BIOCENTRIC INDIVIDUALISM AND BIODIVERSITY CONSERVATION: AN ARGUMENT FROM PARSIMONY

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ABSTRACT

I will argue that holistic ecocentrism unnecessarily introduces elements to explain why we ought to halt biodiversity loss. I will suggest that atomistic accounts can justify the same conclusion by utilising fewer elements. Hence, why we ought to preserve biodiversity can be made reasonable without adding elements such as intrinsic values of ecosystems or moral obligations to conserve collectives of organisms. Between two equally good explanations of the same phenomenon, the explanation utilising fewer elements, which speaks in favour of atomistic accounts, will be the better one.

KEYWORDS

biodiversity; biocentrism; ecocentrism; Ockham's razor

1. Introduction

The value of biodiversity has generated increasing philosophical interest (Oksanen & Pietarinen, 2004; Sarkar 2005; Maclaurin & Sterelny, 2008; Maier, 2012; Garson,

Plutynski & Sarkar, 2017). Biodiversity often refers to the variability amongst ecosystems and species or to variability on the genetic level. But it would be counter-intuitive to hold variation as having an intrinsic value (Maier, 2012; McShane, 2017) and to continuously add species to a habitat or artificially create species or design ecosystems (Angermeier, 1994). Instead, biodiversity is made up of organisms to whom we owe reverence and respect for intelligible atomistic reasons. To subsume the interests of those beings having a moral standing—in the sense of their interests and well-being having moral standing—to the greater good of biodiversity would be morally troublesome (Rawles, 2004). But how do we take into account biodiversity as a quality that refers to the variation amongst several entities whilst at the same time respecting these entities?

In this paper, I will defend the conclusion that atomistic theories[1] are preferable ethical frameworks over holistic theories in explaining the reasons to preserve biodiversity. This conclusion rests on the following premises:

(1) Atomistic accounts (such as biocentrism and, to a lesser extent, animal rights) can provide reasons to explain why we have a demand, in a broad sense, to lessen (or, at best, halt) substantial (human-induced) reductions in biodiversity;

(2) atomistic reasons contain fewer elements than a holistic ecocentric explanation of the same demand;

(3) according to the principle of parsimony, out of multiple explanations of the same phenomenon, the explanation utilising fewer elements but with an equal explanatory power should be considered better;

(4) therefore, a preference for atomistic accounts is consistent with the principle of parsimony and should be considered better at explaining why we have a demand to avoid (human-induced) substantial reductions in species richness.

[1] In the following, "atomism" is used for ethical theories that place moral relevance on individual beings, such as persons, animals, or individual specimens. A most predominant example is biocentric individualism, which is the most relevant here. Yet, to mark the distinction to holist theories, atomism is used.

Below, I will present the principle of parsimony. Then, I will provide atomistic reasons to preserve biodiversity. I will also discuss how holistic ecocentric accounts require the introduction of additional elements. Section 3 will end with a summary comparison between atomistic and holistic explanations of why we ought to care for biodiversity. Following that, I will consider some counter-arguments to the argument. I hope to show that neither of these objections give us a reason to reject that atomism can explain why we ought to care about biodiversity. This will be followed by a summary remark.

2. Ockham's razor and ethics

The principle of parsimony, *lex parsimoniae,* or *Ockham's razor*, is usually formulated along the lines of 'never to multiply entities beyond necessity' and 'that it is better (i.e., rationally preferable) to explain phenomena by making as few assumptions as possible' (Regan, 2004: 7) or that 'it is futile to do with more what can be done with fewer' (Sober, 2015: 5). The basic idea of the principle of parsimony is that out of several, say two, equally good explanations for the same phenomenon, the principle of parsimony requires us to choose the explanation with fewer assumptions (Regan, 2004: 8). The idea seems reasonable, even if it has generated much discussion (see Sober, 2015 for an overview).

Even if the law of parsimony is most often utilised in scientific contexts to assess different explanations, we can easily imagine cases in which ethics is used to explain something. As Sober writes,

> You see a group of people set fire to a cat and the thought leaps to mind that what they are doing is wrong. If the judgment that this act is wrong is an observation statement, you can ask different ethical theories to explain why it is true and then evaluate those theories by the quality of the explanations they provide (Sober, 2015: 267).

Though seemingly straightforward, a few things need to be clarified. First, what is it that there are to be few of in an ethical context? Second, how does one assess the degree of explanatory power? Third, how does parsimony hold up amongst other epistemic

virtues, such as coherency, consistency, generality or precision? The discussion below shows that these three issues are sometimes difficult to separate.

