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Abstract

Numerous scientific studies and non-scientific works document diverse nonhuman animal species exhibiting distress and grief-like behaviour at the loss of proximal subjects (significant others). The inability of humans to inhabit other animals' minds and feelings, including the experience of grief, often translates into negation of nonhuman animals' possession of such capacities, or of different levels of them. This paper reviews and synthesises scientific evidence from neuropsychological and biological sources that predict nonhuman animals' capacity for grief and feelings of profound loss, and establish that the core of these feelings for all animals, including humans, is attachment and the consequent separation distress. In exploring objections commonly raised by commentators of animal grief to ascribing a human-comparable grief dimension to nonhuman animals, the paper identifies several issues that need further consideration in trans-species grief studies. These include the widespread yet unfounded assumption of homogeneity/consensus in the understanding of key grief and death-related philosophical questions within the human species, and the debated over-emphasis of 'higher' cognitive processes in emotion-related issues – which in the case of grief studies tends to result in the underrating of the experience of separation distress.

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***Abstract:** Numerous scientific studies and non-scientific works document diverse nonhuman animal species exhibiting distress and grief-like behaviour at the loss of proximal subjects (significant others). The inability of humans to inhabit other animals' minds and feelings, including the experience of grief, often translates into negation of nonhuman animals' possession of such capacities, or of different levels of them. This paper reviews and synthesises scientific evidence from neuropsychological and biological sources that predict nonhuman animals' capacity for grief and feelings of profound loss, and establish that the core of these feelings for all animals, including humans, is attachment and the consequent separation distress. In exploring objections commonly raised by commentators of animal grief to ascribing a human-comparable grief dimension to nonhuman animals, the paper identifies several issues that need further consideration in trans-species grief studies. These include the widespread yet unfounded assumption of homogeneity/consensus in the understanding of key grief and death-related philosophical questions within the human species, and the debated over-emphasis of 'higher' cognitive processes in emotion-related issues – which in the case of grief studies tends to result in the underrating of the experience of separation distress.*

***Keywords:** Animal grief, animal emotions, trans-species psychology, anthropomorphism, intra-zoomorphism*

Introduction

Nonhuman animals of diverse species have widely been observed exhibiting affective behaviour at the death of a proximal subject. Additionally, there are equally numerous descriptions of nonhuman animals seeming to perform rituals, including burials, at the death of both conspecifics (i.e. organisms belonging to the same species) and members of other species.

Neurobiological and ethological evidence aside, scientists and other commentators remain cautious in ascribing a human-comparable grief dimension to nonhuman animals. Such cautiousness is based mainly on the uncertainty of nonhuman animals' awareness of death and their own mortality. It also appears to spring from the inaccurate position that there is universal consent within the human species itself on the substance of such awareness.

Here, I first review and discuss the scientific evidence – specifically the neuropsychological foundations that predict nonhuman animals have the capacity for grief and feelings of profound loss. This can be argued to support and be congruent with ethological observations. Then, I explore psychosocial mechanisms that permit the disjunct between scientific evidence and public and scientific perception of nonhuman animal emotional capacities. I conclude that for a more accurate consideration of nonhuman animals' grief, it should be discussed within the heterogeneity of humans' own perceptions of death and related grief experiences, as opposed to positing the kind of dubious homogeneity of human experience which might be loosely described as the perspective of the modern day secular human.

Neuropsychological arguments for animal grief and loss

In the 1970s and 1980s human mental health studies moved from observing (and attempting to correct) external maladaptive behaviour to focusing on internal cognitive processes (Schoore, *Art of Psychotherapy* 4). The dominance of a cognitive paradigm in human psychotherapy resulted in the emergence of cognitive-behavioural therapy models that were oriented towards changing an individual's conscious cognition, i.e. maladaptive thoughts and beliefs (Schoore, *Art of Psychotherapy* 4, 11). The association of the neocortex with traditionally greatly valued higher

cognitive functions – some of which are arguably exclusively human – combined with the long held prejudice against emotions as something inferior to logic, something which needed to be suppressed, has to date kept the Cartesian divide alive. The latter has not only ‘plagued psychiatry and psychology’ (Schore, *Art of Psychotherapy* 4) to the detriment of human wellbeing, but has also consolidated a conceptual divide between humans and other animals, a divide which is progressively losing theoretical and empirical ground.

