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In Defence of Animal Homosexuality

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Is there such thing as animal homosexuality? I begin this paper with a brief discussion of two case studies of homosexual behaviour in nonhuman animals, notably cockchafers and king penguins, in order to reveal the persistent attempts of some animal scientists to explain away animal homosexuality. I then go on to identify and analyse two philosophical concerns underlying these attempts: the problem of other minds and the problem of anthropomorphism. Critics of animal homosexuality seem to assume a) that there is no way of knowing whether nonhuman animals have minds; b) that even if they would in fact have minds, they still would not be capable of having the mental states that we usually associate with human homosexuality; and c) that even if they were capable of such states, there would still be the issue that same-sex sexual mental states and behaviours are often mistakenly identified as sexual states and behaviours. By providing arguments against each of these assumptions, I support the claim that some animals exhibit homosexuality, that there are homosexual mental states in at least some nonhuman animals, and that these states may help to explain homosexual behaviours.

Keywords

Animals • Homosexuality • Other minds • Anthropomorphism • Sexuality

1 Introduction

When it comes to humans, 'homosexuality' refers to a variety of characteristics, ranging from sexual behaviours, desires, preferences, and orientations, to sexual identities (Stein 1999). The question driving this paper is whether, and to what extent, it is justified to also ascribe such characteristics to nonhuman animals. Scientific opinions are divided on this issue, ranging from militantly positive (e.g., Bagemihl 1999; Roughgarden 2009) to cautiously positive (e.g., Sommer and Vasey 2006; Poiani 2010) to markedly negative (e.g., Stein 1999; Fausto-Sterling 2000), with many in between suggesting we should at least change the vocabulary (e.g., Gowaty 1982; Bailey and Zuk 2009).

One aim of this paper is to reveal two philosophical issues underlying this scientific discord. First of all, the problem of other minds entails that it is impossible to know whether nonhuman

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animals are minded at all, since we don't have direct access to the mind of any other living being except ourselves. The implication of this first problem is that it is safer to provide mechanistic rather than mentalistic explanations for animal behaviours, including homosexual behaviours. Secondly, there is the problem of anthropomorphism, of which I discuss two variants, following a distinction made by Fisher (1996). Categorical anthropomorphism argues that it would be a category mistake to ascribe homosexual mental states to nonhuman animals, simply because they aren't capable of having the mental states that we, humans, usually associate with human homosexuality, such as desires, preferences, orientations, and identities. Situational anthropomorphism holds that at least some animal homosexual behaviours and mental states shouldn't be labeled as homosexual, because they aren't sexual in the first place.

I offer solutions for each of these problems—solutions which, I believe, provide sufficient grounds to construct a defence of animal homosexuality. More specifically, I defend a) the use of the expression 'animal homosexuality', as well as its many derivatives, in the animal sciences; b) positing the existence of homosexual mental states in at least some nonhuman animals; and c) considering such states in explaining observed homosexual behaviours.

Why is it important to defend these three claims? First of all, putting them on the agenda requires us to provide much-needed semantic and conceptual clarity in the domain of animal homosexuality. Deciding, for example, whether it makes sense to continue talking about *homosexual* activities in non-human animals, requires deciding what exactly counts as homosexuality and what is sexual about it. Providing conceptual clarity is one of the ways in which philosophy can make itself useful for the sciences (Laplane et al. 2019). Another way to make itself useful is to critically question and evaluate scientific assumptions. One of the (tacit) assumptions in research on animal homosexuality is that mechanistic explanations of homosexual behaviours in animals are somehow superior to mentalistic explanations. In consequence, the latter are rarely considered, which makes it very hard to compare the strenghts and weaknesses of both kinds of explanations. Thirdly and finally, debating the existence of mental states in non-human animals, including homosexual mental states, is important for moral reasons. Each and every ethical theory ascribing moral interests or rights to non-human animals, does so on the assumption that they have certain mental states, such as the ability to feel pain. Conversely, if it is true that non-human animals have little or no mental life, then there is no good reason to include them in our moral community. Lacking moral interests and rights, they become prey to indifference and, at worst, abuse (Rowlands 2009; Despret 2016).

I conclude this introduction with two disclaimers. First, my focus in this paper is on *male* homosexuality, for various reasons. Recent research shows that there are numerous differences between human male and female homosexuality (for an overview, see Bailey et al. 2016). On a behavioural level, for example, human male homosexuals are more sexually active and less monogamous than female homosexuals. The latter's sexual orientation has also been shown to be more fluid, i.e., changing over time on a Kinsey scale. It seems reasonable to expect these differences to also occur in the context of non-human animals, and so to limit the scope of this paper, I decided to focus on homosexuality in male non-human homosexuality. It would be an interesting addition, however, to explore the vicissitudes of female homosexuality in the animal sciences, especially as it seems that mentalistic explanations for female homosexual behaviour are less problematic than for male homosexual behaviour. Vasey has argued, for example, that one should at least consider the role of sexual attraction and sexual pleasure in explaining female behaviours, such as mounting and ventro-ventral contact, in Japanese macaques (Vasey 1995, 2002; see also Poiani 2010, 392ff). Second, I will not talk about *heterosexual* animal behaviours and mental states, if only because, as Bagemihl observes, "when it comes to heterosexual activities, … scientists are not at all adverse to making analogies with human behaviours ….

Male-female interactions in Savanna Baboons, for example, are likened to 'May-December romances,' 'flirting,' and other human courtship rituals in a 'singles bar'" (Bagemihl 1999, 97–8). Based on such observations, I expect mentalistic explanations of heterosexual behaviours in animals to be less problematic than similar explanations of homosexual behaviours.

2 Explaining Away Animal Homosexuality: Two Case Studies

The American historian John Boswell once claimed that "by the time of the early Christian fathers, almost all zoologists considered some animals homosexual" (1980, 52). But Boswell's claim needs some nuance. Most classical authors took the view that one might perhaps ascribe homosexual *behaviours* to animals, but one certainly cannot explain these behaviours by associating them with homosexual *mental states*, like desires, preferences, or orientations. Plutarch, for example, had a pig protagonist, Gryllus, claim that "to this very day the desires of beasts have encompassed no homosexual mating" (*Moralia*, 900D). Homosexual behaviours are rare, he claims, and they have nothing to do with love, lust, or desire, but rather with "necessity" (Ibid., 991A) which, as I will illustrate, can mean many different things.

