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Animal Pain and Welfare: Can Pain Sometimes Be Worse for Them than for Us?

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Abstract and Keywords

This article probes the widely held view in philosophy and the biological sciences that the amount and ways in which a nonhuman animal can experience pain, by comparison to the human animal, is limited to the feeling of physical pain. The justification for this view is often said to be that animals are less cognitively sophisticated than humans because they lack awareness of self and a sense of the past and the future. This view suggests that pain for animals is not as bad as pain is for us. The discussion presents a notably different approach to the understanding of animal pain. It uses welfare analysis and decision-making frameworks to argue that pain may be worse for animals than the comparable amount of pain is for humans.

Keywords: biological sciences, pain experience, animal pain, welfare analysis

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THERE is a widely held view in philosophy and the biological sciences that the amount and ways in which an animal can experience pain as compared to us is limited to the feeling of sensory pain.¹ The primary reason for this view is the belief that animals are less cognitively sophisticated than we are, and in particular that animals lack awareness of self and a sense of the past and the future. If pain is inflicted on animals, it is thought that while animals may be able to feel the pain itself, they are not capable of the higher order suffering that may accompany the feeling of pain in us. This view suggests that pain for animals is not as bad as pain is for us.

A considerable literature in philosophy of mind, ethics, cognitive ethology, and biology examines the ability of animals to feel pain and examines the nature of their pain. In this chapter, I will present a different approach to the understanding of animal pain, largely relying on the framework of welfare analysis and practical rationality, although the arguments can be broadened beyond this framework. I will argue that due to the same reasons for which animals are thought to be incapable of sophisticated forms of suffering—namely, a lack of self- and time-awareness—a given amount of pain may actually be worse for animals in certain respects than many have thought and may even be worse for them than the comparable amount of (p. 496) pain is for us. The argument that pain may be worse for them follows mainly as a consequence of reflecting on the reasons philosophers, psychologists, and economists typically give for thinking that pain and discomfort are sometimes discounted.

Specifically, I will argue that at least within a moderate range of severity, pain may not always play a significant role in our welfare or well-being for two reasons. The first is that the intensity of pain for us can often be mitigated through expectations, memories, and the consideration of and attention to other interests. The second and main reason is that we are able to engage in inter-temporal calculations with respect to our interests and frequently discount pain in order to achieve other, higher order or longer term interests. The arguments in this chapter suggest that we are moving too fast in thinking that because we are capable of suffering, and various animals are not, a given amount of pain is worse for us than it is for animals. I will argue that at least for some animals, a given measure of pain can be worse for them than a comparable measure of pain is for us.

Views of Pain and Suffering

Some philosophers have challenged the idea that animals are capable of experiencing pain. René Descartes famously denied consciousness to animals on the grounds that they lack language and he believed animals to be automata.² Much more recently, Peter Harrison has suggested that animals do not feel pain.³ He argues that in order for a being to feel pain, there must be reasons for him to bear pain; that is, he argues that pain operates as a kind of consideration in the rational decision-making processes of free agents. Without such rationality, pain is superfluous. Harrison writes, “We are free, in painful situations, to damage our bodies if we believe there is a higher priority Pain frees us from the compulsion of acting instinctively; it issues harsh warnings, but they are warnings which may be ignored.”⁴ He thinks that we do not conceive of animals as possessing free will and as acting from reasons, and therefore that there is a reason to be skeptical of thinking that animals experience pain. Harrison's view does not seem to be compelling even if one were to adopt a broadly functionalist account of pain. Pain would serve other functions besides figuring in rational decision-making, such as to indicate to the being that its body has been damaged or that it is in danger. Aside from these worries with Harrison's view, however, we will see that the point about rational decision-making can be turned around to show that pain can actually be worse for animals than for us.

Despite the presence of a few accounts that deny pain experience to animals, most philosophers do attribute such experience to animals. This is even true of Peter Carruthers, although some commentators seem to interpret him incorrectly.⁵ The misinterpretation is perhaps partly due to the fact that Carruthers' position seems to have been somewhat modified. In his earlier papers, he maintained that (p. 497) animals do not feel anything, because all of their experiences are unconscious.⁶ His view, then and now, can be characterized as falling into a broad category of consciousness accounts that entail what is called “higher order” consciousness. These theories propose that a perceptual state, such as a bodily sensation, is conscious if and only if it is represented in higher order consciousness. For Carruthers, representation in higher order consciousness requires that the perceptual state is available to be thought about. He maintained that animals cannot think about their experiences with acts of thinking that can be scrutinized, and so “while animals *have* pains, they do not *feel* pains.”⁷

However, Carruthers has recently modified and clarified his earlier position. In a 2004 paper, he claims that animals have first-order experiential states.⁸ He denies to most animals the higher order sort of “phenomenal consciousness” that humans have. The latter sort of consciousness, according to Carruthers, is distinct because of its subjective quality and availability to introspection. Although some commentators continue to read Carruthers as maintaining that most animals do not experience pain, this does not seem to be supported. Carruthers believes that most animals do experience pain in the first-

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order sense, that of perceiving pain as located in some specific region of their body, even if their pains are not conscious in the subjective and introspective sense.⁹

Furthermore, it is the first-order perception of pain, according to Carruthers, that is aversive or awful. He writes that “reflecting on the phenomenology of our own pain perceptions is yet another way of appreciating that it is the first-order content of pain-states that carry their intrinsic awfulness. Suppose that you have just been stung by a bee while walking barefoot across the grass, and that you are feeling an intense sharp pain ... the focus of your attention, is the property that is *represented* as being present in your foot, not the mental state of *representing* that property. And this would have been the same even if your pain-state had lacked a higher-order analog content, and hence hadn't been a phenomenally conscious one.”¹⁰ Thus, despite not having phenomenal consciousness of pain, most animals can find their pains to be awful or aversive. Carruthers further concludes that it is this first-order pain experience that is the appropriate object of sympathy in both animals and us.¹¹

Many prominent authors in the philosophy of mind literature maintain that there is a distinction between pain and suffering. While granting that many animals may experience pain, they either deny that animals suffer or suggest that animals are at best capable of an attenuated form of suffering, at least as compared to us. Daniel Dennett has prominently made such a distinction. He argues that in order for some being to suffer, there must be a subject or self to whom the pain is occurring. To satisfy this condition, he believes we need the kind of consciousness that is to be found in adult humans. Dennett writes that “in order to be conscious—in order to be the sort of thing that it is like something to be—it is necessary to have a certain sort of informational organization that endows that thing with a wide set of cognitive powers (such as the powers of reflection, and re-representation). This sort of internal organization does not come automatically with so-called sentience.”¹² He says of creatures who do not have a complex internal organization that they are (p. 498) “constitutionally incapable of undergoing the *sort* or *amount* of suffering that a normal human can undergo.”¹³

What is the suffering that a normal human can experience? Although he never expressly defines it, Dennett gestures toward it in a few passages. For instance, in one passage he asserts that if someone were to step on your toe, despite the intense pain that this may cause you, if there is no long-term damage to your foot then the person's action has not harmed you, because it is too brief to matter. However, he adds that “if in stepping on your toe I have interrupted your singing of the aria, thereby ruining your operatic career, that is quite another matter.”¹⁴ A few paragraphs later, he discusses suffering in the following way: “The anticipation and aftermath, and the recognition of the implications for one's life plans and prospects, cannot be set aside as the ‘merely cognitive’ accompaniments of the suffering.”¹⁵ This suggests that the former are what constitute suffering. This is supported a few sentences later in the same text when Dennett asserts that in order to understand suffering, we need to study a creature's life, not its brain.¹⁶ Putting all of these remarks together, it seems that suffering consists in the thwarting or

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frustrating of one's desires and goals, and the recognition of such frustration, as well as the memory and anticipation of it.