The idea of emotions playing a positive role in normative functioning, including in the reasoning process, proposed by Damasio (*Descartes’ Error*), has been largely embraced despite some initial scepticism. Furthermore, cumulative evidence suggests an evolutionary continuum of emotional feeling with the foundational, causal level lying in subcortical regions, where cross-species homologies abound (Low et al.). Contrary to traditional views according to which feelings, and the mind generally, are a product of the cerebral cortex (Panksepp, ‘Neural Nature’ 160; Damasio, *Self* 75) the data from observations of pertinent human cases and invasive, ethically unsustainable research on nonhuman animals, suggest subcortical generation of basic affective consciousness (Damasio, *Self* 75).¹ This affective consciousness is also an indispensable component of the self and a rudimentary signal to the mind of the existence of its organism as alive (Damasio, *Self* 75–76).

Far from being close to the resolution of the myriad of questions that the intricate fabric of consciousness poses (see e.g. Velmans and Schneider), the integration of bodily based emotions into the formulation following cumulative evidence of the inseparability of biological and psychological processes should inform, Schore (*Art of Psychotherapy*) urges, the development of new therapeutic models for human conditions as well as preventive measures. Such integration provides a solid foundation for the emergence of trans-species psychology (Bradshaw ‘Elephant Trauma’ and *Elephants on the Edge*; Bradshaw and Watkins). In recognition of growing evidence that like biology, psychology is also conserved across species (Bradshaw and Sapolsky), this field of psychology employs a holistic view of the individual animal (human-inclusive), both in prevention and treatment of psychological trauma.

Nevertheless, nonhuman animals’ psyches and feelings remain controversial in some circles. While humans admit to other humans the capacity to *love*, nonhumans are often only admitted the capacity to *form social bonds*; humans can be *depressed*, nonhumans can be

stressed. Albeit, paradoxically, nonhuman animals' ability to be stressed and express depression(-like) symptoms is being exploited, among other things, in research on antidepressants for humans. Similarly, when discussing the abundance of ethological observations of grief(-like) expressions in nonhuman animals, attributions of a human-comparable dimension of grief to nonhuman animals are not readily admitted. Instead, the questions most commonly raised in assessing nonhuman animals' experience and its comparability to human experience relate to the cognitive paradigm. But they presuppose a cognitive-experiential uniformity in regard to death and grief within the human species, which does not exist. The consideration of grief in nonhuman animals inevitably leads to questions of nonhuman animals' awareness of their own mortality and signifiers of death, which are of secondary relevance as the human cross-cultural context itself demonstrates. The primary parameter of consideration in claims about animal grief should instead be the animals' capacity to experience attachment and loss, a subject which rarely ever receives adequate attention.

Attachment within social groups for many animal species, humans included, translates into survival, and to a certain extent determines quality of life. The early socio-environmentally embedded formative period is not only important for the acquisition of ethological (social) and ecological (food, etc.) knowledge, it also shapes the individual's affective and self-regulatory systems and the development of stress responses (Orosz and Bradshaw) as well as being associated with the early development of the self (Schorer, 'Attachment' 205). The caregiver effectively serves as an external regulator of the infant's bio-behavioural modulation, which plays a critical role for the ripening emotion processing limbic circuits and the development of affective and neuro-endocrinological self-regulation (Schorer, 'Attachment'; Bradshaw and Schorer). Schorer writes:

[T]he adult's and infant's individual homeostatic systems are linked in a superordinate organization that allows for mutual regulation of vital endocrine, autonomic, and central nervous systems of both mother and infant by elements of their interaction with each other. (207)

In rats, for example, the infant's homeostatic system remains open to the mother's bio-regulatory influence even after the infant has begun to consume solid foods and is capable of surviving on her/his own (Hofer, 'Relationships'). Social attachments and dependencies

continue all through life, and are beneficial both physically and mentally (Panksepp, *Neuroscience* 262). Conversely, loss as an interruption of the attachment reality can have an equally potent impact on an individual.

When, in a discussion of nonhuman animal grief, attachment-related separation anxiety is brought in, it is difficult to overlook the implied assumption of the feebleness of this emotion. Archer, for example, who believes that nonhuman animals have no awareness of the irreversibility of death, argues that human children and nonhuman animals are capable of separation distress, such as that experienced by human adults, but the distress reactions exhibited by adults when separated from a loved one ‘differ in important ways from the grief that occurs when the separation is understood to be permanent as a result of death’ (Archer 265). Setting aside the picturesque fabric of adult humans’ reactions and understandings of death, which will be discussed below, it is distinctly unclear where nonhuman animals and human children might derive the notion of the possible *reversibility* of separation. This proposition appears to be implied when separation anxiety is accorded a lesser valence than the ‘real’ grief potentially experienced by adult humans who understand such departure as irreversible.