The bottom line of Gryllus's lesson seems to be that, at least on an explanatory level, animal homosexuality radically differs from human homosexuality. Implicitly or explicitly, the very same lesson still lingers in modern research on animal homosexuality. In this section, I discuss two examples of such research: a nineteenth-century European debate about homosexual copulation in beetles, particularly in cockchafers (*Melolontha vulgaris*), which I will refer to as the *Melolontha* story, and a more recent case study on homosexual courtship in king penguins (*Apenodytes patagonicus*).

The *Melolontha* story reveals a surprising variety of early expert opinions about many aspects of homosexual behaviour in animals (Brooks 2009). The story started in the 1830s, with a number of written reports about homosexual copulation in cockchafers, published in various specialist journals from that time. The first of these reports was an 1834 communication in the German interdisciplinary science journal *Isis von Oken*, in which a German schoolteacher, August Kelch, vividly described his disbelief ("he could barely believe his eyes") upon discovering, in a forest near Ratibor (currently Racibórz in Poland), a male common cockchafer covering a smaller male forest cockchafer (*Melolontha hippocastani*) (Kelch 1834, 737). Kelch initially believed the penetrated male to be a female with male antennae. (In cockchafers, males and females can be distinguished by male antennae being slightly bigger and longer.) He only changed his mind when he found the penetrated male's genitalia hidden in his abdomen. A later report published by the French entomologist Alexandre Laboulbène (1859) confirmed Kelch's observations, while revealing more technical details about same-sex copulation in cockchafers. From the outside, male-male couplings didn't seem to differ much from male-female couplings wherein males dangle backwards off the female's back, seemingly asleep, while their penis and anal stylet provide the sole point of attachment between both partners (Ibid., 569). In male-male couplings, the penetrating male's penis was inserted entirely into the external reproductive orifice of the penetrated male. Consequently, the latter's genitalia were pushed back into his abdomen.

These first observations of insect same-sex copulation were greeted with a variety of negative attitudes, including disbelief and disgust. Nineteenth-century entomologists unanimously concurred in morally condemning animal homosexual copulation, using such terms as 'morbid', 'monstrous', 'unnatural', and even 'hideous' (Brooks 2009). More importantly, their moral disgust went hand in hand with a particular set of interpretations or explanations of the insects' behaviour. For reasons to be explored, some commentators have described these explanations as "negative" (Bagmihl 1999, 88; Roughgarden 2009, 82). The *Melolontha* story reveals at least three negative explanations.

A first explanatory hypothesis, already popular in classical antiquity, says that animals only court or mate with same-sex partners in the absence of available and suitable partners of the opposite sex. This lack of choice, which is often associated with conditions of captivity, is one of the possible meanings of 'necessity' in Gryllus' account of animal homosexuality. In this view, homosexuality is the outcome of a Hobson's choice—a free choice in which only one option is offered. In the *Melolontha* story, the Hobson's choice hypothesis was defended by the French physician and neurologist Charles Féré: "homosexual relationships among cockchafers do not occur except in abnormal conditions. *The pursuit of another male only arises in the absence of females*" (Féré 1899, 85; italics mine).

A second hypothesis holds that animal homosexuality involves some kind of misidentification or misunderstanding, particularly on the part of the penetrating partner. Some males simply mistake other males for females—an error often precipitated by internal circumstances, including uncontrollable lust on the part of the penetrating partner (another interpretation of Gryllus's 'necessity') and exhaustion on the part of the penetrated. One of the protagonists in the *Melolontha* story, the German entomologist Doebner, suggested that male cockchafers "make use of other males to satisfy their violent procreative urges, *probably taking them for*, and overpowering them as, *females in their blind passion*" (Doebner 1850, 328; italics mine).

A third and final hypothesis, the dominance hypothesis, posits that animal homosexual behaviour is simply the outcome of the power struggle inherent in the social hierarchy of numerous animal species. In this view, homosexual behaviours are all about power, *rather than* sex. They help to negotiate power relations, particularly between males, but as a means of power, or so the hypothesis goes, they actually have nothing to do with sex. According to Ford and Beach (1951, 138), for example, Solly Zuckerman's work on female-female mounting in baboons implied that such behaviour "probably constitutes an expression of dominance *rather than sexual desire*" (Italics mine).

During the twentieth century, negative *attitudes* towards animal homosexuality have markedly abated, even though they continue to exist to this day, both in public opinion and among scientists. However, negative *explanations* of animal homosexuality are still rife in the animal sciences, if only in the tendency of some animal scientists to describe animal homosexual interactions as "pseudo-copulations", "mock courtships", "sham matings", or "false mountings" (Bagemihl 1999, 96–7; see also Despret 2016). Recent research on male-male courtship behaviour in king penguins provides an excellent example of this continuing tradition of negative explanations.

It has long been known that male penguins tend to be casual about sexual interaction. In a recently-discovered pamphlet, originally written in 1911–12, the British antarctic explorer George Levick already grudgingly reported cases of "adultery", "necrophilia", "sexual hooliganism", and homosexuality among male Adélie penguins (Levick 2012 [1915]). In one of the notebook entries upon which the pamphlet was based, Levick sighed: "There seems to be no crime too low for these Penguins" (quoted in Russell et al. 2012, 389). A later Antarctic expedition in the 1930s confirmed Levick's observations, while at the same time adding an explanation. Polar expert Brian Roberts hypothesised that penguins were "unaware of sex differences and do not differentiate between males and females even in mating" (Roberts 1940, 213). Many penguin species are sexually monomorphic, which means that males and females look very similar, if not identical, at least to the human eye. For decades, most scientists simply assumed that penguins themselves were also unable to recognize sex differences, and that mating misidentifications were the main cause of homosexual behaviours in this branch of the animal kingdom.

This instantiation of the error hypothesis was disproved, however, in a recent study on male-male courtship behaviours or 'mating displays' in a large colony of king penguins on Kerguelen Island (Pincemy et al. 2010). Over 25 percent of displaying pairs in this colony consisted of two males, courting each other on the leks during the breeding season by means of behaviours that also occur in heterosexual displays. Standing close to each other, they stretch their bodies to a maximum height, rotate their heads in unison, and expose various body parts. Why would they do that? The researchers quickly ruled out the error hypothesis, as their findings indicated that homosexual pairings occurred less often (and heterosexual ones more often) than one would expect on the assumption that males (and females) were pairing randomly, unable to detect their partners' sex (Ibid., 1214). Perhaps a more cautious conclusion would have been to say that, even though this particular penguin species generally does seem to be able to correctly identify the partners' sex, mistakes may still occur.