Michael Tye has recently argued that very simple creatures are phenomenally conscious and are capable of experiencing pain, but may not be capable of suffering. Suffering, he argues, requires cognitive awareness of one's experience of pain. More specifically, simple creatures lack higher order consciousness, which means that “they have no *cognitive* awareness of their sensory states. They do not bring their own *experiences* under concepts.”¹⁷ For Tye, suffering is characterized by awareness of and attention to one's pain. This view implies, however, that when awareness and attention diminish, so does suffering. Indeed, he writes that “the person who has a bad headache and who is distracted for a moment or two does not suffer at that time. The headache continues to exist—briefly not noticing it does not eliminate it—but there is no cognitive awareness of pain and hence no suffering.”¹⁸

Robert Hanna similarly makes a distinction between pain and suffering. He argues that pain amounts to something like the conscious perception of pain located in the body—what he calls “bodily nociperception”—whereas suffering amounts to “self-conscious or self-reflective emotional pain.”¹⁹ Finally, the distinction between pain and suffering also seems to figure in Harrison's work when he states that “animals do not experience pain as we do” and that animals are mere bundles of sensations that cannot remember pain because they have no concept of self.²⁰

To now collect the views of all of these authors: in order to suffer, beings must be capable of being aware that they are the subject of pain; they must be able to anticipate and remember pain; and they must recognize that their desires or goals will be frustrated by pain. We can reduce these requirements to two general capacities that must be present for suffering to occur, namely *self-* and *time-awareness*. We have seen that some philosophers maintain that animals lack self-awareness. Self-awareness, for many of them, requires the possession of language. But it also seems plausible that they would tie time-awareness to language. Indeed, some philosophers have specifically argued that animals do not have a sense of past or future because they lack language. (p. 499)

Immanuel Kant famously argued that to move mentally beyond the sensations of the present, one must be capable of having thought. Jonathan Bennett argues that it is only with a sophisticated language that one can have thoughts that are not about the present time or circumstances. He writes that “to express beliefs about the past, or to express general beliefs, one needs a language of the right kind: roughly speaking, language with a past-tense operator (in the one case) and with something like quantifiers (in the other).”²¹ Bennett adds that the behavior of animals lacking this kind of language can of course be *affected* by the past, but this does not imply that these animals can consider other times—it does not remove them from the “prison of what is present and particular.”²²

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Against the few authors who deny any pain experience to animals, I will proceed on the plausible view that there is pain that animals are capable of experiencing and that, following Carruthers, this pain experience, as opposed to the higher order experience of pain, is what is aversive and awful. I will call this the *feeling* of pain or, simply, *pain*.²³ For the sake of the present analysis, though, I will also assume that many of the views described above are correct in that there is a distinction between pain and suffering, and that many animals are incapable of experiencing suffering. The experience of suffering requires awareness of self and time, or cognitive sophistication, and, at least initially, I will grant that many animals lack such awareness.²⁴ Additionally, I will assume that there are two distinct categories of beings, normal adult humans and animals—that is, cognitively sophisticated (hereafter, sophisticated) and cognitively unsophisticated (hereafter, unsophisticated) beings—and that there are no degrees in awareness of self and time.²⁵ However in a later part of the chapter, I will discuss research that shows that many primates and higher mammals possess at least a rudimentary form of cognitive sophistication. I will examine the implications of this research for pain experience in these animals.

In the remainder of this chapter, I will argue that the absence of self- and time-awareness may mean that the feeling of pain for animals is much worse in certain respects than has previously been thought. The absence of awareness may mean that in some cases pain is worse for animals than a comparable measure of pain for us.²⁶

Animal Pain and Welfare

In order to illuminate how pain in certain contexts may be worse for unsophisticated beings than it is for us, I will frame the arguments first in the terms of welfare analysis.²⁷ Even though some of these terms are not commonly employed in philosophical discussions, there is sufficient similarity in the concepts to enable us to draw philosophical implications. For instance, even though welfare analysis relies on the ideas of welfare and interests or preferences and many philosophers speak instead of desires and well-being, there is considerable overlap between these concepts, at least in some accounts. For example, welfare depends on the extent to which one's interests or preferences are satisfied, and this is also one common way to define "well-being."²⁸ Moreover, it may be more appropriate to speak in terms of interests for discussions involving animals because the possession of desires may be more cognitively demanding, and therefore it may be thought that animals lack desires. Some authors deny that animals are capable of having desires on the grounds that desires require language, however it is not generally denied that animals have interests; in order for it to be said that a being has interests it simply requires that certain things can be good or bad for that being.²⁹ On the reasonable view that animals can have the feeling of pain and that pain is aversive or bad, animals have an interest in avoiding pain.

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Saying something meaningful about the strength of an interest is not straightforward, and it is often viewed as difficult if not impossible to compare strength of an interest across individuals.³⁰ However, we can discuss how much value or weight an interest has in some being's welfare—or more generally, how significant it is to the being's welfare—relative to the welfare of others.³¹ Perhaps the most trivial way to think about the weight of any interest has to do with the proportion of welfare affected by that interest. In particular, all other things being equal, the greater the *amount* of similarly important interests the satisfaction of which comprises welfare, the smaller the change in welfare when any one of these interests is satisfied or frustrated. That is, the less is the interest's proportion of total welfare. Considering the interest in avoiding pain, in an extreme case in which a being has only this one interest, to violate it by inflicting pain would be to reduce that being's total welfare to zero, at least for a period of time. To take less extreme cases, animals such as mice or rats will have few interests other than the avoidance of pain and discomfort, such as subsistence, shelter, and rearing offspring. For these animals, the infliction of pain would present a large change in welfare.

When speaking of sophisticated beings such as adult humans, it may be appropriate to shift the terminology from interests to desires, for the reasons stated above and for further reasons that will be illuminated below. However, for the sake of comparison between different kinds of beings, I will continue to use the terminology of *interests*, but “concerns,” “desires,” or “goals” can be substituted for “interests” for most of what follows. Given, as we will see, that we typically have numerous significant interests beyond that of avoiding pain, when the interest in avoiding pain is violated because of pain infliction, there will be a relatively smaller change in our welfare than for many animals, all things being equal. For instance, compare the animal to someone who has interests in pursuing hobbies, in cultivating his talents, in public esteem and his reputation, and in living in greater harmony with his loved ones. Because of his other significant interests, pain would seem to constitute a smaller share of his total welfare compared to the animal, all things being equal.

Of course, all things are not equal; how much weight pain has in the being's total welfare will not only be determined by the amount of interests the being has, but also by at least two other important and related factors. First, the weight that pain has in a being's welfare will depend on the extent to which the interest in avoiding pain is satisfied or violated, or the extent to which the being experiences pain. (p. 501) Second, it seems that the weight that pain has will also depend on the value or weight that the being himself assigns to pain—something, as we will see, that may only be possible for sophisticated beings. Having more sophisticated and a larger amount of interests, I will argue, may reduce both the weight that we assign to pain and the intensity of pain, thereby decreasing the change in welfare that results when pain is experienced. More specifically, I will show that cognitive sophistication gives rise to certain psychological abilities, such as the ability to engage in inter-temporal calculation, and increases the variety and kinds of interests that may serve as substitutes for focusing or concentrating on pain. Both

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mechanisms may operate to diminish emphasis on oneself and on one's short-term and present circumstances, including on the feeling of pain.