Parkes, a long-time researcher of human grief, points out that one of the problems with discussing and analysing grief is the lack of an accepted definition of grief (Parkes 29–30). Variables such as anger, self-reproach, depression and others which can accompany grief are not part of grief itself and might occur following a number of other stressful life events and circumstances. Hence, he proposes that the essential components for grief are:

the experience of a loss and a reaction of intense pining and yearning for the object lost (separation anxiety). Without these a person cannot truly be said to be grieving (30).

Separation distress, which can manifest in innumerable conscious and unconscious ways, appears to represent valid common ground for discussing grief in both human cross-cultural and trans-species contexts.

To better understand the implications of separation anxiety it is helpful to go beyond (in effect *beneath*) the generalising and hence perhaps misleadingly abstract notion of affective response to stress, and consider instead that diverse mechanisms are involved in the attachment

interactions, which are directly affected by the broken bond (Hofer, 'Roots'). The infant-caregiver dyad is of particular and vital relevance in terms of the infant's psychobiological and more broadly social development (Schoore, *Art of Psychotherapy*). The caregiver's presence does not only help to regulate the infant's physiology generally. The mother-infant interactions in various animal species affect a myriad of specific physiological mechanisms ranging from heart-rate to growth hormones to sleep patterns (Hofer, 'Roots'). The infant's system has the potential to collapse with the withdrawal of this multimodal support. Attempts at repair to promote recovery and healing would have to be able to address this regulatory variety.

Importantly, the homeostatic regulatory effects of various forms of input from the social environment are not limited to support for infantile organisms, but appear to pertain to adult animals as well. In all likelihood a completely independent regulation never develops, not even in adulthood (Hofer, 'Relationships'), an observation which has obvious implications for adult grief. Individuals living in social groups develop synchronised cardinal rhythms and when moved to a different group they adapt to the new group's rhythms (Hofer, 'Relationships'). When social cues are withdrawn or heavily diminished, individuals' biological rhythms appear to desynchronise, with a potentially negative effect on homeostasis as well as on adaptive functioning (Hofer, 'Relationships'). Furthermore, individuals deprived of customary environmental input, for example in solitary confinement, exhibit several of the symptoms linked to the experience of grief following the loss of a loved one (Hofer, 'Relationships'). Socio-environmental cues appear to play a meaningful role in the regulation of internal rhythmic cycles, and since a companion may constitute a significant part of an animal's socio-environmental fabric and contribute substantially to its dynamics, the sudden withdrawal of these cues, for instance following permanent separation due to death, could, as Hofer proposes, lead to desynchronisation with more or less severe negative outcomes.

This is another facet of grief, which is unrelated to 'higher' cognitive capacities and which might play a critical role in nonhuman animals' coping with loss in their social network. Like the attunement between infant and caregiver (Schoore, *Art of Psychotherapy*), adult animals may also develop attunement and synchronisation between proximal subjects, mediated through various senses, such as smell, touch and vision. An optimal dynamic positively affects psychobiological regulation by providing either stimulation or modulation of arousal levels

(Field). This can prevent aversive under- or over-stimulation, keeping the individual in the optimal arousal zone (Field). Conversely, separation between bonded individuals leaves the animal without a co-regulator, with effects on psycho-bio-behavioural outcomes.

Ethological observations of nonhuman animal grief and loss

Elephants are one of the few nonhuman animal species that have been observed engaging in what can be taken to be explicit death rituals, which include covering the deceased body with branches and dirt, lifting and manipulating the bones of relatives, and returning to them (Bradshaw, *Elephants*, 10–13). Magpies have been observed bringing grass and laying it beside a dead conspecific, then standing as if in vigil for a few seconds before flying off (Bekoff). Similar scenes have been witnessed with ravens and crows (Derbyshire).

Accounts of other nonhuman animals exhibiting signs of deep grief at the death of a proximal subject are not unusual, and they include chicks, cows (Hatkoff), pigs and many other species. A substantial collection of stories of nonhuman animals grieving appears in Barbara King's recent book *How Animals Grieve*.