Whilst it will differ slightly according to context, I suggest that the number of axiological concepts required to make a judgment reasonable is one general way of counting entities in moral philosophy, in addition to the number of background assumptions required to explain the reasonableness of applying axiological concepts to what is to be explained. Alternatively, in contexts where other concepts, such as duties or rights, are predominantly used, the length of chains of indirect duties or the number of principles is what matters. Including ethical assumptions and principles is in line with prior appeals to the principle of parsimony in ethics (Regan, 2004: 146). Take the value of species as an example. Assume that an agent makes the moral judgment that species are valuable. This can be due to species carrying intrinsic values and thus creating direct moral reasons to care for them. It could also be the case that species are instrumentally valuable, thus creating indirect moral reasons to care for them. Both explanations retain that individual humans have intrinsic value, but the latter has added the element of instrumental value, so the former approach seems to be simpler. But the first approach has to provide background assumptions that make it reasonable for species to have an intrinsic value (which, admittedly, will most likely prove quite difficult; see the example of ecosystems having an intrinsic value below). However, the second approach has to provide reasons to believe that all species are instrumentally valuable, or explain how it can account for the value of those species that are not instrumentally valuable, if it insists that species are valuable conducive solely to instrumental values.

The number of ethical concepts and assumptions is only one thing, as a proper explanation also has to be provided. What is it that a normative framework has to explain? To put it in Sober's terms, what is to be explained is why a judgment is true (Sober, 2015: 267). Whilst the truth of ethical judgments may be an ideal goal, I suggest that what should be explained is, at the very least, the reasonableness of a moral judgment, in this case, that we ought to care for biodiversity. We need just enough concepts and assumptions to explain why a moral judgment is reasonable in the sense of reaching a reflective equilibrium, and, thus, to make judgments cohere with existing normative beliefs that we

are confident hold and which have been tested by appeal to criteria, such as impartiality and rationality (see Regan, 2004: 134ff for a discussion). For example, one may start with a judgment that setting fire to a cat is wrong, and want to explain why such a judgment is reasonable. As is well known, Kant suggested that we should abstain from the violent and cruel treatment of animals, as this treatment would lead to a hardened character and less sensitivity to the suffering of others (Korsgaard, 2018: 101). But even if such a relation between cruelty to animals and a hardened character exists, it is not the sole explanation of why we would be appalled by the act. Rather, the judgment can be explained by the wanton destruction of a living being that is bad, and this judgment is granted intuitive confirmation (Tardiff, 1996: 302). Additional elements, such as the greatest happiness principle or rights, are not needed to explain why it is wrong (Tardiff, 1996).

Kant stands in contrast to views that espouse direct duties to animals and their well-being (Regan, 2004; Korsgaard, 2018). As suggested by Tardiff (1996), such views require importing notions such as rights, interests, beliefs, solving the problem of the relations between these concepts and determining whether animals even have them, or '(worst of all), invent categories such as 'subject-of-a-life' (Regan)' (Tardiff, 1996: 304). These explanations account for why the wrongness of setting fire to a cat is reasonable, but they use different procedures. The Kantian explanation has a more limited scope, as it does not provide a direct reason for why setting fire to a cat is wrong, beyond the explanation that it is indirectly wrong. Furthermore, the Kantian explanation is vulnerable to objections supported by reflective intuition because it would permit extensively neglecting the interests of sentient beings if this would not violate indirect demands, such as leading to a hardened character. If successful, the explanation that it would be wrong to set a cat on fire because of such an act transgressing the interests and well-being of a morally relevant being to which we have direct duties would be more powerful and less vulnerable to objections supported by reflective intuitions. Relying on the mere intuition of the wrongness of such an act of wanton destruction of life would perhaps be the simplest explanation, which could also accommodate the right scope (Tardiff, 1996).

Admittedly, other theoretical or epistemic virtues besides simplicity, such as consistency, coherency, scope and generality, exist. If parsimony was the *only,* or most

important, thing that matters in explanations, it would have the unfortunate consequence that regardless of how inconsistent, incoherent or wrong the scope of an explanation is, it would be a good explanation as long as it contained few elements. But parsimony could be regarded as a rule of thumb rather than a law given categorical precedence. In this sense, parsimony is sometimes given precedence, but it will be outweighed by requirements of, for instance, consistency, coherency and scope. For example, if a framework requires the utilisation of few elements in an explanation but it generates an inconsistent or incoherent result, or it has a too wide scope, more elements and assumptions will have to be provided in order to absolve that inconsistency, create coherency with reasoned intuitions and bring about the appropriate scope. That is, more elements have to be provided to make the framework reasonable.