Weighting Pain: Discounting and Trading-off

In this section, I will argue that as sophisticated beings we possess psychological abilities that may decrease the role that a given amount of pain plays in our welfare. This argument follows as a consequence of reflecting on the reasons philosophers, psychologists, and economists typically give for thinking that we make inter-temporal calculations about our interests and, especially, that pain and discomfort are sometimes discounted. Before making this argument, I will discuss how awareness of self and time expands the kinds of interests that we have and enables us to engage in inter-temporal interest calculation.

In addition to being able to make temporal distinctions, we know that *we* exist over time. Understanding that one exists over time is distinct from merely temporally differentiating events as the former requires both temporal- and self-awareness—that is, a concept of the passage of time that includes an idea of the self along that time horizon. As suggested above by the work of authors like Dennett, Harrison, and Bennett, time-awareness enables reflection on and evaluation of one's goals and one's life, but in order to do this, one must see the different goals and stages of life as belonging to the same continuing subject. Awareness of ourselves as existing over time allows us to engage in a familiar kind of perspective-shifting so that we abstract from a moment in time and consider our interests from the perspective of different periods of our lives or from some meta-perspective.

Perspective-shifting gives rise to complex and long-term interests. By “complex,” I am referring to a category of interests that includes what are commonly called higher order and global interests. Harry Frankfurt and Richard Jeffrey separately make a distinction between simple preferences, what they call first-order preferences—which are for ordinary objects, such as for pizza, to play sports, or to read a book—and the more sophisticated preferences that we have regarding our first-order preferences, or higher order preferences.³² Whereas a preference to smoke (p. 502) would be a first-order preference, having a preference not to have the preference to smoke would be a higher-order preference.³³ Our higher-order preferences are thought to be our more considered concerns and to reflect what we care about or what is important to us.³⁴ A similar kind of complex interest may be called a global interest. Parfit has illustrated the differences between global and local interests with the example about drug addiction.³⁵ Even if one's drug addiction could be satiated all the time, which would satisfy a local interest, one would prefer not to be a drug addict, at all, which is a global interest. The sum total of each local interest fulfillment—here every time one is given the drug—could be greater

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than the non-fulfillment of the one global interest—here not being a drug addict—but Parfit argues that this is not how most of us think about our lives.³⁶

In addition to the distinction between higher order or global interests—complex interests—and first-order or simple interests, there is an important distinction between long-term and short-term interests.³⁷ Complex interests may require more reflection and metaevaluation than simple long-term interests, but even simple long-term interests are still only possible with a sense of oneself existing over time. In order to formulate an interest for the long-term, one needs to recognize that there will be a future self that the interest will serve. This recognition of possible benefit in the future requires that one has a sense of oneself as a continuing single subject.³⁸ Additionally, there is a conceptual overlap between complex and longer term interests—complex interests are often formulated with regard to more than one period of time and are often long-term interests. For instance, an interest in breaking a drug addiction might arise from an interest in being healthy or productive in the future.

Authors such as Frankfurt, Jeffrey, Parfit, and Nozick suggest that many of us place great weight on long-term and complex interests, and in the process our short-term and first-order interests are discounted. The latter are discounted because we engage in inter-temporal interest calculation, which can be described as assigning weight or value to one's different interests and concerns across time, including discounting some of them or valuing them less, and formulating trade-offs among them.³⁹ Making trade-offs among one's interests involves comparing them and favoring the satisfaction of some over others.⁴⁰ Inter-temporal trade-offs and weighting, and discounting especially, can play an especially important role in reducing emphasis on one's short-term and first-order interests. In particular, these interests are often minimized in an effort to live a more enriched life, to insure against future financial or health concerns, to be more productive or successful, or to live morally—for the things we care about.⁴¹

Our ability to form reflective, long-term, and complex interests places pressure on us to avoid living moment to moment. Most of us do not have lives of unconnected moments of interest-satisfaction without any regard to the long term, even if it is a rather myopic long term. We bring interests across different time periods into relation with one another when we compare them, weight them, and favor the satisfaction of some over the satisfaction of others. There is ample research in psychology and behavioral economics that demonstrates that we do in fact shift (p. 503) between time frames and levels of interests when making decisions in a variety of contexts.⁴² According to some of this research, we are even capable of anticipating the emotions that will accompany bad choices, and this anticipation consequently influences our decision making and subsequent behavior.⁴³ Indeed we do not even require empirical research to confirm that we engage in these cognitive activities; perspective-shifting and anticipating the results of our decisions and how we will feel about them is a familiar feature of our lives.

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We have seen that as sophisticated beings we are capable of forming long-term and complex interests and of engaging in inter-temporal interest calculation. We are now in a position to place this discussion together with the discussion of welfare in order to see what kind of impact these considerations may have on the role of pain in the welfare of animals. Recall that there are at least three ways in which the weight or value that pain has in a being's total welfare would be determined. First, and most trivially, the weight that pain has depends on the amount of other interests which, if satisfied, comprise welfare. In general, the greater the variety and amount of similarly or equally important interests, the smaller the change in welfare when any one interest is frustrated or violated. Second, and the topic of the next section, the weight of pain depends on the extent to which it is experienced. Third, its weight depends on the weight the being himself assigns to the pain. It is through this last mechanism in particular that inter-temporal interest calculation becomes important.

To put it simply, we are often willing to violate short-term and first-order interests, including the interest in avoiding pain, in order to satisfy our long-term and complex ones. That is, we often discount pain when doing so favors long-term and complex interests. Numerous examples support this claim. For instance, even something as commonplace as rigorous exercise can be painful, but when we have a concern for our health or physical appearance, we are often willing to discount the pain that we experience during and after exercise. We trade the interest in avoiding pain in this context for the sake of satisfying a complex or long-term interest to be physically fit. If we consider professional athletes, such as football players and ballerinas, it is even more obvious that many discount pain in order to achieve complex goals.

Consider also the cultural and religious practices that involve pain. These include the more severe forms of mortification of the flesh in Christianity; walking on hot coals in Hinduism; and a range of extremely painful rites of passage.⁴⁴ Then there are a variety of painful practices that countless people in various cultures engage in for the sake of aesthetic benefits. Many people often voluntarily endure blisters and bleeding so that they can wear particular shoes. Even some demanding diets can be painful. Several cosmetic procedures and techniques can similarly be very painful for people, such as getting tattoos or piercings and having certain facials. Even deep tissue massages can be painful. Other everyday ways in which we discount pain include working through an illness or headache in order to be productive. Despite the fact that we know that these things can worsen if we do not rest, we often choose to work anyway. Perhaps the most pervasive examples of choosing to endure pain for the sake of more complex interests are found in medical exams and procedures. Getting blood drawn, receiving injections, undergoing (p. 504) mammograms and prostate exams, and the aftereffects of most surgeries can be quite painful.

In all such cases, we discount the weight of pain in order to achieve other goals. This gives us reason to think that at least in the face of more long-term and complex interests, the role that pain plays in determining our welfare may not always be significant. Of course, much of the analysis concerning how we discount pain may only apply to pain

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within some moderate range. In other words, perhaps we only discount the pain of exercise, of headaches, or of medical procedures if the pain is moderate. Although this is not always the case—consider rigorous exercise, extreme cultural and religious rituals, and severe pain after surgery—this leaves open the possibility that pain outside of some moderate range of intensity would still be an important contributor to our welfare. However, we will see in the next section that there is also reason to think that pain's intensity might sometimes be less for us than for animals.