Expressions of loss and grief have also been observed in different cetacean species. For example, in 2010 Robin Baird from Cascadia Research reported watching a killer whale carrying a dead calf for over six hours.² On 24 September 2012 the Italian newspaper *Corriere della Sera* published on their website video evidence of a pilot whale engaging in an activity with a dead calf similar to that described earlier. Ecologist Paolo Galli observed that the physical degradation of the calf could indicate that the adult's interaction with the infant had lasted for several days and nights.

Bottlenose dolphins appear to react differently to sudden, unexpected death, than to a death that has speculatively been labelled as predictable. In one case, for example, a mother stayed with her dead newborn calf for two days, calling to, touching and lifting the infant's corpse above the water surface. In a second instance a two or three months old dolphin, bearing bleach marks as a possible result of exposure to pesticides or heavy metals, was having difficulties swimming. Other dolphins tried to help the dying individual stay afloat but with little

success. Death occurred an hour later. Contrary to the researcher's expectation based on past experience, the mother this time did not stay nearby, and instead, as soon as the sick dolphin died, the corpse was allowed to sink and the group left the area (Hooper).

Cases of an animal's grief ending with his or her own death are also known. One such example is Damini, an elephant in an Indian zoo, reported by BBC News on 6 May 1999 as having starved herself to death after her friend had died in childbirth. A similar episode almost occurred at the Edgar's Mission Farm Sanctuary in Australia, in 2010. When Daisy, a pig, died, her close companion, Alice, lay on her grave for two days and nights, refusing to eat or move (Ahern, personal communication).

Such accounts unavoidably stimulate the interest of scientists and non-scientists alike. Most of the time, however, the issue is not explored. Instead, it is avoided – in effect *dismissed* – by asking potentially unanswerable philosophical questions, such as: Do nonhuman animals understand death? Do they know they are mortal? Can they *really* grieve? These questions are normally accompanied by explicit or implicit reminders of the 'dangers' of anthropomorphising. Such rhetoric gives ample space to translate the privacy argument – according to which conscious experiences can only be known by the individual who experiences them (Griffin 492) – into negation of nonhuman animal grief. Additionally, the implicit message it conveys is that even if nonhuman animals might feel *something* at the loss of a proximal subject, it obviously cannot measure to humans' grief, given that humans can answer positively to the questions above, or so it is assumed, while other animals cannot. This becomes particularly problematic when even apparent animal 'lovers', in the pursuit of 'intellectual rigour', explicitly though without any sound foundation ignore the privacy argument by stating: 'They [elephants] can't anticipate death in the way we can or imagine it as an abstract concept' (Honeyborne). This is incorrect; in reality, humans simply don't know.

From anthropomorphism to intra-zoomorphism

The emotional detachment and rationality cherished by a dominant scientific and philosophical approach as a primary means to factual knowledge is unlikely to be effective as a sole approach

to truth. ‘The nature of attention one brings to bear on anything alters what one finds. (...) To attempt to detach oneself entirely is just to bring a special kind of attention to bear which will have important consequences for what we find’ (McGilchrist 29). Science and its presumed objectivity as well as philosophy and its presumed rationality are equally value-laden forms of attentiveness, other ways of looking at things, chosen premises upon which neutral cognitive functions build a truth, a truth that, unlike the cognitive functions, is in itself never neutral, always compromised (McGilchrist 28).

A powerful factor in the shaping of our attentiveness is the ‘mere exposure’ effect. The mere exposure effect describes a psychological phenomenon, vastly used and abused in advertising, by which the exposure to stimuli determines one’s drives. The more one is exposed to stimuli and thus becomes familiar with them, the more one likes them and becomes *attached* to them, particularly if exposure is accompanied by positive experience or at least by the absence of negative ones (Panksepp, *Neuroscience* 259). Exposure-determined attraction has been documented as valid for all the animals who have been studied, and ranges from food to places and even to ideas. It is not uncommon for humans exposed to certain ideas to begin to prefer those ideas over unfamiliar ones proposed by others, and often eagerly to contradict the latter prior to seriously considering them (Panksepp 259). A study by Gallate and colleagues addresses the statistically unwarranted association of *Arabs* and *terrorists* in mainstream Western psyches, media-fuelled and exacerbated after 9/11. Researchers managed to reduce the prejudicial score of the tested (human) subjects via non-invasive brain stimulation. While the neural basis for prejudice remains relatively unknown, prejudice seems to sit comfortably within the context of the highly automatic categorisation processes in the brain (Gallate et al.). The latter can be beneficial in simplifying the complexities of the world, yet quite detrimental when oversimplification and overgeneralisation occur with prejudicial segregation as a result (Gallate et al.). As the Arab-terrorist association example illustrates, and as indicated earlier, reasoning processes are not exempt from the influence of the environment, including the mere exposure effect: indeed, quite the opposite. Mere exposure can clearly shape the conceptual and emotional framework, determining to a certain extent what one sees, how one sees it, and how one acts in relation to themselves, conspecifics, other species and the rest of ‘nature’.