To explain these birds' behaviour, however, the researchers finally gravitated towards a variant of the Hobson's choice hypothesis, indicating that even though their sample of displaying birds consisted of both males and females, it still had a sex ratio of 62 percent males. Therefore, some males on the lek didn't have access to females. For those who wonder why these males didn't simply walk away, hoping they would be luckier next time, the researchers provided an extra explanation, referring to earlier research which indicated that "when king penguins came back from the sea, males had high concentrations of testosterone and luteinizing hormone, *rendering individuals extremely motivated to display, perhaps to any adult king penguin*" (Ibid., 1214; italics mine). Once on the lek, and due to these hormones, males cannot but start courting whoever they meet.

These two case studies illustrate how animal scientists typically prefer hypotheses in which homosexual activities are explained as the effect of inabilities (in sex recognition), unusual circumstances (sex ratio) and overwhelming biological imperatives (sex hormones). Critics consider these hypotheses as *negative* explanations to the extent that they seem to "explain away" animal homosexuality (Bagmihl 1999, 88; Roughgarden 2009, 82). In philosophy, explaining away a phenomenon X usually means showing that X does not exist, or at least that it is no longer rational to believe that X exists (Ratzsch and Koperski 2015). One can do so by appealing to the explanatory power of alternative hypotheses in which X doesn't play any role, much like caloric was explained away by the mechanical theory of heat. In this context, 'X' stands for animal homosexuality, and so the claim that some hypotheses, such as the Hobson's choice hypothesis or the error hypothesis, explain away animal homosexuality, can be taken to mean that they indicate that such a phenomenon does not exist.

But do they, really? At first sight, many scientific studies on animal homosexuality aren't so dismissive. The penguin report, for example, speaks of *homosexual* mating displays, and even of "occurrences of *homosexual pairs* in penguins" (Pincemy et al. 2010, 1211; italics mine). However, by providing mechanistic explanations for such behaviours in terms of sex ratios and hormone levels (think of Gryllus's 'necessity'), these studies generally avoid mentalistic explanations, i.e., explanations in terms of certain mental states underlying such behaviours. In humans, homosexual behaviours are usually seen as indicating an underlying homosexual desire, preference, orientation, or identity. So what is being explained away by mechanistic hypotheses is the existence of animal homosexual behaviour *qua* expression of underlying mental states, as well as the existence of homosexual mental states as such (which may or may not be expressed in behaviour). It is important to mention, however, that the negative explanations discussed here may well help us to make sense of some homosexual activities in the animal world. But commentators worry about the ubiquity and casualness with which they are (and have been) used to explain such activities (Bagemihl 1999; Roughgarden 2009).

Assuming that some scientific hypotheses about animal homosexuality do indeed (attempt to) explain away some part of the phenomenon, one may ask whether they succeed in doing so. This question is much harder to answer because there are many philosophical issues lurking in the background. The analogy with the philosophical debate about teleology is very instructive. Some Darwinians claim that Darwin's theory of evolution explains away the existence of design in the living world, but their opponents deny this by pointing to various philosophical issues related to the concept of design. Ratzsch and Koperski's (2015) conclusive analysis of this debate is also relevant for the debate about animal homosexuality: "Disagreement over deeper philosophical or other principles will frequently generate divergence over when something has or has not been explained away." In the following sections, I discuss two philosophical issues underlying and nurturing negative explanations of animal homosexuality: the problem of other minds and the many-headed problem of anthropomorphism.

3 Minding Animals

Is it justified to ascribe homosexual behaviours or mental states to nonhuman animals? The *Melolontha* story and many contemporary case studies on animal homosexuality illustrate how difficult it is for animal scientists to even entertain the possibility that animal behaviour would be guided by mental states like sexual desires or preferences. In their view, male cockchafers do not *want* to have sex with another male—they are *forced* into it by some combination of inabilities, unusual circumstances, and biological imperatives. Similarly, and again according to animal scientists, same-sex courtship displays in male penguins don't actually tell us anything about the actors' desires or preferences—they simply reveal the inevitability of mating misidentifications in sexually monomorphic animal species, or the necessity of natural processes.

These and other explanations of animal homosexuality can be interpreted to reveal the continuing popularity of a mechanical view of nonhuman animals, in which they are portrayed as complex but mindless biological machines (Despret 2016). In its turn, this view arises, at least in part, from a philosophical problem known as the problem of other minds. This problem is an epistemological one and is traditionally discussed in the context of human minds: How do we know whether other human beings have minds? Homosexual desires and preferences are mental states, which means they are part of what we call a mind. Philosophers distinguish between various kinds of mental state (see, e.g., Rowlands 2009). Propositional attitudes are attitudes one adopts vis-à-vis a propositional content. Being directed towards this content, they have what is known in philosophy as *intentionality* or *aboutness*. One cannot, for example, simply desire—one always desires someone or something. The same goes for various other cognitive, conative, and affective mental states, such as preference, memory, belief, hope, and fear. Sensations are a second kind of mental state. Bodily feelings, like pain or pleasure, don't have the typical intentionality of propositional attitudes, and unlike propositional attitudes, they have a distinct phenomenology. One can ask what it is like to have a particular sensation. A similar question can be asked about a third kind of mental state, i.e., experiences, which includes perceptual states, such as seeing, hearing, and touching. Like propositional attitudes, and unlike sensations, experiences are about something; unlike propositional attitudes, and like sensations, they have a distinct phenomenology. In any case, when we talk about a mind, we usually refer to a set of states belonging to one or more of these three categories or kinds of mental state.

The problem of other minds arises from a distinct asymmetry in accessing my own mental states versus other people's mental states. I have a privileged and direct access to my own mental states, so I can't be wrong, for example, when I claim to experience pain. The mental life of fellow humans, however, is only indirectly accessible for me. With varying success, I attempt to infer what other people experience, think or feel, from what they do or say, including their body language. The inevitability of this detour introduces the possibility of error in ascribing mental states to fellow humans. In fact it prevents me from knowing with certainty whether other people have *any* mental states at all. For all we know, they might be inventively designed mindless machines, and that hypothesis applies *a fortiori* to nonhuman animals. Language is an extremely important, though occasionally rather wobbly, carrier of information about other people's minds, so the problem of other minds only gets worse in the context of the animal sciences. How are we to know, with any certainty, whether, and to what extent, nonhuman animals are capable of having mental states?