Consider the issue of ecosystems per se having an intrinsic value. This opens the floor to the well-known objection of subsuming individual welfare to a holistic or collective welfare, in short, the charge of environmental fascism (Regan, 2004: 361). Respecting a holistic entity—ecosystems—means that the interests of individual beings are at risk of being superseded by appeal to holistic well-being, thus losing coherency with reasoned intuitions and leading to the inconsistency of at the very least permitting killing (individual) life for preserving (aggregate or collective) life. To escape this inconsistency or, in other words, to make a holistic approach reasonable, we need to have additional elements. J. Baird Callicott provides an illustrative example of this. To avoid the charge of environmental fascism, he would add further elements that abolish the inconsistency of permitting the sacrifice of the lives of individual beings, perhaps even humans, if required to preserve the beauty, integrity and stability of a biotic community. This is done by adding second-order principles (Callicott, 2013: 66). First, the duties and obligations generated by memberships in intimate and venerable communities take precedence over those generated by larger, more impersonal, ones; second, stronger duties and obligations take precedence over weaker ones (Callicott, 2013: 66ff). Finally, a third-order principle specifies the sequence in which the two second-order principles are consulted. This could result in a demand generated by a venerable community being outweighed when conflicting with a stronger demand that protects the well-being of the individual. Thus, to

avoid a charge that atomistic accounts can already accommodate through respect of the lives of individual beings, a whole framework has to be constructed carrying many more assumptions, the reasonableness of which have to be provided. In other words, additional elements are added to preserve consistency. I am not suggesting that Callicott does not succeed in avoiding the charge of environmental fascism, but I am proposing that his account requires many more elements.

Whilst the number of elements does not reduce the reasonableness of a moral framework, it makes it more vulnerable because it contains more assumptions that have to be consistent with reflective intuition. Ideally, perhaps, one could use a simple principle to explain all moral judgments. However, often, real-life cases require considering a complex set of factors. Yet, it seems as if the law of parsimony can still play a very meaningful role, even if it is not always decisive because other elements should often be given precedence.

3. Atomistic reasons to care for biodiversity

In the following, I will use a broad conception of biodiversity. This entails that the discussion include both what is commonly called alpha- (diversity of species), beta- (diversity of habitats), and gamma-diversity (total diversity). Providing a specific definition would narrow down the conception to focus on, such as species richness or the variation of ecosystems, or genes. By contrast, I maintain a broad conception of biodiversity because I believe that the following framework can accommodate several of these aspects. Many of us have intuitions that biodiversity should be preserved and that intrinsic value is the concept that explains or justifies that intuition (McShane, 2017; see also UN, 1992, which recognises the intrinsic value of biological diversity). Moreover, most of us may also have the intuitions that holistic perspectives can provide arguments for why biodiversity should be conserved better than atomistic theories can. After all, biodiversity is a relational property that a collection of entities can have. I will argue against this stand and suggest that atomistic accounts can give supporting reasons as to why substantial biodiversity loss should be reduced or, preferably, stopped.

3.1 Expanding the moral sphere: How atomistic philosophers care for biodiversity

In this section, I will first discuss the basic characteristics of atomistic theories, suggesting that they broaden the applicability of concepts utilised to ascribe moral relevance to humans. Following that, I will survey how atomistic reasons can justify care for biodiversity.

3.1.1 Expanding the sphere of moral relevance

The argument from marginal cases is an oft-deployed strategy by atomistic philosophers to prove the moral relevance of non-human organisms. As described by Christine Korsgaard, the argument suggests that 'whatever property we choose as the ground of moral standing, there will be some human being who lacks it, or some other kind of animal who has it. There is no property […] that is possessed by all and only human beings, and so no possible grounds for assigning moral standing to human beings alone' (Korsgaard, 2018: 79; see also Singer, 2002).

The argument points out the inconsistency of ascribing a moral standing to humans lacking the property required to make a moral difference whilst denying it to animals that have such a property. Atomistic perspectives take a characteristic that warrants a moral standing, consistent with reflective intuition, and willingly admit that (some) other organisms also have that characteristic and thus have a moral standing. Admittedly, the perspectives differ as to the characteristics considered necessary to qualify as having a moral standing. Regan's right-based view, for instance, admits only a much more qualified and limited set of organisms having a moral standing than Taylor's teleological centre of life, which is very broad (Regan, 2004: 243; Taylor, 2011). Gary Varner bases his account on having interests, indicating that it 'is to have a good or a welfare of one's own, which can be positively or adversely affected by the actions of moral agents' (Varner, 1998: 25), whereas Taylor bases it on teleological life centres, implying that it makes sense to take into account organisms benefitting or being harmed. Other biocentrist accounts, such as Robin Attfield's, place the moral relevance on whether an organism has a good of its own (Attfield, 2015). Consequently, atomism proceeds by identifying a characteristic that is reasonable for having a moral standing, such as interests or well-being, and then identifies

those beings to which this quality befalls. The result is a substantial widening of morally relevant interests to consider in decisions relative to narrow atomistic accounts, such as anthropocentrism.