Someone might object to the foregoing analysis on the grounds that it relies too much on an interest-satisfaction view of welfare. On that account, welfare consists in the satisfaction of subjective interests. However, in some of the major alternatives to the interest-satisfaction view, welfare (or well-being) consists in the realization of certain objective interests or the attainment of certain objective goods.⁴⁵ According to this worry, the reason that pain is frequently discounted is because agents themselves do so, but if we were to adopt a more objective account of welfare, it would not be obvious that the value or weight of pain should be discounted so often. Nevertheless, there are many hybrid views of welfare that include a component of subjective interest-satisfaction, or something similar, even if they also value other goods.⁴⁶ More importantly, we need not adopt the present account of welfare or even a hybrid view to make sense of the fact that pain can be and ought to be discounted frequently. For instance, good health would be on any plausible list of objective goods and it often requires us to endure the pain of exercise and of medical procedures and surgeries.⁴⁷

Another potential worry with the above analysis is that it incorrectly paints a picture of us as beings that rationally maximize our interests. It is true that we do not always discount present costs, broadly speaking, including pain.⁴⁸ However, as Michael Bratman has stressed, we are planning creatures who have complex goals that require us to form and then stick to plans.⁴⁹ A consequence of our planning nature seems to be that even if we are not always rational in the sense of favoring long-term and complex interests over short-term and first-order ones, there is still pressure to discount the latter, or conversely to place greater weight on future time periods. It seems plausible that the greater our ability to reflectively think about long-term and complex interests, the more we experience pressure to discount present costs, including pain. Furthermore, it is not obvious that we must assume that we choose rationally in order for the point that we frequently discount pain to be effective. It is plausible to view many of the practices and actions used as examples in the preceding paragraphs as irrational in some way.

I have argued that as sophisticated beings we are capable of discounting pain and frequently do so for the sake of achieving longer term and complex interests. (p. 505) However, many animals are not capable of discounting their pain. Both long-term and complex interests require a developed sense of time and self, and in particular self-reflection or introspection, and we have seen that the authors above who discuss the nature of animal pain—including Carruthers, Dennett, Harrison, and Bennett—claim that most animals do not possess these qualities.

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Inter-temporal interest calculation is something that many animals cannot do because they lack long-term and complex interests. That is, inter-temporal calculation entails self-reflection and evaluation of one's different interests over time or from a perspective that is abstracted from any period of time, and this kind of reflection and evaluation requires the recognition that the different interests belong to the same continuing self. In addition to research in biology and ethology that denies self- and time-awareness to many animals, other research suggests that many animals cannot engage in inter-temporal decision-making, or at least not nearly to the extent that we can.⁵⁰

Animals without a sense of self and time are not able to choose to endure pain for the sake of satisfying long-term interests, and there is no global or higher order perspective to consider.⁵¹ Unlike us, an animal that cannot see itself as existing over time cannot reflect on the value or meaning of its life taken entirely, cannot form interests for life taken as a whole, and cannot formulate lifelong objectives. Thus for animals, it makes far less sense to think of pain as something that can be discounted for the sake of other long-term or complex interests. We thus have reason to think that a given measure of pain can be a larger detriment to their welfare than a comparable measure of pain is to ours.

Intensity of Pain

I will now discuss ways in which the pain experience that results from a given measure of pain *can be more intense and worse for animals* than it is for us. There are different bases for why this might happen. In some cases, the discounting of pain might directly bear on its intensity and, specifically, lower it. In other cases, the same cognitive conditions required for inter-temporal interest calculation might, for different reasons, also lower the intensity of pain. Many of the points I will make in this section are speculative, and I offer them only to demonstrate that it is not obvious that pain experience for us is worse in all ways than it is for animals.

The discounting of pain should not be assumed to affect the intensity of pain. How much value or weight one places on the interest in avoiding pain does not always affect the intensity of the experience of pain; I might discount the pain I will experience tomorrow after a strenuous run today, for example, but this discounting does not necessarily mean that the pain I will feel tomorrow will be less intense.

However, in circumstances when we discount *present* pain for the sake of long-term or complex interests, discounting might in fact bear on the intensity of pain. (p. 506)
Although I have been unable to find empirical research on this specific topic, a small thought experiment illuminates the point: imagine that you are sitting at your desk reading a book and your friend comes up beside you, inserts the tip of a three-inch needle in a vein in your arm, holds it there for few seconds, and then removes it. Now, instead imagine that you are at a doctor's office and the doctor inserts the tip of a needle of the same length, in the same spot, withdraws blood, and then removes it. It is not hard to

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imagine that the pain in the first scenario would be more intense than in the second scenario. Knowing that there would be a good reason for having the needle inserted in the second scenario—that there is a long-term or higher order interest in health, for instance—would likely lessen the intensity of the pain felt from the stick of the needle.⁵²

Without the belief that there are good reasons to endure their pain—even if there are good reasons, such as a painful but necessary veterinary procedure—animal pain would likely be more intense. There are other ways in which pain's intensity might sometimes be more for animals than for us. Namely, intensity seems to require a certain focus or attention, and cognitive sophistication may decrease the extent to which one focuses on one's pain. Consider the times you fail to notice the pain of a headache, backache, bruise, thorn prick, paper cut, or hangnail until you stop engaging in some activity, such as working, biking, gardening, or watching a movie. It seems that the more ways in which we have substitutes for focusing on or attending to pain, the more ways in which the intensity of a given painful experience might be diminished. Although we have many substitutes for focusing on pain because we have many other interests besides avoiding pain, this easing of pain may not be available for most animals.

Awareness of self and time both seem to be important to having a variety of interests. For instance, a sense of self is necessary for thinking abstractly about the self as well as about things that exist independently of the self. Interest in other persons, activities, projects, relationships, careers, general world or societal conditions, and higher abstract principles are some of the interests that may only follow from cognitive sophistication. A highly developed sense of self seems to paradoxically give rise to a host of interests that reduce the focus on oneself by fostering interests that are not directed toward the self. For example, people care very much about the long-term welfare of their children and sometimes even view their children as partial extensions of themselves. People in pain may take comfort in thinking about their children or other interests, including hobbies and passions. This is related to the point about discounting pain. When we are thinking about or reflecting on our other, more complex interests, we might not be focusing on pain as much.

Additionally, we can often will ourselves to refrain from focusing on or attending to our pain, such as through meditative practices or by simply concentrating on other things. This willing, according to authors such as Harrison, is also something that depends on cognitive sophistication and is not a willing of the sort animals are likely capable.⁵³ While cognitive sophistication may be necessary for having the freedom to choose what we focus on, and for having different kinds and a large variety of interests, it would not seem to be necessary for the ability to focus on or (p. 507) attend to one's circumstances, as this is needed to perform a variety of simple tasks, such as finding food. Thus, it may not be plausible to think that animals are less able to focus on their pain than we are.

Even aside from engaging in inter-temporal interest calculation, the mere ability to make inter-temporal *distinctions* might reduce the intensity of pain. Animals that have a limited temporal sense would seem to be unable to escape, or get outside of, their present mental

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state, including a present painful state. Greater time horizons in either direction might lessen the intensity of one's pain: being able to think about the past can allow us to recollect and take comfort in painless past experiences. Similarly, by thinking about future periods we may be able to take relief in the thought of future periods without pain and we are capable of recognizing that the pain will end. An animal may not be able to remember times without pain or imagine future periods without the pain.

Rollin proposes that pain might be more intense for animals that cannot anticipate its cessation or remember its absence. He writes, "If they are in pain, their whole universe is pain; there is no horizon; they *are* their pain."⁵⁴ If the pain is sufficiently extreme, even knowing that death is a possible future ending may help alleviate it for us, as compared to animals. Furthermore, we can often anticipate when a pain will likely end because it, or pain similar to it, has occurred in the past and we remember the duration of the experience. When we have a headache, we can often anticipate when the headache will end based on past experiences, and this anticipation might reduce the intensity of the headache. Animals without an awareness of self and time would not be able to anticipate the cessation of the pain or take relief in the thought that it may or will end.