Still, there are solutions to the problem of other minds, whether they are human or nonhuman (for an overview, see Andrews 2015 and Allen and Bekoff 1997). One of these solutions is an argument from analogy. The argument takes the form of an analogical inference. I know that my own mental states are intimately connected with various behaviours and bodily states. My sexual desire, for example, usually shows itself in various bodily signs of sexual arousal, but also in my tendency to act in ways that are likely to bring about the object of my desire. Therefore, on observing the same or similar behaviours and bodily states in other living beings, I am entitled to infer that they also have similar mental states. The category of bodily states should be interpreted broadly so as to include brain states, physiological facts, and DNA. The more similarities involved, the more likely that other creatures have minds like mine. This likelihood is of course inversely proportional to the phylogenetic distance between their species and mine.

The argument from analogy is often complemented with a so-called inference to the best explanation, which is in fact a general rule of thumb for reasoning: given two or more competing hypotheses for X, infer the truth of that hypothesis which best explains X. Consider the case of king penguin courtship again. One hypothesis explains such sexual behaviour as the mechanical effect of various internal and external circumstances. But why not consider still another hypothesis, i.e., that some male king penguins actually *desire* or even *prefer* to court other males? Elevated levels of sex hormones may indicate that they are indeed sexually aroused when courting other males, and research shows that they go to great lengths to be close to each other, with a tiny minority of them even learning each other's trumpeting calls (Pincemy et al. 2010). In human males, such bodily states and behaviours usually reflect a mental state, such as a homosexual desire, and so it is perfectly legitimate to hypothesize that some male-male penguin courtship displays are driven by relevantly similar mental states. Whether such displays are *best* explained in terms of these states, is at least in part an empirical matter, as it depends on a comparison of the predictive and explanatory powers of both hypotheses. My question is why some animal scientists systemically fail to even consider mentalistic hypotheses for animal homosexual behaviours.

Critics may object that both the argument from analogy and the inference to the best explanation argument have their weaknesses, and that we may never be justified to the point of certainty when ascribing mental states to non-human animals. The point is, however, that these arguments are generally considered sufficient for ascribing mental states to humans, so the onus is on the animal minds skeptic to explain why they can't or don't work in the context of animal minds.

4 Humanising Animals

The problem of other minds is an epistemological one: how do we know whether other living beings are minded (like us)? For those who don't mind minding animals, another problem promptly pops up: the problem of anthropomorphism. Anthropomorphism implies a (facile) projection of human characteristics onto nonhuman animals. This projection is based on the assumption that both species are relevantly similar, at least in certain respects, and it often serves to confirm that similarity. The problem with anthropomorphism is that, by projecting our minds and mental states onto nonhuman animals, we thereby ignore the individuality of their own minds and mental states.

The anthropomorphism objection can be interpreted in at least two different ways (Fisher 1996). In the next two sections, I will associate two kinds of anthropomorphism with two common objections against animal homosexuality, both of which are in fact attempts at explaining it away. In this section I associate *categorical* anthropomorphism with the claim that nonhuman animals don't belong to the logical category of beings capable of having certain homosexual mental states. This objection leads us to consider the nature of four such states (desires, preferences, orientations, and identities), as well as the question why nonhuman animals would not be able to have them. In the next section, I connect *situational* anthropomorphism with the objection that at least some animal homosexual behaviours and mental states should not be labeled as homosexual because they aren't sexual in the first place. This objection will bring us to a metaphysical discussion about the nature of sexuality.

Categorical anthropomorphism implies that ascribing human characteristics to nonhuman animals amounts to a logical mistake, i.e., a category mistake. A category mistake is a fallacy in which something of a specific type or logical category is considered to belong to a different type or logical category. Following Gilbert Ryle's famous example, a tourist commits such a fallacy when, after a guided tour of the many university buildings in Oxford, he asks to be shown the university itself (Ryle 1949). The mistake follows from the assumption that a university belongs to the logical category of buildings, while it actually belongs to the logical category of organisations or institutions. Similarly, it would be misguided to ascribe homosexual desires, preferences, orientations, or identities to cockchafers or king penguins, because they don't belong to the logical category of beings capable of having such mental states.

In the previous section I noted that the likelihood of nonhuman animals having minds like ours is inversely proportional to the phylogenetic distance between us. Therefore it is indeed implausible to attribute highly complex mental states to nonhuman animals that, from a phylogenetic point of view, are far removed from the human species, like birds, reptiles, and insects. It doesn't seem plausible, for example, to say that common cockchafers know that we know that they belong to the family of Scarabaeidae. In philosophical parlance, such highly complex mental states are known as second-order beliefs. But what about desires, preferences, orientations, and identities? Let us consider each of them in turn.

Desires

Some philosophers have argued that cockchafer or king penguin desires (if they have any) cannot be all that similar to human sexual desires simply because they lack the cognitive machinery that humans require to produce such complex mental states. Edward Stein, for example, employs this argument to criticise the use of fruit flies as models for human homosexuality, but his argument applies to cockchafer and penguin desires as well. He notes: "Fruit flies cannot be said to have desires or to experience attraction in ways even remotely like how humans have desires and experience attraction. (…). Human sexual responses are cognitively mediated, by which I mean that human sexual desire is intimately intertwined with our thinking processes. Flies do not have the relevant thought processes; in fact, they are at best borderline cognitive systems" (Stein 1999, 166–7). In Stein's view, it is very likely that birds do not have sexual desires either: "Although birds certainly have greater cognitive capacities than flies, it is not clear whether seagulls have the cognitive architecture required for desires and intentions; after all, the expression 'bird brain' means 'stupid' for a reason" (Stein 1999, 170–171).