The Western dualistic view is a case in point – an acquired concept and far from universal, as Audrey Shenandoah, American Indian Onondaga clan mother indicated at the Moscow Global forum for the environment and development for survival in 1990. In her keynote address Shenandoah explained to the audience that in her language there was no word for what is generally referred to as ‘nature’; nature seems to imply something which is separate from humans, but since her tradition and people are as one with the environment, such a distinction is unknown (Lacourt, quoting Wall and Arden).

Anthropomorphism is heavily scrutinised in current Western academic discourse. Occam’s razor is still a first principle, even though it has been strongly criticised by many for engendering reductionist views. These include the consideration of nonhuman animals as automata and denying human babies the feeling of pain (Broom 5–6). If a phenomenon can be explained by ‘lower’ capacities (e.g. learned adjustment) we are discouraged from going ‘higher’ (e.g. by suggesting cognitive empathy) (de Waal 64). This does not mean that the ‘simple’ explanation is correct, nor does it mean that it is *more* correct than a complex one would be. It only means that convention favours an unwarranted, highly separatist view in regard to *different* others, and mere exposure has brought a number of humans to fear anthropomorphism on a level comparable to some humans’ fear of Arabs.

The potential futility of any kind of ego-morphising is undeniable. Yet individuals’ lives are replete with relationships with humans and other animals. The existence and quality of these relationships depend entirely on an individuals’ ability to decode and encode the messages that the mass of cells and tissue in front of them – in human or other form, and often, though not always, accompanied by vocal cord activity – is attempting to convey.

To this end, and drawing on the Self as a generatively and ontologically relational entity, I would like to propose embedding anthropomorphism in its crude form as a necessary bridge to other animal subjects into the larger matrix of what seems valid to term *intra-zoomorphism*, considering that humans, too, belong to the animal kingdom. Intra-zoomorphism encompasses both inter- and intra-species ‘morphising’,³ including, for example, inter-cultural ‘morphising’, inter-gender ‘morphising’, and inter-personal ‘morphising’. The inevitability of inter-relationships between different Others compels the subjects involved to formulate ways of negotiating these relationships. Of course, humans are not the only animals to encounter

otherness. If we maintain the position that we can only see the world through our own ‘eyes’ – without denying ourselves and others the necessary space which enables more or less successful interaction – the same must be true for other species. This capacity of identification and projection takes the form of nurturing bonds between different animal species. In *Unlikely Friendships* Jennifer Holland documents a number of supposedly unusual inter-species relationships.

A less unusual, in fact very common, example of intra-zoomorphism can be observed in the communication between nonhuman animals and their companion humans in domestic situations. When my dog starts nudging me around 4pm every day it is legitimate for me to assume that he is doing so in the conviction that I will understand that it is time for his walk. Stuart Watt refers to his cat’s gestural language while interacting with him as a member of the cat’s social group as a possible instance of *ailuomorphism*.⁴ Marc Bekoff coins the term dogomorphism (reported in Horowitz and Bekoff), referring to canine self-projections such as those demonstrated in a study of dogs and dog-like robots (Kubinyi et al.). In this study dogs only considered the robots covered in fur as potential social partners.⁵ Before rushing to unjustified conclusions, it is worth pointing out that dogs are not the only animals who might be misled by robots. A 2007 study revealed that the human mirror reaction is activated without significant difference by the sight of both human and robotic actions (Gazzola et al.).

Mirror neurons⁶ are brain cells that make one salivate while watching somebody eating an ice-cream, and which can break one’s heart at the sight of a mother cow trying to prevent her baby from being taken away so that the ice-cream could be produced in the first place. Mirror neurons fire during both the execution and the observation of a performed action. Nicknamed ‘empathy neurons’ (Ramachandran), mirror neurons might provide the biological base for the tendency to ego-morphise.