The ability to conceive of temporal distinctions is also necessary for having hope, which can be characterized as a positive attitude directed toward some possible future outcome. If one can hope that one's pain will end, this might help alleviate its intensity. On the other hand, fear might not always be future-directed. It seems one can be afraid of a present adverse situation without also having the additional fear of it getting worse or some other thing happening. It is possible for an animal to experience fear of a present situation without being capable of hoping the situation will improve. On a more general note, hope in the face of extreme pain might mean the difference between a life worth living and one not worth living. Severe pain without the expectation or hope of it ending, even if it will end, can drastically reduce someone's welfare, and animals lacking self- and time-awareness would not be able to hope that their pain will end.

The point about how expectations can affect the intensity of pain can perhaps best be illustrated by considering the so-called "placebo effect." Many placebos seem to work by giving one the expectation that one's pain or condition will lessen. In one prominent example, an orthopedic surgeon who was skeptical about the benefits of using a particular surgery for alleviating the pain of arthritis in the knee conducted an empirical study to test for the placebo effect. In a sample of 180 patients, he performed the standard surgery on some and a placebo surgery on others. The latter group of patients received anesthesia along with incisions in order (p. 508) to simulate the appearance of the standard surgery. Following the real and simulated surgeries, both groups of subjects reported relief from the pain to the same extent.⁵⁵ While there is conflicting evidence on the role of placebos, many studies demonstrate a placebo effect.⁵⁶

I have discussed how a given amount of pain might sometimes be more intense for animals than it is for us. Through many of the same mechanisms I have suggested—namely, memory, expectations, and sophisticated emotions like hope—it also seems

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plausible that pain might be more intense for us: while in pain, we might recall other previous painful episodes in our lives and we might not expect or anticipate that the pain we are experiencing will end, or have hope that it will end. The point of my discussion has not been to argue definitively that animal pain is more intense than our pain, but to cast some doubt on the idea that our pain, in virtue of our cognitive sophistication, is always or even generally worse. Even though some of the reasons offered for thinking that our pain might sometimes be less intense can also be used to argue that our pain might be more intense, other reasons cannot be so easily employed to support the argument that our pain might be more intense. In particular, enduring pain for the sake of complex goals and our ability to focus on other things besides our pain, including by willing ourselves to do so, seem only to be ways in which our pain might be *less* intense than animals'.

Pain and Suffering

It might be maintained that many of the considerations discussed in the previous section do not impact pain but rather affect how we should conceive of suffering. In order to assess this sort of argument, we need to return to the distinction between pain and suffering. The ability to suffer, according to the views of authors such as Dennett, Hanna, and Tye, would only apply to sophisticated beings. The ability to feel pain, however, would pertain to both sophisticated and unsophisticated beings. This means that for each type of being, sophisticated and unsophisticated, there is some overall pain experience caused by a given amount of pain.⁵⁷ We can describe the constituents of the respective experiences in the following way, where P stands for the feeling of pain, S for suffering, and Ep is the overall experience of pain:

Cognitively Sophisticated (adult humans): $P + S = E_p$

Cognitively Unsophisticated (most animals): $P = E_p$

While E_p for animals consists only of P, E_p for humans consists in both P and S. S was said to consist of a variety of cognitive accompaniments to pain including the anticipation and memory of pain, the emotions caused by pain, and the recognition that one's interests and goals will be thwarted by pain. Since many of the mechanisms suggested above by which the intensity of pain might be altered, such as attention, (p. 509) memory, expectations, and sophisticated emotions like hope, arguably involve cognitive dimensions, it could be argued that it is not P that they affect but rather S. Consider again Tye's comments about the person who is distracted from her bad headache. He argues that while the person is distracted there is no cognitive awareness of the pain and hence no suffering at that time. For Tye, it seems more accurate to say that avoiding focusing on one's pain diminishes S and not P. Similarly, someone might argue that when we expect the cessation of pain or when we consider moments without pain, this decreases S and not P.

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However, even if we do not see the above mechanisms as decreasing the intensity of P, insofar as they diminish S they would still decrease E_p , or the overall experience of pain, for us. Furthermore, whether these mechanisms impact P or S, it would still be the case that they are unavailable to animals that lack an awareness of self and time. In other words, even if these mechanisms affect S and not P for us, this point by itself does not show that their absence does not affect P for animals. It does not show that P for animals would not be more intense than P for us, possibly leading to an overall worse experience for animals from a given amount of pain.

Consider the contrast between someone who has a deep gash on his leg and a dog, or some other animal with a lack of cognitive sophistication, who has a deep gash on his leg. The injuries are equally serious in terms of tissue damage and the like, and neither is given any medication to relieve the pain. Even if it is a familiar fact that in such situations we feel frustrated with the way the injury is interrupting certain activities, it is also a familiar fact that we recognize that the interruption is temporary. Furthermore, it is not hard to imagine that we would force ourselves to concentrate on other circumstances, ideas, or activities and that we would recognize that the wound will eventually heal and the pain will begin to diminish. These are all familiar things we do and believe when we are in pain. Conversely, the dog, if lacking cognitive sophistication, is not able to take relief in these sorts of ways. What can he do but sit there and feel pain? This dog may be unable to escape what Bennett referred to as the “prison of what is present and particular,” and this would apply to his experience of pain as well.⁵⁸ The contrast between the respective pain experiences of a person and the dog would be stronger if we assume that the wound of each has been caused for the sake of preventing some long-term tissue damage. Again, while the person would know that there is a good reason for his pain, the dog would not, even if there is a good reason. Knowing there is a good reason would further reduce the overall pain experience for the person.

The facts, if they are facts, that many animals do not have many substitutes for focusing on their pain and cannot will themselves to focus on other things, cannot form expectations about the ending of pain, think about other times without pain, or consider more complex interests for which pain may be a necessary means, provide us with reasons for thinking that the overall pain experience caused by a given measure of pain might sometimes be worse for animals than it is for us. Placing this discussion back into the context of welfare, these considerations suggest that in virtue of the fact that we can suffer and animals cannot, it is not obvious that the same measure of pain (p. 510) is always worse for us than for animals—where worse is defined in terms of a change in welfare—at least over the period of time during which the pain is felt.

This last qualification is important. It seems plausible that, through memory and anticipation, the effects of pain may last longer for us than for animals. For instance, we might anticipate a painful experience before it occurs or we might endure lingering emotional consequences as a result of remembering pain, and these are of course both instances of suffering according to most of the philosophers discussed above. Through suffering, the consequences of pain may have a longer duration for us than for animals.

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This may mean that while pain to an animal can present a relatively greater change in their welfare at the time pain is experienced, pain to us can present a relatively greater change in our welfare over a period of time.⁵⁹

I can now discuss some research that has so far been absent from the discussion. Throughout this chapter, I have assumed that there are two distinct categories of beings, sophisticated and unsophisticated, because I have assumed for the sake of analysis that there are no degrees in awareness of self and time. Furthermore, I have not challenged the assumption that most animals are cognitively unsophisticated because I have wanted to explore what the absence of sophistication in animals might imply about their pain. However, it is now useful to note that a variety of empirical studies suggest that many primates as well as other higher mammals, such as dolphins and elephants, have some capacity for self- and time-awareness.⁶⁰

Returning to the different perspectives by which to measure welfare changes caused by pain—during the period of time in which pain is experienced versus over time—even if we are interested in the latter perspective, there may be an upper limit to the welfare change that can occur over a period of time from a given measure of pain. All that may be needed to experience suffering over time from pain is anticipation and memory. On the other hand, a highly developed sense of time is necessary to think of the extended past or the extended future, to know that the pain will at some point end, to will oneself to refrain from focusing on pain, and especially to engage in inter-temporal trade-offs and weighting. Also, a highly developed sense of time and self greatly increases the number of other interests that may not be affected by pain. After a certain level of self- and time-awareness that is necessary for memory, anticipation, and hence the psychological suffering that might occur from pain, self- and time-awareness might once again serve to reduce the role of pain in determining welfare by increasing the number of other, more complex interests and by enabling the ability to discount and to choose to avoid focusing on pain.