One of the problems with Stein's argumentation is that his conceptualisation of desire is overly restrictive. Like many other common concepts, including the concepts of sexuality, mind, and knowledge (Silverman 2000), the concept of desire originates in a body of knowledge philosophers and psychologists refer to as *folk psychology*—a mishmash of lay constructs and conceptions, all of which have been endlessly adapted and rearranged throughout history in order to meet the changing demands of their users. Therefore, it should not surprise us that 'desire' has evolved to refer to a whole range of phenomena, and that there is quite a bit of disagreement among philosophers about how exactly to define the concept. Some of them would perhaps side with Stein in saying that desires are "intimately intertwined with our thinking processes" (Stein 1999, 167). Good-based theories of desire, for example, hold that a desire is to be equated with the belief that the object of the desire is good (see, e.g., Schroeder 2015). If such theories hold weight, then animals cannot have desires unless they can have beliefs—just another topic on which philosophers tend to disagree (Davidson 1982; Rowlands 2009).

Other philosophers disagree with this characterisation of desires as highly complex mental states. Some of them have focused on subjective arousal and feelings of pleasure that tend to accompany the satisfaction of a desire (Strawson 1994). Still others focus on the distinctive motivational value of desires, arguing that having a desire basically means being disposed to act in ways that are likely to bring about the object of desire (Smith 1994). In this view, desires are basically dispositions to act in a particular way. In the context of sexuality, some animal scientists have already operationalised such dispositions by measuring the lengths to which an animal will go to obtain sexual contact with a potential mate that is at a physical distance and only available via visual auditory or olfactory stimuli (Pfaus 2003). Many studies have shown, for example, that male rats are willing to sustain multiple electric shocks to have sex with a conspecific that they perceive to be in the typical mating posture (Pfaff 1999; Pfaus et al. 2012). If these studies are sound, it seems fair to conclude that the animals involved possess motivational structures that are highly similar to human sexual desires, and that therefore ascribing sexual desires to nonhuman animals is not a category mistake.

Of course Stein is right in saying that (some) human sexual desires are cognitively mediated, but so are many other human behaviours and mental states. Human experiences and emotions, for example, are intimately connected with various thinking processes, but that does not prevent us from ascribing hunger and anxiety to at least some nonhuman animals. In doing so, we do not have to assume that human hunger is *identical* to hunger in nonhuman animals, only that both phenomena are *similar enough*. Likewise, speaking of homosexual desires in cockchafers and king penguins does not automatically entail equating them with human homosexual desires.

At this point, anti-anthropomorphists would perhaps concede that some definitions of desire allow us to continue talking about homosexual desires in at least some nonhuman animal species. At the same time, they would insist on reserving the term 'homosexuality' for *human* behaviours and mental states, because at least some of these behaviours and mental states cannot be found elsewhere in the animal kingdom. So the argument seems to be that perhaps male cockchafers and king penguins are capable of sexually desiring one another, but even then their behaviours and desires should not be described as *homosexual*, for some other mental state X is the only true kind of homosexuality, and X, unlike behaviours or desires, can only be found in the human species.

Preferences

To understand this argument, we need to go back to the variety of characteristics associated with human homosexuality: behaviours, desires, preferences, orientations, and identities. In the previous section I discussed the relationship between behaviours and desires, and earlier in this section I defined desire as a disposition to act. Now a sexual desire *per se* does not always provide evidence of a sexual preference. According to the Hobson's choice hypothesis, some males only court or mount each other in the absence of suitable females. Their sexual behaviour may well be motivated by a homosexual desire, but that doesn't mean they sexually *prefer* males over females. Primatologist Paul Vasey (2002) proposes to speak of homosexual preferences only in contexts where a male prefers to have sex with another male, rather than a suitable female, or where a female prefers to have sex with another female, rather than a suitable male. In his view, a preference always entails some kind of choice, and the choice involved needs to be more than just a Hobson's choice. Both options have to be equivalent, viz equally likely to result in sexual contact. Vasey provides a list of five criteria for determining whether a given animal exhibits a homosexual preference rather than simply a homosexual desire: "First, the subject should be able to *simultaneously choose* between a male or female. Second, the two stimulus animals should ideally be *sexually proceptive* vis-à-vis the subject. Third, these interactions must *culminate in actual sexual behavior* between the subject and the same-sex stimulus animal. Fourth, the subject must be *uncoerced*. Fifth, it must be demonstrated that *the behaviors used to measure sexual partner preference are sexual, at least in part*" (Vasey 2002, 147; italics in original).

Research on male-male tandem formation in the common bluetail (*Ischnura elegans*)—a damselfly species—suggests there are indeed such things as homosexual preferences, in Vasey's sense, in the nonhuman animal kingdom. Tandem formation is a typical courtship behaviour in various damselfly species. It consists of one individual clasping another at the prothorax—the front segment of the trunk—with its abdominal appendages. The clasped individual decides whether or not copulation ensues after the tandem is formed—a decision most likely based on some kind of assessment of the relevant characteristics of the grasping individual. Similar to same-sex courtship in king penguins and same-sex mounting in cockchafers, male-male tandem formation in damselflies appears to be rather common in wildlife populations where both males and females are abundantly available (Utzeri and Belfiore 1990). Recent experimental evidence has confirmed these earlier wildlife observations (Van Gossum et al. 2005). Nearly 20% of freshly caught male common bluetails preferred to form a tandem with another male in a binary choice experiment wherein each (focal) male individual was given the choice between a male and a female. To their surprise, scientists also found that nearly 75% of males displayed a homosexual preference after they had spent a few days in an all-male insectary. The numbers declined again after the same males were immersed in an all-female population. (Ibid.) To rule out sex recognition issues, the scientists actually organised *two* parallel binary-choice experiments: one in which males had to choose between a male and an andromorph female, i.e., a female resembling male conspecifics in body colouration, and another in which they had to choose between a male and a gynomorph female, i.e., a female with a distinctively female colouration. The results were highly similar: in the experiment with gynomorph females, approximately 20% of males also displayed a homosexual preference (Ibid.).

While attesting to the existence of homosexual preferences in nonhuman animals, the *Ischnura*-story also reveals an important limitation in Vasey's analysis of the concept of homosexual preference. In my view, his list of criteria lacks an element of continuity or stability. A strict interpretation would allow us to conclude that a single sexual choice reveals a sexual preference. Intuitively, however, it seems that ascertaining a sexual preference involves more than a simple snapshot; it also involves a given choice to be repeated over time in consecutive sexual interactions, preferably in different social and physical environments, where both males and females are simultaneously available. This critique also applies to the damselfly-experiments and the king penguin study discussed above, in which the researchers failed to monitor the stability of sexual choices throughout consecutive experiments. It would indeed be interesting to know whether those males who preferentially courted other males would also display a homosexual preference in later experiments or observations.