3.1.2 Explaining atomistic reasons to preserve biodiversity

There are two ways in which atomism, and I will focus on biocentric individualism here, can accommodate biodiversity. On the one hand, one can preserve individual beings qua components of biodiversity, and biodiversity levels remain; on the other hand, the concern for biodiversity is an indirect duty to morally relevant organisms. Basically, the first argument states that because we have an obligation to individual organisms, the level of biodiversity will remain a residue of direct care for organisms. The second argument states that morally relevant organisms' well-being is dependent on healthy ecosystems, which include biodiversity, and we therefore have an indirect obligation to preserve biodiversity.

The two views differ in how necessary conditions relate to biodiversity. In the first argument, care for individual organisms is a sufficient condition for preserving biodiversity. In the second argument, care for biodiversity is a necessary condition for care for the well-being of individual organisms. Both views are based on the simple notion that organisms having interests and well-being ought to be cared for and that biodiversity preservation either follows from such care or is a precondition for it. Because atomistic views are ultimately based on such simple concepts, there is a greater chance of coherence with reflective intuition.

The first view is perhaps most emphatically described by Regan, as a proponent of animal rights, and Taylor's biocentrist account:

> Were we to show proper respect for the rights of the individuals who make up the biotic community, would not the community be preserved? And is not that what the more holistic, systems-minded environmentalists want? (Regan, 2004: 363).

> We cannot do harm to a species-population without doing harm to a great many of the organisms that make up the population (Taylor, 2011: 285).

The second view is propagated again by Taylor and, more lately, by Korsgaard and Attfield:

> By damaging or destroying the ecological balance and integrity on which the well-being of an entire biotic community depends, harm is done to many of the species-populations that constitute the community. A great number of instances of violations of duty are thus involved (Taylor, 2011: 285).

> Some environmentalists seem to reason this way: Habitat loss is bad because the members of a species need a place to live, and if they don't have a place to live, the species will go extinct. And that's bad, because every species is intrinsically valuable. […] Short as it is, this piece of reasoning has way too many steps. Habitat loss is bad because animals need a place to live, period (Korsgaard, 2018: 209).

> Unlike ecocentrism, biocentrism avoids making a (vulnerable) appeal to the supposed intrinsic value of the health of ecosystems, supporting ecosystem preservation rather through its importance to the well-being of creatures. A biocentric ethics support biodiversity preservation (Attfield, 2015: 147).

Consequently, there is an indirect moral worth of biodiversity according to the second view. This entails an instrumental view on biodiversity, similar to anthropocentrism. However, the scope of organisms that have a moral standing is substantially enlarged in a biocentrist account relative to a mere anthropocentric account, and it would most likely entail that we should go to great lengths to reduce biodiversity loss, even if it is only to fulfil an indirect duty. Thus, even if only providing indirect reasons for biodiversity, it will encompass much more biodiversity than a mere anthropocentric account. Indeed, Robin

Attfield has suggested that the instrumental value of ecosystems is so great 'as to be capable of outweighing the value in the lives of even the individual human beings who could be brought into being and located there in their stead' (Attfield, 2015: 41). One issue to consider in this context is the role that biodiversity plays to ensure resilient ecosystems that can provide safe and stable habitats for morally relevant organisms. The difficulty of assessing the extent to which biodiversity correlates with resilience may provide a strong argument in favour of a precautionary approach.

Regardless, biocentrism is more likely to justify a broad concern about biodiversity than other atomistic accounts, such as animal rights or anthropocentrist accounts, because they will face severe problems of scope. For instance, the threshold for having a moral standing, or rather *rights*, in a framework such as Regan's is substantially greater than that in biocentrist accounts and will therefore exclude many entities.

One caveat with biocentrism is biospherical egalitarianism (see, for instance, Attfield [2015: 40]). In the present context, biospherical egalitarianism would result in the conclusion that protecting the habitat of some species of herpetofauna living in a highly niched habitat would be equally important as protecting the habitat of a species of higher vertebrates.