Over both dimensions, beings with only a basic or rudimentary sense of time and of self may be at the greatest disadvantage from pain. They may possess enough self- and time-awareness to suffer from the anticipation and memory of pain, but not enough to be able to discount pain, choose to refrain from focusing on pain, form expectations about the cessation of pain, or to consider other interests or times without pain. Some empirical research suggests that many primates and higher mammals possess just this sort of rudimentary capacity to see themselves as entities existing over time.⁶¹

(p. 511) Conclusion

I have argued that through psychological abilities such as weighting and through the role of mechanisms such as attention and expectations, a given amount of pain might not always be as bad for us as it is for many animals. I have argued that cognitive

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sophistication may sometimes reduce the role that pain plays in one's welfare. While I have not shown conclusively that pain is worse for animals than for us, the considerations I have given suggest that it is not obvious that, in virtue of the fact that we can suffer and many animals perhaps cannot (itself a contested matter), pain is always worse for us than for animals—a view many have held. Additionally, the analysis I have offered suggests that out of all beings, those with a rudimentary cognitive sophistication, such as many primates, may undergo the most significant welfare change from the experience of pain.

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Notes:

(1.) Those who have argued expressly for this view include Bob Bermond, "A Neuropsychological and Evolutionary Approach to Animal Consciousness and Animal Suffering," in *The Animal Ethics Reader*, 2nd ed., ed. Susan J. Armstrong and Richard G. Botzler (New York: Routledge, 2008); Peter Carruthers, "Brute Experience," *Journal of Philosophy* 86 (1989); Daniel C. Dennett, *Brainchildren: Essays on Designing Minds* (Cambridge, Mass.: MIT Press, 1998) and *Kinds of Minds: Towards an Understanding of Consciousness* (New York: Basic Books, 1997); and Robert Hanna, "What Is It Like To Be a Bat in Pain? The Morality of Our Treatment of Non-Human Animals" (draft chapter, quoted with permission from author). Michael Tye argues that simple creatures, like honey bees and fish, do not suffer in the way that we do. See his *Consciousness, Color, and Content* (Cambridge, Mass.: MIT Press, 2000).

(2.) Questions concerning the interpretation of Descartes as denying consciousness to all animals have been raised, for example, in Tom Regan, *The Case for Animal Rights* (Berkeley and Los Angeles: University of California Press, 1983), pp. 3–12.

(3.) Peter Harrison, "Theodicy and Animal Pain," *Philosophy* 64 (1989): 79–92. "Do Animals Feel Pain?" *Philosophy* 66 (1991): 25–40.

(4.) Harrison, "Theodicy and Animal Pain," p. 85.

(5.) See for instance Colin Allen, "Animal Pain," *Nous* 38 (2004): 617–43. Despite the differences in our reading of Carruthers, Allen's paper provides a rich overview and compelling arguments for the experience of pain in animals.

(6.) Carruthers, "Brute Experience."

(7.) Peter Carruthers, "Can Animals Feel Pain in the Morally Relevant Sense? No," *The Ag Bioethics Forum* 4 (1992): 2.

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- (8.) Peter Carruthers, "Suffering Without Subjectivity," *Philosophical Studies* 121 (2004): 99–125.
- (9.) Carruthers, "Suffering Without Subjectivity," p. 10.
- (10.) Carruthers, "Suffering Without Subjectivity," p. 12 (original emphasis).
- (11.) Carruthers, "Suffering Without Subjectivity," p. 14.
- (12.) Dennett, *Brainchildren*, p. 347.
- (13.) Dennett, *Kinds of Minds*, p. 164. He attempts to demonstrate how a being that is capable of experiencing pain may nonetheless be incapable of suffering by highlighting cases of children who are dissociated in the presence of great pain. He writes that "whatever this psychological stunt of disassociation consists in, it is genuinely analgesic—or, more precisely, whether or not it diminished the pain, it definitely obtunds suffering" (p. 164).
- (14.) Dennett, *Kinds of Minds*, p. 166. Specifically, he claims that stepping on your toe is "of vanishing moral significance" (p. 166). Earlier in the book, he attributes moral significance to suffering and not pain: he writes of pain that "for such states to matter—whether or not we call them pains, or conscious states, or experiences—there must be an enduring subject to whom they matter because they are a source of suffering" (p. 163; emphasis added).
- (15.) Dennett, *Kinds of Minds*, p. 167.
- (16.) Dennett, *Kinds of Minds*, p. 167.
- (17.) Tye, *Consciousness, Color, and Content*, p. 182 (original emphasis).
- (18.) Tye, *Consciousness, Color, and Content*, p. 182.
- (19.) Hanna, "What Is It Like To Be a Bat in Pain?" p. 15.
- (20.) Harrison, "Theodicy and Animal Pain," p. 91.
- (21.) Jonathan Bennett, "Thoughtful Brutes," *Proceedings and Addresses of the American Philosophical Association* 62 (1988): 199.
- (22.) Bennett, "Thoughtful Brutes."
- (23.) I will also frequently refer to an objective understanding of pain, such as when making statements about the comparative intensity of the *same measure* of pain that may be involved with an equally bad injury and the like.
- (24.) Many researchers have attempted to demonstrate that animals are more cognitively sophisticated in these ways. See note 60. While this is a fruitful and important vein of

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research, my concern in this chapter is to examine whether cognitive sophistication always makes pain worse for the being experiencing it.

(25.) The analysis in this chapter regarding how to conceive of the pain of sophisticated beings may not apply to human children. Up to a certain age, children may be more similar to animals in the way that they experience pain. The same may be true of some of the cognitively disabled. See note 61.

(26.) The arguments I will advance will not bear on positions that maintain that a sophisticated self- and time-awareness are necessary for *any* experience of pain. For those positions can grant that it might be true that self- and time-awareness can serve to reduce the experience of pain for humans, but maintain that this says nothing about the comparative point for animal pain since animal pain would be denied. Again, however, most authors do attribute pain experience to animals.

(27.) In economics, welfare analysis often involves making interpersonal comparisons and judgments about the satisfaction or frustration of interests and preferences in order to make assessments about the total welfare of either an individual or a group.

(28.) This is commonly called a “desire-satisfaction” view of well-being. Two other common views of well-being are “hedonic” and “objective lists” views. For an excellent discussion of these different accounts of well-being, see Martha Nussbaum and Amartya Sen, eds., *The Quality of Life* (Oxford: Clarendon Press, 1993).

(29.) For a discussion of these differences, see R. G. Frey, *Interests and Rights: The Case against Animals* (Oxford: Clarendon Press, 1980). Also, see Stephen P. Stich, “Do Animals Have Beliefs?” *Australasian Journal of Philosophy* 57 (1979): 15–28. While it is unclear whether Stich believes that most nonhuman animals lack beliefs and desires, he explores the reasoning behind such a view.