Orientations

A solution to the problem with Vasey's definition of preference would be to distinguish between a homosexual preference and a homosexual orientation, reserving the term 'preference' for transient or even single sexual choices and the term 'orientation' for continuous or permanent homosexual preferences which, by definition, tend to exclude heterosexual activities. The twin elements of stability and exclusivity make it very hard for wildlife biologists to ascertain a homosexual orientation in nonhuman animals. After all, it is virtually impossible to determine whether an animal in the wild has never had any heterosexual contact, desire or preference, let alone whether it will never have one. It shouldn't surprise us, then, that some scientists consider homosexual orientations to be "very uncommon" in nonhuman animals (see, e.g., LeVay 1996, 270).

But still they exist, and in various classes across the animal kingdom. Male bottlenose dolphins (*Tursiops truncatus*) are perhaps the best-known mammalian example. On this species Bagemihl notes: "The majority of males in some populations form lifelong homosexual pairs, specific examples of which have been verified as lasting for more than ten years and continuing until death" (Bagemihl 1999, 48). In other animal classes, life-long companionships that involve sexual behaviours such as mounting or courtship, have been documented more extensively. The literature abounds with observations of such companionships in bird species including roseate terns (*Sterna dougallii*) (Nisbet and Hatch 1999), and laysan albatrosses (*Phoebastri immutabilis*) (Young et al. 2008). Importantly, none of these cases is associated with sex-segregation. They all involve animals who have access, either continually or occasionally, to members of the opposite sex.

Identities

One last stronghold of anti-anthropomorphism in the context of animal homosexuality is the concept of homosexual identity. While this concept plays an important part in numerous psychological, historical and sexological studies about human homosexuality, it has always been alarmingly underdefined, as Cass already noted in the 1980s: "There are literally hundreds of scientific articles that refer to homosexual identity, without explaining what is meant by the concept" (Cass 1984, 107). It is quite telling, for example, that a prestigious handbook such as *The Lesbian and Gay Studies Reader* (Abelove et al. 1993), contains plenty of essays dealing with sexual identities and identity politics, while none of these essays actually explains what the concept of identity is supposed to mean.

In the psychological literature, the term 'identity' is often used to refer to people who simply answer 'gay' or 'homosexual' to the question of what their sexual orientation or preference is. For these individuals, identifying as homosexual is one way of answering the question 'Who am I?' (Howard 2000). Elsewhere, for example in the sociological or political literature, the term refers to a set of properties that are somehow associated with homosexuality, to the extent that they are considered to be characteristic of someone with a homosexual preference or a homosexual orientation. In both of these 'definitions', a homosexual identity seems to presuppose the capacity for self-consciousness—the capacity to be aware of oneself *as oneself*. This condition would seem to prevent most animal species from developing some characteristic even vaguely similar to a homosexual identity in humans. Even though some animal scientists claim to have found indications of self-consciousness in certain primate species such as gorillas, orang-utans and chimpanzees, but also in bottlenose dolphins, killer whales, elephants (Plotnik et al. 2006), and magpies (Prior et al. 2008), all of which appear to recognise themselves in their reflection in a mirror, none of them would go as far as to infer that some animals identify with their sexual orientation. It seems fair to say that the presence of both homosexuality and self-consciousness is probably a necessary, but certainly not a sufficient, condition for an organism to exhibit a homosexual identity, as it testified in the sexual history of many human cultural groups.

Occasionally, however, identity talk causes confusion in the debate about animal homosexuality. According to Jennifer Terry, for example, one particular study of homosexuality in fruit flies (Odenwald and Zhang 1995) was based on the assumption that 'mutant flies' can be classified "in terms of identity—that is, as gay fruit flies rather than simply as flies that exhibited homosexual behaviour" (Terry 2000, 167). Terry's interpretation was not very charitable, however, and was largely based on a misinterpretation of the authors' use of the term 'gay'. Odenwald and Zhang didn't use that word to suggest that fruit flies self-identify in terms of their sexual behaviours, desires or preferences. They simply, though perhaps unwisely, considered it a synonym for 'homosexual'.

In sum, one can only continue to use the anthropomorphism objection against animal homosexuality by equating 'homosexuality' with 'homosexual identity', and while there are no objections of principle in doing so, it does go against the practice, both in the animal sciences and outside, of labeling at least some animal activities as *homosexual* activities. Of course anti-anthropomorphists could argue that this practice is misguided, and that our vocabulary should be expanded to include neologisms specifically designed to refer to what is now known as animal homosexuality, such as 'unisexuality' (Gowaty 1982, 631), 'same-sex sexuality' (Bailey and Zuk 2009), 'ambisexuality' or 'isosexuality' (for a list of such terms, see Bagemihl 1999, 97), all of which are supposed to be more "descriptive, adaptable, operational, and unemotional" (Gowaty 1982, 631).

To be sure, these proposals have advantages. First of all, they could help scientific research to refocus on the individuality and singularity of the sex life of nonhuman animals, rather than on its (dis)similarities with human sex life. The American biologist Marlene Zuk uses this argument in a recent essay on penguin sex. The gay movement often refers to the many male homosexual penguin couples in zoos as evidence for the normality of human homosexual parenting, while conservatives pay tribute to the dedication of heterosexual penguin-males in protecting their nest and their offspring. These ideological debates, Zuk argues, divert our attention from what is potentially unique in the secret sex life of penguin species: "If we use animals as poster children for ideology, … we risk losing sight of what is truly interesting and important about their behaviour" (Zuk 2006, 917). A second advantage of alternative designations for 'animal homosexuality', is that they aren't tainted with the biases and the sensationalism that still surround human homosexuality. For example, Gowaty mentions a scientific paper entitled 'Homosexual rape in acantocephalan worms'. In her view, the paper was greeted with "a lurid snicker" and subsequently cast aside because of its perceived thirst for sensation, which the audience "felt represented a tactic akin to a Madison Avenue sales pitch" (Gowaty 1982, 631). Either way, she concluded, the paper wasn't read seriously.