But most atomist accounts can provide hierarchies of interests and desires to make reasonable choices. Some, such as Gary Varner, insist that any workable ethics 'must involve some hierarchy of interests' (1998: 96). Taylor's biocentrism, for instance, allows distinguishing between basic and non-basic interests. Thus, the basic interest for humans includes 'what people need if they are going to be able to pursue those goals and purposes that make life meaningful and worthwhile' (Taylor, 2011: 272). Varner also places emphasis on interests but considers basic interests insufficient because, according to his view, a life in which solely basic interests are fulfilled would be a life marginally worth living (Varner, 1998: 97). Yet, basic interests are a necessary condition for our ground projects, which is where Varner places the ethical locus, and it is a necessary condition for such ground projects that biodiversity preservation be considered a good thing to aspire towards (Varner, 1998: 139), but it is also the case that it is better to satisfy ground

projects that require rejecting fewer interests of others (Varner, 1998: 93). Thus, relying on atomist biocentrism would not result in the counter-intuitive result that no priorities can justifiably be made when a priority has to be established between two different habitats, with preservation being an indirect duty because of demands to morally relevant beings. It is not the case that *all* interests are to be weighed equally as soon as an organism passes the threshold of moral relevance.

The care for individual organisms qua components of biodiversity and biodiversity as a precondition for the well-being of morally relevant creatures suffice for accommodating biodiversity. The care for biodiversity is explained as being an indirect duty to organisms having a moral standing from an atomistic perspective, on the basis of a judgment consistent with reflective intuition that including the interests of such organisms makes sense. The interests of these organisms can be ranked, thus avoiding the counter-intuitive conclusions that would follow if we accept biospherical egalitarianism.

3.2 How ecocentrism introduces additional elements

In general, holistic accounts come with more axiological concepts and assumptions than are needed to explain demands to conserve biodiversity, and one has to make the relation between them reasonable. But holistic accounts can support biodiversity conservation by two strategies that focus on the instrumental value of biodiversity, without accounting for all the concepts and premises ecocentrism comes equipped with. First, holistic frameworks can explain the instrumental value of biodiversity as a demand owed to individual organisms, similar to biocentric individualism – in which case the "holistic" elements of the theory aren't utilized to establish this value. Alternatively, they can focus on the moral value of ecosystems and species and state that biodiversity is instrumentally valuable to them. That is, holistic accounts can either bracket the moral relevance of ecosystems or species and rely only on the moral relevance of individual organisms (which are also included as morally relevant in most holistic frameworks to avoid subsuming individual well-being to holistic features) to justify biodiversity conservation, or they can use the moral relevance of ecosystems or species as providing instrumental reasons to preserve biodiversity. Neither strategy requires all of the

axiological concepts at the disposal of holistic frameworks, and both strategies ascribe a solely instrumental value to biodiversity. Nevertheless, holistic frameworks involve more axiological concepts than atomistic ones, and for this reason, they provide less parsimonious explanations for biodiversity conservation.

The concept of *systemic value*, introduced by Holmes Rolston to account for the value of ecosystems, provides an example of how holistic perspectives already come to the issue at hand—the value of biodiversity—with more axiological concepts than atomistic accounts (Rolston, 1994: 25). Rolston's account includes systemic value in addition to two other kinds of value: instrinsic and instrumental. It will therefore always be necessary for holistic accounts like Rolston's to explain how qualities, such as systemic values, are to be understood relative to the moral standing of individual beings, in addition to making reasonable hierarchies of interests, which is also a concern for atomistic frameworks. But in addition to such hierarchies, holistic frameworks also have to explain how entities, such as ecosystems and species, relate to the moral standing of individual beings, and, furthermore, how they all relate to systemic values. Consequently, holistic accounts have to explain where to place biodiversity in an already dense package of axiological concepts. One way could be to place intrinsic value directly on biodiversity, but this is questionable (see McShane, 2017, and Maier, 2012, for discussions). For one thing, it is questionable whether it is reasonable to give direct moral standing to the property *variation*. Second, this approach would have quite counter-intuitive consequences, such as assuming that greater variation is always good, justifying constant additions of species to a habitat.

But it is possible to concede that even if it is the case that holistic accounts come with too many axiological concepts, they do not have to make active use of such concepts to support conservation of biodiversity. This is possible if holism merely *supplements* accounts that ascribe moral standing to individual beings. However, even with this approach, holistic accounts will use more elements to make care for biodiversity reasonable than atomistic accounts will. This is because the reasons it finds biodiversity to be indirectly valuable to individuals would still differ from those of atomistic approaches and would create longer chains of indirect demands.

