cannot escape, yet for centuries they have been down-graded to the status of non-sentient machines; one thing that they never are, they remain "subjects in the world", even though humans may try to be "objective" (e.g. when doing science).

The all-encompassing power of human language lead to a believe in many other unique mental characteristics of humans as mentioned above, but one characteristic that is widely believed today is that human language is *required* for thinking ([48] Hegel 1770-1831, [49] Sapir, (1929) [50] Whorf, (1956) [51] Chomsky (1972 & 1975), and therefore without human-type language, there can be no "meta-cognition". This false belief is a sever handicap when attempting to understand others species ontology because it restricts the search to human world views. We have shown that all mammals combine mental events, make decisions, choices and have opinions, that is "think" without human language. **Non-human mammalian communication.**

Non-human mammals have different types of communication using the different importance and acuteness of their visual, olfactory, tactile, taste and auditory sense organs. But the meaning of most of their messages (but not all) is **context dependent,** that is the meaning changes although the

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signal is the same with the same structure and strength. For example, an identical neigh, moo, grunt, dog bark or a trumpet can mean (i) welcome, (ii) I am frightened, (iii) I am hungry, (iv) I am angry or (v) I miss my friend who has been taken away. As the feeling becomes stronger, the calls change by becoming longer, louder, with more "noise", and more often repeated. The signal generally reflects the degree of emotionality/arousal or excitement of the communicant [53] Kiley 1972).

Another consequence of context dependent meanings of messages, is that to understand details of the message, the recipient has to be very aware of the environment. An Experiment that tested awareness of humans, equines, bovines and a dog to a visual change was conducted by watching solo individuals following a known route which had been slightly changed by altering the angle of a log at the side of a path by 15o. 6 Equines, 6 cattle, a dog and 6 humans. All but the humans showed strong reactions indicating they had observed the change as they passed (e.g. turning the head towards the log, staring at it, ears pricked towards it, snorting, sniffing, jumping away, touching or approaching it carefully). But, the humans showed no reaction, and when asked if they had noticed any change, they had not ([29] Kiley-Worthington 2005).

4. Competitive and Cooperative Societies

Like all primates humans live in competitive societies which pre-disposes them to manipulate others to gain resources and power (e.g. [15] de Waal 2016), The combination of manipulative abilities, human language and primate competitiveness facilitate **social manipulation:** the manipulation of other sentient beings of one's own and other species.

Many non-primate mammal societies are not primarily competitive because they do not need to be (their food and other resources are widely distributed, particularly in large herbivores (e.g. [47] Tuessien et al 2012, [48] Ricci-Bonnot et al 2017, [49] Kiley-Worthington 2019), and therefore manipulating others it is not a priority as their conception of the world is acquired by individual experiences, social learning about others roles in the society. They, therefore, tend to accept individuals as they are… a type of sahacara (e.g. [50] Baindur 2025). Their world is interpreted from their own personal experiences not that of others. **Human Religious beliefs**.

Collective beliefs ensure that humans fear death, because they are told about it. A way of escaping non-existence is to believe in life everlasting and the separation of the body from the mind: "dualism". After death, the body is there for all to see, but the soul/spirit/mind is not.

Religious beliefs avoid individual extinction by allowing the mind/soul/spirit to join God after death to live forever in paradise, provided during life, the person obeys the social contract of that religion. If s/he does not, then it is eternal life in hell. This is a convenient way of encouraging humans to obey social contracts.

Dualism arose in the 17th century ([51] Decartes 1641) but was only applied to humans because non-humans did not have a mind or soul. Today dualism remains deeply entrenched in human societies, often linked to human language and the belief in the unique "mindedness" of humans. The argument is that because sentient animals are not "minded" and do not have human language, even if they are sentient, they can be kept bred and live in concentration camp-type environments for humans convenience, even though this causes the animals to suffer.

Religious sacrifices of sentient animals are permitted in law. A sacrifice is "an act of slaughtering an animal as an offering to a deity", and done for perpetrators and consumers to acquire "God credit".