The main advantage of alternative terms—their neutrality—also entails a disadvantage: they have very little or no meaning in colloquial language. While perhaps promoting neutral communication among scientists, they also hamper science popularisation. In translating their findings to a lay audience, scientists will ultimately have to appeal to the usual suspects, such as 'homosexuality'. Secondly, and perhaps more fundamentally, 'unisexuality' and other such terms make it much harder to detect important similarities between (some kinds of) animal homosexuality and (some kinds of) human homosexuality, thus increasing the risk of missing out important information when studying both phenomena in comparative analyses. As the Australian biologist Aldo Poiani puts it: continuing to use the term 'homosexuality' in the animal sciences "allows us to put all species on equal terms from a methodological perspective, and study them in comparative analyses that will detect differences and similarities in the association of same-sex mounting with various other variables and contexts" (Poiani 2010, 35).

It would indeed be regrettable to have our terminology, rather than our best empirical evidence, decide whether or not there are any similarities between human and non-human homosexuality. I therefore propose to continue using the term 'animal homosexuality', on the understanding that it simply refers to any kind of sexual contact between two individuals or organisms of the same sex. Unfortunately, even this basic definition brings its own problems, as I will explain in the next section.

5 Desexualising Animals

Even if one accepts that animals are minded creatures, and that they are capable of having mental states that are relevantly similar to those we appeal to in explaining human homosexual behaviours, one could still argue that ascribing homosexuality to nonhuman animals can be a mistake—a factual mistake rather than a categorical one. Talking about animal homosexuality, or so the objection goes, we see homosexual behaviours and mental states where there are in fact none, because they aren't sexual in the first place.

This argument appeals to a second kind of anthropomorphism, situational anthropomorphism, in which we erroneously ascribe a behaviour or mental state to a nonhuman animal that may well be capable of such states, but doesn't, at this moment, find itself in any of them (Fisher 1996). Typical examples of situational anthropomorphism include the grinning of chimpansees, which humans often read as an expression of joy, while it actually is an anxious reaction to an unexpected and frightening stimulus. Chimpansees may well be able to experience joy; they simply don't express it by means of grinning. Similarly, cockchafers and king penguins may well be capable of having homosexual desires and preferences, but mounting and courting are not to be considered manifestations of such mental states. Following the three negative explanations discussed in the first section of my paper, these behaviours may be interpreted alternatively as the result of a Hobson's choice, a sexual identification error, or some kind of power game.

While all three of these explanations can be interpreted as attempts to explain away animal homosexuality, the third one does so in a very particular way. The power game explanation can indeed be taken to imply that ascribing homosexual behaviours and mental states to nonhuman animals is a case of situational anthropomorphism, because it erroneously assumes that such behaviours and mental states are sexual in the first place. To understand this objection, one must connect the power game explanation with the literature on dominance hierarchy. A dominance hierarchy is basically a social ranking system that determines one's access to resources and mates (Wickler 1967; Vasey 1995). In the animal sciences, homosexual behaviours are often thought of as ritualised gestures for communicating and further establishing one's rank within the hierarchy (see, e.g., Sommer and Vasey 2006; Adriaens and De Block 2016). The roles that individuals adopt during such interactions reflect their position in the ranking system: penetrating or mounting expresses one's dominance over the other, while being penetrated or mounted expresses one's subordination.

Critics argue that the dominance hypothesis, like many other functional explanations of animal homosexual behaviour, is guilty of "desexualising same-sex sexuality" (Bagemihl 1999, 687; Sommer et al. 2006, 265). According to Bagemihl, for example, the logic of such explanations dictates that homosexual behaviour is *either* functional *or* sexual behaviour. So if it is functional, it can't be sexual; and if it can't be sexual, it obviously can't be homosexual either. A recent case study illustrates the continuing allure of such reasoning. In August 2017, the British wildlife photographer and conservationist Paul Goldstein caught two male lions on camera "sneaking off into the bushes … for some privacy", somewhere in a far corner of the Masai Mara nature reserve in Kenya (Malm 2017). His pictures document how one lion mounts the other in a copulation that takes approximately a minute—much longer than the average heterosexual lion copulation. After that, the couple hung around for a while, cuddling and nuzzling each other, and even, as Goldstein put it in a *Daily Mail* interview, "throwing a conspiratorial wink" (Ibid.). Goldstein didn't mind interpreting the lions' behaviour as homosexual, but some scientific commentators, like Craig Packer from the Lion Center in Minnesota, were quick to dismiss his interpretation as an example of situational anthropomorphism. In an interview with the science website *Live Science*, Packer claims that "the mounting behaviour isn't actually sexual" (quoted in Pappas 2017). Rather, he says, "it's a social interaction that has nothing to do with sexual pleasure." What Packer seems to be doing here is to explain away homosexual behaviour as social behaviour, *rather than* (homo)sexual behaviour. In the history of research on the topic, explaining away animal homosexuality by desexualising it has not been uncommon. I already mentioned the work of Zuckerman, but the practice extends further back in time. At the end of the nineteenth century, for example, the German sexologist Albert Moll criticised earlier observations of female homosexual mounting in monkeys and dogs by asking whether "perhaps they were just playing", and then concluding that "we can't just consider such little games as homosexual acts" (Moll 1898, 369).

The term 'socio-sexual' often pops up in this context, and the true meaning of this term, according to Bagemihl (1999, 116), is "not fully or exclusively sexual." Concluding a section on functional explanations of animal homosexuality, he posits: "In the vast majority of cases these functions are ascribed to a behaviour instead of, rather than along with, a sexual component …. The erasure by zoologists of sexual interpretations from same-sex contexts has been categorical and nearly ubiquitous" (Bagemihl 1999, 115–6). On this subject, however, I disagree with Bagemihl. For one thing, many zoologists and evolutionary biologists are well aware of the possibility that homosexual behaviour can serve one or more evolutionary functions, such as dominance expression or alliance formation, without thereby losing its sexual character. Homosexuality, whether human or animal, can be both functional and sexual (Sommer and Vasey 2006, 13; see also Poiani 2010).

Another problem with Bagemihl's wholesale critique is its disregard for the possibility that (some) scientists don't consider (some) homosexual behaviours in animals sexual simply because these behaviours fall outside their implicit or explicit definition of sexuality. Here the debate about explaining away animal homosexuality leads us to explore a rather metaphysical issue—the nature of sexuality. Suppose we would define 'sexual behaviour' rather narrowly as 'behaviour involving genital penetration and including ejaculation'. In that case we would have good reasons to not classify kissing, genital nuzzling or beak-genital propulsion as sexual behaviours. (Beak-genital propulsion is a behaviour typical of some species of waterfowl in which one animal inserts its bill into the anal opening of the other, thus propelling it through the water.)