Of course one cannot rely on mirror neurons to provide an unequivocal indication of the emotive and mental states of other animals (human conspecifics included). However, it would be equally naïve to assume the absence of such capacities based on the fact that nonhuman animals do not speak human languages and hence cannot communicate such states in a way that is to humans ‘beyond doubt’. To return to Damasio’s point, reasoning and decision making, including categorisation processes, can be equally compromised by the absence of emotion, as

would be the case if emotions were given complete *carte blanche*. The capacity to identify to a certain extent with other animals on emotional and other levels should be viewed as a most welcome window of opportunity to understand ourselves and the world around better, rather than as a threat to rationality. The learned conceptual barrier, which the dualistic view has forced upon the Western world over centuries, does not appear any less damaging to the integrity of thought and perception than radical anthropomorphism.

Re-contextualising animal grief

The theory and observation of attachment and loss in humans and other animals leaves little reason to doubt that what is experienced is similar. Yet to feel grief as death-related loss, one would have to have some kind of awareness of death. The question ‘Do they understand death?’, which is commonly asked in discussions of nonhuman animal’s exhibitions of grieving behaviour, is in effect a composite of two sub-questions/sub-issues. The first sub-issue concerns their ability to understand what I will call the *physical non-returnability* of the (dead) subject, and physical non-returnability is what I refer to when I use the term ‘death’ in this discussion. The second concerns their ability to understand their own mortality, considered part of reflective consciousness.

It is not uncommon for humans to question nonhuman animals’ ability to recognise death when encountered. Such questions were raised, for example, when chimpanzee mothers carrying their dead infants were studied in the Republic of Guinea (Biro et al.), and when Japanese macaque mothers engaging in the same activity were studied in Southern Japan (Sugiyama et al.). However, it seems more credible, given the regular occurrence of death and animals’ regular experience of dead organisms, to consider the awareness or recognition of death as part of what has been termed *phylogenetic knowledge*. Phylogenetic knowledge is long term knowledge, acquired over generations and mediated by changes in the DNA, while *ontogenetic knowledge* is short-term knowledge, acquired during life and mediated by changes in the nervous and immune systems (Århem and Liljenström 4–5). Phylogenetically-based

recognition of death and its benefits for survival would, in fact, make good evolutionary sense for both so-called prey and predator species.

Ants are interesting in this regard. Ants obviously recognise death, as they pile their dead conspecifics in what could be referred to as ants' cemeteries. Ants, being olfactory creatures, recognise death when they detect the smell of triglycerides (Hirshon). Wilson reports amusedly watching a live ant whom he had covered with the death-chemical being carried to the cemetery by other ants who believed her dead, ignoring her other signs of life, such as limb movements. Considering ants' olfactory dependence, this comes as no surprise. Creatures with underdeveloped olfactory consciousness, such as humans, rely on other information to establish an organism's death: immobility, for example, may be one of the first signals. Like Wilson, ants themselves might be amused if they learnt about the medical staff, who, unable to rely on their meagre olfactory abilities, proclaimed a human baby dead when he wasn't (Inbar). Following unsuccessful revival attempts by medical staff, it was the nursing method known as 'kangaroo mother care' or 'skin to skin care' which enabled the baby to live. Kangaroo mother care is a useful technique in places where incubators are not readily available, and obviously elsewhere, and might constitute part of the phylogenetic knowledge of the chimpanzees and macaques discussed earlier, especially considering the already indicated bioregulatory importance of such interactions within the dyad. The occasional prolonged carrying of the dead infant to the point when the baby mummified seems more likely to be a sign of the mother's psychological distress and inability to accept the infant's death than a sign that nonhuman animals generally might not recognise death.

Barrett and Behne, studying human children's recognition of death in a cross-cultural context, propose the existence of an early-developing core architecture which they call *the agency system*, that helps children discriminate between living organisms and dead ones. The researchers found that based on the agency criteria (agent being defined as an 'object capable of acting in a goal-directed fashion') children understand the concept of the irreversibility of death by age four. Previously it had been assumed that children could not grasp irreversibility until they are six or seven years old. Given the latter figures and the widespread notion – redolent of conceptual and methodological problems – that no other animal reaches the cognitive level of a five-year-old human child, Archer (265) dismisses the possibility of nonhuman animals'

awareness of the irreversibility of death altogether. However, Barrett and Behne correctly point out that children might develop an understanding of death as cessation of agency before the age of four, and that studies of this kind, including studies of the theory of mind, are always problematic as they are dependent on other acquired skills, such as language.