Muslim and Jewish kosher law forbids pre-stunning of a sentient animal because it must remain conscious before it is cut up to eat. The sentient mammal while dying is legally tortured "an action or practice of inflicting severe pain or suffering on someone as a punishment". The punishment, presumably, is that the sentient/conscious/minded/suffering being is "not human"!

5. Humans Moral Duty Is When Keeping or Killing Sentient Animals to Take into Account the Animals Mental Concerns During Their Lives, and Their Deaths

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All abattoirs and methods of killing should consider non-humans awareness of death and not allow suffering. This by, for example, reducing fear by re-designing runways, avoid them seeing others killed, and making them comfortable in the lairage (e.g. [52] Temple Grandin 2020), but there remain many changes that must be made in non-human mammals breeding, keeping, handling and transportation, and when being killed. Here, we discuss in more detail their killing.

Methods of killing. Pre-stunning where the animal is rendered unconscious by a bolt to the head has been widely adapted in slaughterhouses as the method which produces least suffering. Provided this is done correctly by an approved pre-stunner with appropriate equipment, unconsciousness is immediate. But, without pre-stunning by cutting through blood vessels, the time between having behavioural and brain responses which indicate insensibility or death is 20 seconds in sheep, 25 seconds in pigs, 2 minutes in cattle, 2.5 or more minutes in poultry, and sometimes 15 minutes or more in fish ([53] Federation of Veterinarians of Europe 2025. FVE/104.).

Because of costs and human ineptitudes, another permitted slaughtering technique is to drown pigs and poultry in Carbon Dioxide. During the drowning, the animals remain conscious for at least 2 minutes and attempt to escape from the ironically called "gondola" as they are lowered into increasing concentrations of CO2 ([32] DEVRA 2025). This killing method is still legally permitted and widely used for pigs and poultry in the UK and European slaughterhouses.

Muslim and Jewish kosher practises are also permitted in law. These involve cutting the trachea and oesophagus but not the spinal cord, so the animal remains conscious as it is cut up. Some Muslims, accept pre-stunning as long as it can be shown that the animal could be returned to "normal living consciousness". It is difficult to imagine how this could occur after the trachea, oesophagus and blood vessels have been cut!

Whatever belief is held by humans, if the animal is recognised as sentient in law, s/he must be **immediately** rendered unconscious before being dismembered and the law must be properly policed without exceptions for human religious beliefs or conveniences.

6. Summary of All Sentient Mammals Conceptions of Death

Since all sentient mammals have mental aptitudes as shown above (1-18), the general mammalian concerns about death can be summarised. This is not novel, but it is backed by a thorough investigation of what a recognition of sentience means for the mental aptitudes of mammal although further investigation of different species ontology is required.

1) Normal Adult mammals recognise when members of their own or another species are dead because they have learnt the differences between an "inanimate" and an "animate" object; a stone or dead animal is treated differently from an alive animal.

2) All mammals fear pain, frustration and will make efforts to avoid such negative emotions sometimes panicking. We all recognise this in ourselves and observe when others are hurt or suffering these emotions.

3**)** We all fear the unknown which is recognised by using the senses: smell, sight, taste, touch, sounds or movements.

4) All mammals can sense and recognise what emotions others are experiencing and feeling and predict events, therefore they should not see other dying to avoid predicting their own death.

5) We all fear separation from another familiar or liked being, grieve their absence and may be depressed, lonely and miserable after the death or absence of another.

Non human sentient mammals as far as we know, (i) do not have verbal collective beliefs, (ii) do not kill for religious reasons, (iii) do they intentionally provide environments where others suffer for their own convenience. Therefore, we cannot *in any sense* justify sentient animals having to suffer for prolonged periods or being tortured, during their lives and deaths.

7. Humans' Moral Obligations to Other Sentient Beings

For whatever purpose non-human mammals are kept used or killed, ethical keeping and killing must, in the light of their mental attributes be:

1) Allowing them to use their mental attributes by giving them freedoms and choices.

2) No prolonged suffering through their lives or during their deaths.

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3) The way they live and die must contribute to the biodiversity and flourishing of the environment, rather than contributing to its demise.