(30.) For a good discussion and criticism on some attempts at cardinality and comparability, see Amartya Sen, *Collective Choice and Social Welfare* (San Francisco: Holden-Day, 1970), especially chapters 7 and 8. Cardinal comparisons of this sort would require, at a minimum, knowing how much a certain individual values or disvalues an object compared to another individual on an objective or absolute scale. There may not be any additional conceptual difficulty when comparing across species with considerably different cognitive abilities, although there may be greater practical difficulties, yet cardinal comparability remains a theoretical difficulty even across remarkably similar individuals of the same species.

(31.) For instance, marginal or relative welfare comparison would entail comparing the change in welfare across individuals if they are given one more unit of some good object or if they are relieved of one more unit of some bad object, given their relative amounts of the good or bad object. So if individual A has one unit of X, and individual B has ten units of good X, there will be a smaller relative change in the welfare of B if he were given one more unit of X (we do not assume diminishing marginal utility for this point. All we need

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to assume is constant marginal utility). This approach is similar to the extended sympathy approach of Kenneth Arrow where interpersonal comparability can consist in judgments of the following kind: it is better (or worse) to be person I in state X than to be person J in state Y (Kenneth Arrow, *Social Choice and Individual Values*, 2nd ed. [New York: John Wiley & Sons, 1963]). This approach is inclusive of the particular characteristics and traits of each individual without committing to measuring precise comparability in common units between different individuals. Relative welfare analysis seems to be a particular case of the more general extended sympathy. Extended sympathy analysis may include both statements such as "It is better to be Niels Bohr as a physicist than to be Mr. Jones as a car insurance salesman" and "It is worse for Niels Bohr to be unable to perform analyses in atomic physics due to some illness than it is for Mr. Jones to lose his ability to sell car insurance due to some illness." Marginal welfare comparison only permits the second type of statement. It only makes judgments in regard to proportionate welfare changes.

(32.) Harry Frankfurt, "Freedom of the Will and the Concept of a Person," *Journal of Philosophy* 68 (1971): 5-20; Richard C. Jeffrey, "Preference among Preferences," *Journal of Philosophy* 71 (1974): 377-91.

(33.) Jeffrey in "Preferences among Preferences" argued that the preference to continue to live is a second-order preference since living entails wanting to have preferences. Since it is claimed that animals are not capable of being reflective and are not self-aware, then it would seem to follow on this view that animals cannot care whether they live or not.

(34.) In addition, Frankfurt has also distinguished between wanting or having an interest in something, on the one hand, and caring about something, on the other. He famously described caring about something as consisting of guiding oneself along a certain course in life and as related to the formation of a person's will (Harry Frankfurt, "The Importance of What We Care About," *Synthese* 53 [1982]). He writes of something that is cared about that "insofar as the person's life is in whole or in part devoted to anything, rather than being merely a sequence of events whose themes and structures he makes no effort to fashion, it is devoted to this" (p. 260, original emphasis).

(35.) Derek Parfit, *Reasons and Persons* (New York: Oxford University Press, 1984).

(36.) Similarly, Robert Nozick proposed that few people would prefer to be hooked up for life to an experience machine that would make them think and feel that they were experiencing a series of events, even if all the events were happy. *Anarchy, State, and Utopia* (New York: Basic Books, 1974). Nozick's main point was that we would prefer to have actually achieved the things we virtually accomplish in the machine, and thus we value something more than experience, no matter how good that experience is. We could say a person's global or higher order interests in actually achieving or *living* a life would be violated or compromised in the experience machine.

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(37.) Long-term and complex interests are not necessarily the same thing. Someone could have a first-order interest for the long-term, such as an interest in satisfying a drug addiction over a long period of time. The distinction between short- and long-term refers to interests over different time periods rather than to different *levels* of interest.

(38.) Jan Narveson argues that because animals are not as capable of formulating long-range plans and have less intelligence, or sophistication more generally, their disutility of pain will be less. From his perspective, the pain of a sophisticated being is more valuable than that of an unsophisticated being. Narveson also believes that animals are less able to form long-term plans. "Animal Rights," *Canadian Journal of Philosophy* 7 (1979): 161–78.

(39.) In welfare economic theory, discounting generally refers to the idea of assigning a lower value to benefits received in future periods, but the same idea can be applied more broadly to benefits received in present time periods and to local benefits. For a thorough discussion of different approaches to time, especially on the plausibility of being temporally neutral when we are concerned with our own welfare, see Parfit, *Reasons and Persons*, pp. 149–86.

(40.) In addition, we not only make trade-offs across time periods, but also within time periods, such as when one favors eating ice cream rather than cake for dessert, but these sorts of trade-offs are less relevant to the discussion in this chapter.

(41.) See Frankfurt, "Importance of What We Care About."

(42.) Terry Connolly and Jochen Matthias Reb, "Omission Bias in Vaccination Decisions: Where's the 'Omission'? Where's the 'Bias'?" *Organizational Behavior and Human Decision Processes* 91 (2003): 186–202; Richard P. Larrick and Terry L. Boles, "Avoiding Regret in Decisions with Feedback: A Negotiation Example," *Organizational Behavior and Human Decision Processes* 63 (1995): 87–97.

(43.) René Richard, Joop Van Der Pligt, and Nanne De Vries. "Anticipated Regret and Time Perspective: Changing Sexual Risk-Taking Behavior," *Journal of Behavioral Decision Making* 9 (1996): 185–99; Jochen Matthias Reb, *The Role of Regret Aversion in Decision Making* (PhD diss., University of Arizona, 2005).

(44.) Including one among an Amazon tribe, the Satere-Mawe, where for ten minutes young men place their hands in gloves filled with bullet ants, which have a powerful sting. Steve Backshall, "Bitten by the Amazon," *The Sunday Times*, January 6, 2008. Available at http://www.timesonline.co.uk/tol/travel/holiday_type/wildlife/article3131030.ece (accessed July 30, 2010).

(45.) As an example of an objective interests-satisfaction view, see James Griffin, *Well-Being: Its Meaning, Measurement, and Moral Importance* (Oxford: Oxford University Press, 1986). Thomas Scanlon argues that the former type of view reduces to an

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objective-list account of well-being. "Value, Desire and Quality of Life," in *The Quality of Life*, ed. Nussbaum and Sen, pp. 185–200.

(46.) For views that might be conceived of as hybrid accounts of well-being see Joseph Raz, "Personal Well-Being" in his *The Morality of Freedom* (Oxford: Oxford University Press, 1986), pp. 288–320; and Amartya Sen, "Capability and Well-Being," in *Quality of Life*, pp. 30–54.

(47.) Note that self-destructive behavior is often characterized by an unwillingness or inability to discount present costs or place greater weight on future time periods. It is often described as favoring short-term or first-order interests over long-term or complex ones. An example might be someone who continues to eat well after the point of being full despite the long-term health costs. For some, disordered eating can be associated with trying to seek a current pleasure or avoiding a current pain. This suggests that even if we were to adopt, at least for humans, a more objective conception of welfare than interest-satisfaction, pain might still not play a significant role in many circumstances. The value of good health would give us reason to discount the current pain of the overeater for the sake of his long-term health and welfare. There are numerous other examples to support the idea that these other conceptions of welfare would discount pain. To take just two, we should endure exercise for the sake of health and we should work through a mild headache for the sake of productivity.