The question of nonhuman animals' awareness of their own mortality, on the other hand, is of a far more speculative nature: it would be as incorrect to posit that nonhuman animals are unaware of their mortality as it is to claim they are aware of it. While the question may never be resolved, the increasing evidence for nonhuman animals' capacities for anticipation and bi-directional mental time travel (Roberts), accompanied by their capacity to experience learned (as opposed to only phylogenetic) fear, and the fact that death has been a recurrent phenomenon in most animals' lives and environments, suggest that the possibility of such abstract thoughts in nonhuman animals should not be automatically ruled out.

Nevertheless, humans' awareness of mortality appears to play a lesser role in the capacity to experience grief than it is often implied when considering nonhuman animal grief, and lack of awareness of mortality certainly does not preclude the feeling of grief. The human notion of mortality hardly bears the unanimous consensus that it is often credited with in discussions of human versus nonhuman animals' grief. Arguably, the numerous humans whose religious feelings give them internal certainty of a new, even better, life after physical death, do not appear to understand death and their own mortality in the way that secular Western thought postulates when raising arguments against nonhuman animals' grief. Is the grief experienced by these supposedly immortal humans at the loss of a proximal subject less acute than the grief of those humans who believe that their entire persona dies when the body capitulates? Does the certainty some humans hold of a reunion with the beloved after the physical death preclude grief? Should these potentially immortal humans be denied the full extension of the feeling of grief based on their apparent certainty of eternal life? If the answer is negative – without necessarily dismissing possible variations on the theme – and in consideration of the potential impact of separation distress per se, denying nonhuman animals a human-comparable grief dimension appears premature to say the least.

Nonhuman animal grief may be more appropriately studied within a broader trans-species and trans-cultural context, in which nonhuman animals would represent another

(obviously very large and diverse) cultural group that is potentially not aware of their own mortality. It is on this basis, as I currently see it, that nonhuman animal grief can begin to be assessed without sinking into unnecessary and potentially damaging speciesism.

Another issue to consider in grief studies is the ‘ease of identification’ fallacy, which is twofold: firstly, dismissing from consideration animals with whom humans cannot easily identify; and secondly, dismissing from consideration animals who do not exhibit grief-like behaviour that is identifiable to humans.

Invertebrates represent an interesting case in question. Without necessarily attributing the experience of grief to invertebrates, it would be equally erroneous to *a priori* dismiss this possibility on the basis, for example, that expressions of grief have not yet been identified in invertebrates, or that science has not yet officially confirmed their capacity for attachment. A 2011 study (Mendl, Paul and Chittka) suggests that bees are capable of emotional responses, while the story of ants liberating a nestmate from a nylon snare she was trapped in, running the risk of harming themselves, demonstrates cognitive and behavioural complexity (Nowbahari et al.), and possibly also altruism.

Different species’ traditions could, in fact – for various reasons, including sanitation – explicitly prohibit any kind of interaction with cadavers. Certain human societies forbid pronouncing the name of the dead person. There is no guarantee that equivalent and perhaps more stringent practices – i.e. cultural lack of acceptance of any kind of expression of grief that humans might recognise – do not exist in other animal groups. Such absences do not necessarily indicate a lack of grief, just as the lack of vocalisations in injured animals is no guarantee that they are not in pain – an assumption which might lead humans to believe that mulesing, for instance, is not painful because during the procedure lambs don’t cry (Broom and Fraser 63).

In the human fraction of the animal kingdom, practices including but not limited to senicide and ‘delayed personhood’ point to heterogeneity within the human species itself, which often gets overlooked in the discourse. In 2010 the Indian weekly *Tehelka Magazine* brought *thalaikoothal* to public attention. Referred to as ‘mercy killing’ by the locals, *thalaikoothal* in essence describes the killing of elderly people by their children when the latter feel that their situations do not allow them to look after their elderly parents properly, and/or the caring for