It should be noted that holistic accounts are seldom very explicit about the reasons to care for the interests of individual beings, but when they do discuss these reasons, they seem to require an appeal to community or relations (Callicott, 2013: 289ff), including an appeal to membership in a biotic community. For instance, a holistic environmental philosopher such as Callicott more clearly puts an emphasis on community than a holist such as Rolston, and on demands that spring from belonging to different communities (Callicott, 2013). By virtue of our belonging to communities, we have corresponding duties stemming from that community and to that community. Pertaining to our belonging to a biotic community are corresponding duties to not upset the integrity, stability and beauty of a biotic community, in accordance with the land ethic that Callicott is so influenced by. But as was discussed above (Section 2), this may result in the neglect of duties to *individual* beings.

Callicott attempts to solve the objection from environmental fascism by introducing another set of demands, which can countermand demands stemming from communities (Callicott, 2013: 66). One shortcoming of this account is that it places greater demands on individuals in more proximate and venerable communities (Callicott, 2013: 66), but this is uninstructive when it comes to rare species, many of which reside in highly niched habitats and play little role in the beauty, integrity and stability of such habitats, in addition to being very distant parts of the biotic community of humans because they reside in remote areas.

By contrast, Rolston finds a foundation for preservation in a 'yearning for a sense of place' and that 'life would be impoverished with reduced experience of natural beauty, rural and wild' (Rolston, 2012: 49), but he does not state whether such an impoverishment would be a violation of a basic interest or of other interests, such as aesthetic ones. Regarding species extinction specifically, he writes that 'destroying species is like tearing pages out of an unread book, written in a language humans hardly know how to read, about the place where we live' and that 'human well-being depends on relationships not only with other humans, but with life on Earth' (Rolston, 2012: 131). Rolston's account intends to avoid ascribing moral relevance only to those species that human welfare is dependent on, as this view would omit the moral relevance of many rare

species with no clear relevance to our well-being (Rolston, 2012: 149ff). To do this, he includes the moral relevance of 'clues to natural history' (Rolston, 2012: 131), lamenting that killing a species is 'to shut down a story of many millennia, and leave no future possibilities' (Rolston, 2012: 135). Thus, extinction is not only bad because of the loss of species providing us with ecosystem services but also because we lose clues to the natural history of the place where we live.

Both Callicott and Rolston therefore seem to depend on community belonging and relating to the place we inhabit. This is a denser package than the atomistic account is. First, it seems prima facie a longer route to first provide that the stability of community be morally relevant as such, even if such stability is indirectly relevant to preserving the well-being and meaningfulness of individual agents to whom we have moral demands. Second, the demands that stem from that community belonging (including indirect demands, such as preserving biodiversity) have a problematic relation with the demands of a more universal character. Basically, an agent, X, has a duty to a moral patient, Y, by virtue of the community membership of Y relative to X, and care for biodiversity may be such a duty. But this differs from atomistic accounts. If an entity is included within the boundaries of moral relevance, then, from an atomistic approach, there are special constraints and demands towards that specific entity. That is, the demands of agent X to Y stem directly from a characteristic that befalls Y. The demands to Y do not have to take the additional route through community belonging. An additional problem that requires elements to be explained is demands to moral patients who do not belong to one's proximate and venerable community. The community approach will always have to provide principles that are instructive of whether community norms should be given prevalence relative to universal norms, or constraints that are, in some reasonable sense, more binding and impartial (Callicott's approach [2013] is instructive in this manner; see Section 2 above). Duties to a community member may, in the worst case, entail imposing intended harm on this community member because of, for instance, traditional practices. The relational approach has to consider the conditions under which relational obligations are outweighed by all-things-considered reasons or stronger demands when conflicts

arise. Ecocentric approaches *can* explain all these instances, but they require additional elements to make their framework consistent.

An alternative position to take for holistic frameworks is to state that protecting biodiversity is an indirect duty held to *ecosystems* per se, instead of individual beings. Such a conclusion would rely on direct duties to ecosystems, and on maintaining biodiversity as an indirect manner of fulfilling duties to ecosystems. But how would direct duties to ecosystems be made reasonable (and, furthermore, avoid the charge of environmental fascism, which will not be considered here)? Such an explanation may, for instance, claim that an ecosystem is a goal-oriented system and, therefore, has an interest in being in a particular state. The ecosystem (or species) may have an interest-based claim right, if it has a goal. This is problematic for at least two reasons. First, it is inconsistent with ecological science, according to which changes and disruptions have always been a characteristic of ecosystems at most tending towards equilibrium. Second, the *goal* of an ecosystem is merely a residual by-product of the interests of individual beings (Cahen, 1988). But, in addition, ecocentrism would have to explain the role that biodiversity plays in an ecosystem and the goal of that ecosystem. Does it increase stability or resilience (assuming stability or resilience are the goals of an ecosystem), and, if so, to what extent? Providing such accounts is possible, but it would not be needed if respect for individual beings qua components of biodiversity were in place, a view that is consistent with how the goals of ecosystems are a residual function. Furthermore, and more importantly in relation to the issue at hand, atomistic accounts do not need to claim that ecosystems are goal-directed systems and that biodiversity contributes to the goals of those systems.