Therefore, in order to evaluate Packer's claim that same-sex mounting in lions is 'not really sexual', we first need to understand how he defines 'sexuality', and how the larger community of animal scientists has come to understand it.

What is the nature of sexuality? The question is answered differently in two authoritative and recent definitions of 'homosexual behaviour' in the animal science literature. In a review paper, Bailey and Zuk (2009, 441) define 'homosexual behaviour' as "interactions between same-sex individuals that also occur between opposite-sex individuals in the context of reproduction." The underlying assumption seems to be that homosexual interactions derive their sexual quality from also occuring in the context of reproduction. Both mounting in cockchafers and courtship displays in king penguins are part of the respective species' reproductive behavioural repertoire, so according to Bailey and Zuk they are to be considered sexual and, more particularly, homosexual. However, the case of the Kenyan lions isn't so clear-cut. Does the mounting involved also occur in reproductive interactions? On the one hand, there are remarkable similarities between homosexual and heterosexual mounting in lions, such as the main movements and the sexual position. On the other, there are also striking differences. As noted above, homosexual mounting can take longer than the heterosexual variant. It is also less violent—the penetrating partner doesn't run off immediately after ejaculating. Some commentators, including Packer, even claim that there is in fact no ejaculation involved in homosexual mounting.

The question is, then, whether these differences are big enough to conclude that the mounting involved in same-sex interactions doesn't occur in the context of reproduction. If Packer thinks they are, then he can legitimately conclude that homosexual mounting is 'not really sexual'. Bagemihl would be wrong to dismiss such conclusion as morally or politically motivated (see also Poiani 2010, 11), though he rightly criticises the fact that some biologists seem to use two different definitions of sexuality at the same time: a broad one in discussions of heterosexual behaviour, and a very narrow one in discussions of homosexual behaviour. He provides an interesting example: "Simple genital nuzzling of a female Vicuna by a male—taking place outside of the breeding season, and without any mounting or copulation to accompany it—is classified as sexual behaviour, while actual same-sex mounting in the same species is considered nonsexual or 'play' behaviour" (Bagemihl 1999, 117).

In philosophy, a definition is considered vague to the extent that it allows for borderline cases to occur. Bailey and Zuk's definition of 'homosexual behaviour' is vague because it cannot settle whether homosexual mounting in lions is to be considered homosexual behaviour or not. Apart from being vague, this first definition is also needlessly restrictive, in that it requires a homosexual behaviour to also occur "between opposite-sex individuals *in the context of reproduction*" (Ibid.; italics mine). It seems obvious, however, that there are numerous examples of non-reproductive heterosexual behaviours, including fellatio and masturbation, that also have a counterpart in male-male interactions. Should we then conclude that (same-sex) fellatio and masturbation cannot be considered homosexual behaviours?

Perhaps a second definition of 'homosexual behaviour' can bring some relief. Bagemihl avoids the restrictiveness of the first definition by defining 'homosexuality' as "any activity between two animals of the same sex that involves behaviors independently recognized (*usually in heterosexual contexts*) as courtship, sexual, pair-bonding, or parenting activities" (Bagemihl 1999, 98–9; italics mine). Further down the same page, he indeed proposes a " 'broad' definition of homosexuality" as referring "not only to overt sexual behavior between animals of the same sex, but also to related activities that are more typically associated with a heterosexual or breeding context." By creating a new benchmark—heterosexuality rather than reproduction—to adjudicate on borderline cases, Bagemihl's definition indeed allows us to include same-sex fellatio and masturbation as instances of homosexual behaviour. Much like Bailey and Zuk's definition, however, it cannot help us determine whether male-male mounting in lions belongs to the same category, unless Bagemihl were to specify what he means by "overt sexual behaviour" and "independently recognizing" a behaviour as a sexual one.

It seems fair to say, then, that these two definitions of 'homosexual behaviour' in nonhuman animals cannot help us answer the question what conditions a behaviour or mental state has to fulfil in order to be sexual. But perhaps the question itself is misguided in assuming that all and only sexual behaviours and mental states share some unique common denominator which explains their sexual quality. This assumption is considered dubious in the scant philosophical literature on the nature of sexuality (Soble 2008; Christina 2017). Perhaps it would be wiser to conceptualise sexuality as a family, i.e., a casual conglomeration of elements that lack a single common denominator, but share a multitude of family resemblances. The concept of family is very broadly defined here, referring to a set of related individuals endlessly extending both in time and in kinship, thus including great-great-grandparents and other distant relatives. Each family has its own prototypes—individuals typified by a high number of family resemblances—as well as its borderline cases, growing in number upon following the family tree up or down in time or kinship. To characterize a family, one doesn't look for its essence, but rather for its prototypes and family resemblances. Borderline cases are unavoidable, so a family is a very vague entity indeed. Such an account of sexuality could be labeled a Wittgensteinian or prototype-resemblance account.

A prototype resemblance analysis of the concept of sexuality relieves us of the obligation to come up with a clear-cut answer to each and every question about the sexual nature of behaviours and mental states. Mounting, courting, penetrating, kissing, nuzzling, throwing a conspiratorial wink—they may not share some unique common denominator, but they do share many family resemblances. Some sexual behaviours involve erection or ejaculation or vaginal lubrication; some are pleasurable; some occur in the context of reproduction; some are closely tied up with specific mental states, such as sexual desires; and so on. Behaviours typified by many such characteristics can be considered prototypically sexual behaviours, while those with barely any such characteristics are bound to be borderline cases. To determine a behaviour's place on this wide spectrum between prototypes and borderline cases, one needs as much information as possible about the behaviour at hand—the context in which it occurs, the function it fulfils in that context, the nature of the accompanying behaviours and mental states, and so on.

6 Conclusion

Is there such thing as animal homosexuality? Some animal scientists believe there isn't. In this paper I sketched some of their arguments, as they revolve around two philosophical issues: the problem of other minds and the problem of anthropomorphism. I also attempted to counter these arguments by indicating that there are good reasons to believe that nonhuman animals are indeed minded creatures, that they can in fact be said to be capable of having many, though not all, mental states that are relevantly similar to those we associate with human homosexuality, and finally that, even though it may at times be difficult to ascertain the sexual nature of animal behaviours and mental states, due to the vagueness of the concept of sexuality, one should be careful in desexualising such behaviours and mental states.

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