the parents would endanger their own and their children's survival (Shahina). *Delayed personhood*, which would be equally legitimate to term *delayed attachment*, on the other hand, has been observed in human societies with high infant mortality and a generally adverse environment, and refers to the practice of considering infants not fully human due to the uncertainty of their survival and fulfilment of the expected role (Lancy, 'Parenting'). The emotional distancing, which sometimes extends even to delaying naming the infant for a certain period, aims at protecting the family from the burden of grief (Lancy, 'Babies', quoting Bugos and McCarthy). The seeming ease and lack of emotional involvement with which senicide is carried out, or the purposive detachment in relation to infants in other societies gives little indication of the actual emotional impact of such acts on those who are forced by circumstances to perform them. Cultural outsiders are likely to regard these actions with horror while being completely oblivious of the environmental – including social – pressure surrounding the decision. Chippewa mothers, for example, are urged to abstain from weeping at an infant's death to prevent the grief being passed on to the next child. The discouragement of mourning for the as yet unnamed child in Tongan culture is instantiated by the older women explaining to the bereaved mother that she should silence her lament as the child was a ghost (Lancy, 'Babies', quoting Hilger, and Reynolds).

A lack of understanding of different attitudes to death in human societies can inhibit Western understandings of differing practices in immigrant communities.⁷ An Egyptian woman complying with the culturally prescribed lengthy period of mourning for her dead child (Rosenblatt 41), for instance, could quickly be diagnosed with a pathological condition by Western clinicians, while a Chippewa mother who might show no apparent grief at the death of her baby could easily be seen as a psychopath. The sensitivity with which loss is approached in an animal community – human or not – could and should never be considered excessive. Assumptions such as 'We humans don't erupt into displays of aggression around dead bodies as chimpanzees may' proposed by King (147) in her otherwise informative book, need greater consideration. In a broader human context, in fact, mourning expressions which may not be considered acceptable in the sterile environment of Western mortuaries are not uncommon, including for instance extreme crying, breast beating and scratching of the face, reported for some human cultures (Jonker 154).

Additionally, it may be worth considering that most nonhuman animals do not have the privilege of living in the comfort and safety that affluent Western society currently offers. Instead they generally live in severely adverse conditions, either as victims of human exploitation or as victims of human greed leading to ‘destruction of habitat’ – the passive and euphemistic phrase commonly used for their potential or actual extermination. The expression of grief (not necessarily grief itself) could in fact be seen as a privilege, which many human and nonhuman animals might not be able to afford.

Conclusions

The complexity of the issues surrounding animal grief is not easy to disentangle. Each experience of grief is unique as is each relationship animals form with others. An individual’s developmental and living condition, the nature of the lost relationship, and the circumstances of the loss are but a few of the factors affecting responses to the death of a proximal subject for humans and nonhumans alike. The scant opportunities humans have to observe such responses in nonhuman animals, as well as the diversity of response to death in both human and nonhuman animal societies, call for caution in dismissing the possibility of wide spread grief in nonhuman animals, according it only sporadic occurrence and anecdotal value. The neural substrates for conscious and affective states humans share with other species, the shared physical and mental significance of attachment relationships, the complex social structures and interpersonal relationships many animals construct and nurture, suggest that grief might be a constituent part of nonhuman animals’ lives just as it is of humans’. To better understand the implications of such loss in nonhuman societies a more emic – i.e. species/culture specific – approach is needed. Current generalisations based on the contemporary secular understanding of death have proven fruitless, in fact damaging, in the discussion of nonhuman animal grief. While none of the present or past human societies can serve as a direct model for the study of nonhuman animals’ responses to death and grief, their diverse nature can help to shed light on numerous implicated issues and advance this significant area of inquiry. Regardless of the potential economic impact, nonhuman animals’ physical and mental wellbeing is an ethical issue and as such it demands serious consideration and appropriate action.

Notes

¹ This is not denying the importance of the entirety of the brain for general adaptive as well as maladaptive functioning.

² Baird's notification is available from: <http://www.orcanetwork.org/sightings/sept10.html>. Accessed on 20 September 2013.

³ Projection of one's characteristics as an individual or group to other individuals/groups.

⁴ From *ailouros* – Greek for 'cat'.

⁵ Kubinyi and colleagues believe that robots are a viable option for future research in animal behaviour, and in their final remarks indirectly encourage invasive experiments with robot- 'raised' dog litters – by removing the pups from their mother and limiting the pups' social experience to robots – reminiscent of the atrocities psychologist Harry Harlow subjected baby rhesus monkeys to.

⁶ These neurons were first discovered in the early 1990s in macaque monkeys but the electrophysiological evidence for their existence in humans was delivered only recently (Keysers and Gazzola).

⁷ In 1997, Parkes, Laungani and Young brought out a book (*Death and Bereavement across Cultures*) on mourning practices across major world religions and a number of small scale cultures to help the medical profession be of better service to immigrant communities.

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