(48.) There is also a tendency to be biased toward the satisfaction of short-term and first-order interests; all things being equal, many of us prefer getting benefits sooner rather than later, and this is sometimes true even when the benefits to be had sooner are smaller than the later benefits. See George Ainslie, *Picoeconomics: The Strategic Interaction of Successive Motivational States within the Person* (Cambridge: Cambridge University Press, 1991); and "Précis of Breakdown of Will," *Behavioral and Brain Sciences* 28 (2005): 635–73. This seeming fact has given rise to a number of so-called dynamic-choice problems. However, empirical studies also demonstrate that the rate at which we discount future benefits is inversely related to the amount of the benefit. See Gretchen B. Chapman, and Arthur S. Elstein. "Valuing the Future: Temporal Discounting of Health and Money," *Medical Decision Making* 15 (1995): 373–86; Leonard Green, Joel Myerson, and E. McFadden, "Rate of Temporal Discounting Decreases with Amount of Award," *Memory and Cognition* 25 (1997): 715–23; Kris N. Kirby, "Bidding on the Future: Evidence against Normative Discounting of Delayed Rewards," *Journal of Experimental Psychology: General* 126 (1997): 54–70. Additionally, when the receipt of neither benefit is imminent, we rationally prefer the later, larger benefit (see Kirby, "Bidding on the Future"). This research suggests that there is significant regard for long-term and complex interests, even if only at certain thresholds.

(49.) Michael Bratman, *Intentions, Plans, and Practical Reason* (Cambridge, Mass.: Harvard University Press, 1987).

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(50.) George Ainslie, "Impulse Control in Pigeons," *Journal of the Experimental Analysis of Behavior* 21 (1974): 485–89; Melissa Bateson and Alex Kacelnik, "Rate Currencies and the Foraging Starling: The Fallacy of the Averages Revisited," *Behavioral Ecology* 7 (1996): 341–52; A. Ramseyer, M. Pelé, V. Dufour, C. Chauvin, and B. Thierry, "Accepting Loss: The Temporal Limits of Reciprocity in Brown Capuchin Monkeys," *Proceedings of the Royal Society, Biological Sciences* 273 (2006): 179–84; William Roberts, "Are Animals Stuck in Time?" *Psychological Bulletin* 128 (2002): 473–89; H. Tobin, A. W. Logue, J. J. Chelonis, and K. T. Ackerman, "Self-Control in the Monkey *Macaca fascicularis*," *Animal Learning and Behavior* 24 (1996): 168–74.

(51.) Indeed, we saw before that this point was explicitly made by Harrison when he wrote that unlike animals "We are free, in painful situations, to damage our bodies if we believe there is a higher priority." Harrison, "Theodicy and Animal Pain," p. 83.

(52.) It might be thought that expectations are doing a lot of work to reduce intensity in the second scenario. That is, the pain here is less because we expect the doctor to stick the needle, whereas we do not expect the friend to do so. However, having such an expectation still requires cognitive sophistication that animals may lack. I return to the role of expectations below.

(53.) Harrison, "Theodicy and Animal Pain."

(54.) Bernard E. Rollin, *The Unheeded Cry: Animal Consciousness, Animal Pain, and Science* (Ames: Iowa State University Press, 1998), p. 144.

(55.) They also reported improvements in walking to the same extent. J. Bruce Moseley, Kimberly O'Malley, Nancy J. Petersen, Terri J. Menke, Baruch A. Brody, David H. Kuykendall, John C. Hollingsworth, Carol M. Ashton, and Nelda P. Wray, "A Controlled Trial of Arthroscopic Surgery for Osteoarthritis of the Knee," *New England Journal of Medicine* 347 (2002): 81–88.

(56.) For a good overview of many of these studies, see Dan Ariely, *Predictably Irrational* (New York: HarperCollins Publishers, 2009), especially chapter 10.

(57.) We do not need to assume any discrete phylogenetic shift toward cognitive sophistication in order to divide up pain experience in this way. Below, I examine the plausible view that there are degrees of cognitive sophistication across different species.

(58.) Bennett, "Thoughtful Brutes," p. 199.

(59.) The unsophisticated being's Ep may be more intensely bundled in a moment, but the sophisticated being's Ep might be spread over a period of time. If we believe that the intensity of pain matters, the first being may be worse off; conversely, if we believe that duration of pain matters, the second being may be worse off.

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(60.) M. D. Hauser, J. Kralik, C. Botto, M. Garrett, and J. Oser, "Self-Recognition in Primates: Phylogeny and the Salience of Species-Typical Traits," *Proceeding of the National Academy of the Sciences* 92 (1995): 10811-14; Lori Marino, Diana Reiss, and Gordon G. Gallup, "Mirror Self-Recognition in Bottlenose Dolphins: Implications for Comparative Investigations of Highly Dissimilar Species," in *Self-Awareness in Animals and Humans*, ed. Sue Taylor Parker, Robert W. Mitchell and Maria L. Boccia (Cambridge: Cambridge University Press, 1994), pp. 380-91; Joshua Plotnik, Frans de Waal, and Diana Reiss, "Self-Recognition in an Asian Elephant," *Proceedings of the National Academy of Sciences* 103 (2006): 17053-57; Diana Reiss and Lori Marino, "Mirror Self-Recognition in the Bottlenose Dolphin: A Case of Cognitive Convergence," *Proceedings of the National Academy of Sciences* 98 (2001): 5937-42; Alexandra Rosati, G. Jeffrey, R. Stevens, Brian Hare, and Marc D. Hauser, "The Evolutionary Origins of Human Patience: Temporal Preferences in Chimpanzees, Bonobos, and Human Adults," *Current Biology* 9 (2007) 1663-68; Rosemary Rodd, *Biology, Ethics, and Animals* (New York: Oxford University Press, 1990), especially pp. 64-73; Robert W. Shumaker, and Karyl B. Swartz, "When Traditional Methodologies Fail: Cognitive Studies of Great Apes," in *The Cognitive Animal: Empirical and Theoretical Perspectives on Animal Cognition*, ed. Marc Bekoff, Colin Allen, and Gordon Burghardt (Cambridge, Mass.: MIT Press, 2002), pp. 335-45; Michael Tomasello, Josep Call, and Brian Hare, "Chimpanzees Understand Psychological States—The Question is Which Ones and To What Extent," *Trends in Cognitive Science* 7 (2003): 153-56.

(61.) Likewise, the arguments about limited sense of time and self can also be applied to infants (or more generally human children) and cognitively impaired adult humans. Many psycho-physiological conditions associated with aging drastically change sense of time and sense of the self. For instance, patients with Korsakov's syndrome quickly forget recent events and impressions. Oliver Sacks describes how a patient became extremely agitated and upset when he could not remember the name of something in a satellite photo. "I had already, unthinkingly, pushed him into panic, and felt it was time to end our session. We wandered over to the window again, and looked down at the sunlit baseball diamond; as he looked his face relaxed, he forgot the *Nimitz*, the satellite photo, the horrors and hints, and became absorbed in the game below. Then as a savory smell drifted up from the dining room, he smacked his lips, said 'Lunch!', smiled, and took his leave. And I myself was wrung with emotion" (Oliver Sacks, *The Man Who Mistook His Wife for a Hat* [New York: Summit Books, 1970], p. 27). Almost immediately afterward, the patient lost all memory of having been upset. At the same time, the patient could be intense and steady in his attention and concentration of a single moment. Sacks describes the world of this kind of patient as well as the mentally disabled in general as concrete, vivid, intense, yet simple (p. 167). Allen Edwards describes Alzheimer's and dementia patients as people who lose awareness of the self and of others. Allen Jack Edwards, *When Memory Fails: Helping the Alzheimer's and Dementia Patient* (New York: Plenum Publishing, 1994). The patient will care about "creature comforts" and will become highly self-centered in a child-like manner (pp. 146-47).

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