To summarise this section, atomistic frameworks provide indirect reasons to care for biodiversity. The only rationale required for explaining why such care is reasonable is to account for the interests and well-being of organisms that can be harmed or be benefitted from our actions. One challenge for biocentrist theories is egalitarianism, but most accounts come equipped to address it. Holistic theories are also burdened with explaining how individual organisms and human welfare ought to be compared; they have to prove instructive in relating such interests to holistic concerns, such as ecosystems or species. In general, holistic theories utilise more axiological concepts and have to explain the

reasonableness and relations between them to a greater extent than atomistic accounts do. This is the case even if holistic theories only make use of the *atomistic* parts of their theories to support biodiversity conservation and disregard holistic supplements for this purpose. *Even if* a holistic framework explains the basis for biodiversity conservation by appeal to its atomistic parts, the explanation is found in a complicated relational framework, which has to explain appeals to community belonging or appeals to the moral relevance of natural history and the relation to *stronger* duties, such as duties to individuals. Atomistic frameworks make direct use solely of these stronger duties. Moreover, even if holistic theories attempt to explain why the moral judgment that we ought to care for biodiversity is due to it being an indirect demand to ecosystems, which we have direct duties towards, more elements have to be added to make such a judgment cohere with reflective intuition. Thus, biocentrism seems to offer an easier way to account for why care for biodiversity is reasonable, as it requires fewer assumptions.

4. Challenges to the adequateness of atomistic views

The following will present objections to each of the premises of the argument. I suggest that there are reasonable ways to meet all of the objections and that the argument still stands.

4.1 Morally discriminating between habitats with similar properties

The first objection to the ability of atomism to justify biodiversity conservation, detailed in Section 4.1.1, concerns the ethical relevance of properties related to measuring biodiversity, such as evenness in the distribution of species in a habitat, and rarity. The second objection regarding the first premise concerns the concept of value-adding properties (Section 4.1.2).

4.1.1 Does species membership matter?

One problem for atomistic accounts is how to prioritize between habitats that are equal or similar with regard to the number of morally relevant organisms but that differ in other

properties relevant to measuring biodiversity. Consider, for instance, the choice between two habitats where only one can be preserved[2]:

Habitat A: 200 morally relevant organisms, low evenness, common species

Habitat B: 200 morally relevant organisms, high evenness, rare species

We would assume that these additional properties make a difference and could guide our priorities because, for instance, Habitat A may primarily consist of 90 per cent of one species, whereas the more even distribution and species rarity of Habitat B would render it more valuable. If biodiversity is viewed as value-adding and provides pro tanto reasons, then we can account for Habitat B utilising fewer elements than an ecocentric perspective does, which would introduce additional properties, such as the intrinsic values of species per se or ecosystem health measured by evenness.

But just how effective at adding value are such properties? Consider the following choice:

Habitat A: 200 morally relevant organisms, low evenness, common species[3]

Habitat B: 150 morally relevant organisms, high evenness, rare species

Our intuition may suggest that B should be prioritised. But atomism seems to require support to account for the intuition that there is some value-adding property of rarity or evenness that ultimately makes B the required choice. An organism that has value is granted greater value if it is a part of an endangered species, as all future members of that species are at risk (Attfield, 2011: 312). To view such properties as providing pro tanto reasons without appeal to intrinsic value may explain the intuition, that is, that biodiversity properties do not add all-things-considered reasons. Viewing such properties as value-adding requires fewer elements than ecocentrism but also comes at the price of being weaker and only serves to make options, such as B, in the above choice prima facie.

[2] Other models that have a similar structure as the choice presented here exist (Mikkelson & Chapman, 2014).

[3] One caveat here is whether *Homo sapiens* is a common species. If that were the case, it would arguably not be the case that even rarity or evenness would justify a choice of Habitat B, as it cannot add value substantial enough to outweigh the value of human life.

4.1.2 Value-adding properties only add to existing values

Even if we grant that components, such as variation, evenness and rarity, are value-adding, it is only true that they *add* value to entities that are already valuable. Value-adding properties only add value in the sense of attaching to or enhancing other existing values (Woods, 2017: 243). Thus, from an atomistic perspective, even if we have two organisms from rare species in a habitat, their rarity is only additive if the organisms are valuable.