Recognising that humans economic, political or social interests do not trump the suffering of other sentient beings is mandatory, and possible if we re-define "humanism" and disband some current beliefs. To do this, we must recognise what our particular exceptional characteristics *really are and what they are not* and re-structure human societies so that it does not cause other sentient beings to suffer, or harm the environment on which we all depend.

Re-defining "humanism and human exceptionalism" does not necessarily mean that we have to give up religious beliefs. Christian and other religious rules, can be altered to recognise that God *is* The Living World. Here is an extract of St Benedict's rules for good behaviour that has The Living World added to God (my italics): "It is easy to recognise the bitter spirit of wickedness which creates a barrier to *God and the living world's* grace and opens the way to the evil of hell. But equally there is a good spirit which frees us from evil ways and brings us close to *God and the living world and eternal life.* It is this later spirit that all who follow *the way of God and the living world works* should stir to cultivate, spurred on by fervent love of it all…" [St Benedict 54].

Nor do we need to give up a belief in dualism and everlasting life for living beings, because the energetic substances of which we are made continuously circulate through others.

"the mass in an isolated system can neither be created nor be destroyed but can be transformed from one form to another" ([55] Antoine Lavoisier 1789).

8. Since Mammals Are Moral Agents, They Also Have Moral Obligations

All sentient mammals are morally obligated to treat humans as they would any other large mammal, recognise their strengths and weaknesses and by obeying general social rules towards others (e.g. not causing pain, distress or suffering without provocation). However, if they are treated without respecting the others ontology, human and non-human mammals may learn to ignore this moral obligation.

Non-human mammals can change humans behaviour just by showing us how they live… if humans bother to look (e.g. many wild or domestic animal TV programmes and some videos on social media, for example https://gbryja.medium.com/being-seen-what-bears-teach-about-belonging-8c72d3f354d7).

Other moral obligations to humans and other mammals depends on how much they have to do with each other, but the distinction frequently made between how "wild" and "domestic" animals re treated is false as an individuals ontology is the result of their species and their own personal experiences. Contact with humans changes behaviours but not genes, for example some domestic animals have little contact with humans (e.g. wild horses and cattle in the US, or Australian sheep kept in the "outback") behave like their wild cousins to humans. Equally, some traditionally "wild" animals who have a great deal of contact with humans (e.g. some circus and zoo animals) behaviour differently to humans than their wild cousins. Thus, in the same way as humans' moral obligations change with familiarity of another, so human/animal obligations change with familiarity, kinship and affection.

The moral obligations of sentient mammals who know, are familiar and may be fond of humans, is the same as it is for humans to each other: (i)to be aware and conscious of the individuals moods and suffering, (ii) to have some idea about their individual personality, (iii) to make allowances for age, sex and abilities.

Non-humans usually do fulfil their moral obligations, and humans who have had appropriate respectful contact can to them. But to do this, it has to be understood that, for example, a bull, stallion, elephant lion or man is not "born aggressive" and his behaviour controlled by "instinct"; he is made that way by humans who has collective belief, pre-conceptions and fears told to them by other humans.

9. Environmental Ethics

Keeping any animal in intensive husbandry systems is very environmentally costly. Chemicals which reduce species diversity (fertilisers, pesticides, herbicides and drugs) are almost universally

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used, water must be provided, waste recycled without polluting land or rivers, and equipment made and used for the construction of the buildings to house the animals. CO2 production increases from the use of fossil fuels by all the related humans activities, and because of the huge numbers of housed stock.

If mammal species are able to live with more freedoms in something resembling their natural habitat and their populations controlled, each species including humans can contribute to the functioning of the ecosystem by increasing species diversity and supplying food, shelter and other resources to others (e.g. [37] Vera 2000).

Further details of ethically acceptable breeding, raising, keeping and killing practises for all mammalian livestock must take into account the mental aptitudes that all mammals have as a result of being sentient, and escape the false beliefs of human exceptionalism and change our collective beliefs. If we bother to look and learn from other species, this can be done, but will it be?

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