This will be a problem to a varying extent. For example, Regan's rights-based perspective has set quite a high bar for something to qualify as having a moral standing, which reduces the number of organisms to which value-adding properties can attach, whereas Taylor's biocentrism has a lower threshold for moral standing, and would ascribe moral relevance to a greater number of organisms.

Such an approach seems more preferable than considering properties, such as rarity or evenness per se, to be intrinsically valuable, which is severely more troublesome and somewhat metaphysically suspect. How could, for example, the value of rarity be explained (see Attfield, 2015: 143)? And what would prohibit the introduction of a rare invasive species in a habitat with less-rare species, if there is a supposed value in rarity? To render qualities, such as rarity, morally relevant would also require additional components to cope with possible unfortunate consequences. Even if rarity and evenness provide pro tanto reasons, they are not decisive in the atomistic account described above. Other considerations will have to be taken into account, such as how strong the pro tanto reasons are relative to other stakes, such as the well-being of morally relevant organisms.

4.2 Atomistic perspectives require the introduction of additional elements

Even if the above section seems plausible, one cannot escape the fact that it has added additional elements to explain why caring for biodiversity is reasonable. The account needs to explain why qualities belonging to species membership provide a normative justification for choices. It was argued that this can be done by introducing the element of value-adding properties that provide pro tanto reasons. Such reasons may be overridden by other concerns.

This charge is not necessarily problematic, as the issue at stake here is whether atomistic frameworks introduce fewer elements than ecocentrism does, but it still provides reasons for why we ought to care for biodiversity. I believe that it succeeds in doing so, given the many additional components required for ecocentrism to account for that care (Section 3.2).

4.3 The principle of parsimony is too reductive

An additional possible criticism is to the third premise, the principle of parsimony. It may be considered overly reductive and expressing a 'taste for desert landscapes' (Sober, 2015: 5). This seems ill-suited to the principle of plenitude, indicating that greater levels of diversity are necessarily better (Attfield, 2015: 142). Whilst we do not have to provide a defence for the principle here, it is relevant when it comes to environmental values. Can atomistic accounts accommodate all that is considered valuable? Is the holistic account perhaps more truthful and accurate than biocentrist accounts, which would speak against parsimony?

Atomistic perspectives cannot account for the intrinsic values of species, ecosystems and other ecological wholes. What I hope to have shown above is that we do not *need* to accommodate such values to explain why biodiversity conservation is reasonable. That is, we do not need to account for *all* natural values to consider biodiversity important. Elements, such as the systemic values of ecosystems or the intrinsic values of species, may explain care for biodiversity, but they will require additional elements to be reasonable. I have not intended to suggest that atomistic frameworks are *always* simpler and thus preferable. I have only set out to show that they are so with regard to explaining care for biodiversity. Perhaps holistic accounts are better at accommodating all that is valuable in nature, but this is beyond the scope of this paper. The very fact that atomistic accounts can explain a structural property, such as biodiversity, more easily makes it a strong framework.

Given that the above objections can be managed, reasons persist to have confidence in the conclusion.

5. Summary: Biodiversity as value-adding and offering pro tanto reasons

Atomistic accounts can provide reasons to care for biodiversity in two ways. First, biodiversity preservation is a residual effect of showing care and reverence for those beings that have a moral standing. Second, beings that have a moral standing are dependent on biodiversity for their well-being, providing us with an indirect reason to care for biodiversity. Given the broad scope of atomistic accounts, we have good reasons to reduce biodiversity loss. However, the tools that atomistic perspectives use to explain such reasons are merely a broadening of the reasons we have for showing care and reverence for other humans and organisms; they do not require introducing additional elements, such as the intrinsic values of ecosystems, species or base demands on community belonging. Introducing such notions has troublesome consequences requiring the introduction of even more elements to be coped with.

However, a pure atomistic account that neglects qualities such as rarity or evenness, face some severe problems. I have suggested that such qualities, in addition to properties, such as naturalness and wildness, be considered as value-adding properties that provide pro tanto reasons. Such demands can be overridden, but they should be taken into account. Regardless of the introduction of such demands, which are admittedly weaker than pure atomistic demands, the explanation for care for biodiversity is still simpler than that made by ecocentrist accounts.

The paper concluded by facing several possible charges for the premises of the argument. It was suggested that such charges can be managed and that the argument stands. Given the current alarming status of biodiversity, we have good and intelligible atomistic reasons to provide ambitious policies for reducing further biodiversity loss.

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