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COMMENTARY

On the Intrinsic Value of Genetic Integrity

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In their article Yasha Rohwer and Emma Marris (henceforth R&M) argue that there is no underived prima facie obligation to preserve genetic integrity. It is clearly demonstrated that conservation biologists use the concept and affirm the corresponding obligation and do so without much critical thinking. Given the influence of their positions in public debate, a proper critical analysis of their position is particularly welcome. Nevertheless, with the intention to further improve their argument, I will raise what I take to be weak points in R&M's discussion.[1]

To get the discussion underway, it is important to define the core concepts used in the analysis. R&M understand genome as 'the entire DNA or all the chromosomes in an individual or species' (p. 1). They are particularly interested in the *species'* genome, however. This, taking the panda species as an example, 'can be thought of as both what is shared between all pandas and all the variants between pandas: the basic genetic recipe for *Ailuropoda melanoleuca* plus the genetic diversity present amongst all pandas at a single moment in time' (p. 2). Finally, by referring to biologists' discussion, they understand genetic integrity as 'that property which will disappear due to mixing of genes from another population' (p. 3). This is of course rather non-committal since the interesting and for their discussion crucial question is what this property consists in. But we can set this question aside for the moment; we will come back to it presently. Having put the main concepts on the table, R&M set as their target to show that there is in fact no prima facie obligation to preserve genetic integrity. Such an obligation can at best be derived from other possible duties: doing what preserves genetic integrity would then be a means for fulfilling these duties. In this commentary I do not take issue with the second part of R&M's argument, but I do raise some problems concerning the first part.

The strategy R&M employ in this part is to analyze one by one the possible grounds for establishing a prima facie duty to preserve genetic integrity. They identify four relevant and in the biologist literature actually deployed justifications, but I will only focus on one: the possibility that a pure genome is intrinsically valuable.

At this point it becomes crucial to hear more about what genetic integrity really is: what that property is that would be lost 'due to mixing of genes from another population.' Unfortunately, R&M never clearly and explicitly answer this question. However, from

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their discussion it seems that their account of genetic integrity has two parts. One, genetic integrity is understood as the purity, intactness or un-corruptedness of the genome. Two, the genome is then used to identify the species: a species' identity consists in a particular genetic pool. Putting the two together we get the idea that genetic integrity consists in keeping the genome, that is to say, the species intact. So the question is whether genetic integrity understood in this way has any intrinsic value. R&M deny this, while I think there are grounds to be more affirmative.

R&M's argument against the intrinsic value of genetic integrity takes the following form. The natural reading, the one I offer above, is to hold that we have to keep the genome unchanged if we want to preserve genetic integrity. R&M reject this view for two reasons. One is an implausibility charge: we would then have to say any genomic change is bad and this is hard to swallow for several reasons. To mention two: the genome changes after every reproductive cycle and it also changes naturally in response to changes in its environment. We would not want to label these changes bad, or so R&M claim. The other reason against the first reading is not given strictly in response to this reading but I think it clearly applies here. R&M appeal to G. E. Moore's (1903) isolation test. They claim that the pure genome, in isolation, that is, in a world in which nothing else exists but the genome, would not be judged good (p. 13). It is after all just genetic information, 'a sequence of amino acids that we represent with As, Cs, Gs, and Ts.' Moreover, in case one disagrees and holds that we would judge the genome good in isolation, that person would then have to admit that this judgment is not driven by the purity of the genome. If one world contains 'pure bison' in isolation, and another world 'impure bison' in isolation, we would have to judge both worlds to contain value, not just the one that has 'pure bison.'

I think questions can be asked about both arguments. Concerning the first, the crucial issue is what we are talking about exactly: overall or all-things-considered value (hence obligation and reason) or prima facie value (hence obligation and reason) judgments. It is clear that R&M are right in their contention about the former: surely, we can't honestly say that any genetic change would be *overall* bad! But it is far from clear to me that they are also right about the latter: why would it not be prima facie bad to lose the purity of the species' genome and thus ground a prima facie obligation to preserve this purity? This kind of obligation is override-able and the value that grounds it can be outweighed, and it is plausible to say that in the cases that R&M considers this is just what happens. In particular, the reasons they use to show the implausibility of this reading I would consider as the reasons that successfully outweigh the reason that it is prima facie bad that in these processes we lose something: namely, the purity of the species' genome.[2]

Let us turn now to the Moorean argument. What is striking here is that R&M switch from talking about the intrinsic value of genetic integrity to the intrinsic value of the *genome*. As far as I can tell, their argument might indeed work when it comes to the genome. But this is not what is under consideration: what should be considered in isolation is genetic integrity—that is, the pure genome that confers identity on the species—and not the genome itself. And if asked, I am much less sure that I would be negative in my judgment concerning the goodness of the identity-conferring pure genome. Similarly with the comparison of the two worlds R&M mention: I am tempted to say that the world with the 'pure bison' has value whereas the other does not.

But I might be overlooking something. Perhaps the idea is that we must move from genetic integrity to the genome because of the nature of the isolation test. After all, intrinsic value pertains to something regardless of its relation to other things and it can be argued that what distinguishes genetic integrity from the genome—its purity and its being identity-conferring—are relational properties and hence have to be disregarded if we want to make judgments of intrinsic value. However, this also means that to ask whether the genetic integrity has intrinsic value is a non-question: *by definition*, if this reasoning is correct, genetic integrity *cannot* have intrinsic value. Would R&M really want to go this far? If they would, it must be said that their discussion and the questions they ask are rather misleading. More importantly, is it really the case that these properties are relational in the relevant sense? I think both properties can be understood as relations the species has to itself. This is clear in the case of the property of being identity-conferring: the genome confers the identity but then, for this very reason, the genome *is* the species. Purity can also be understood as not leaving the boundaries of the species: it is a form of self-integration, of maintaining the species as one integrated whole.

To end, let us briefly examine the second reading R&M consider. On this view the condition that the genome does not change is loosened (p. 12): they now allow that the genome might change without losing identity (hence: integrity) but either not beyond a certain threshold (magnitude of change matters) or not in a certain way (intraspecific changes are allowed but interspecific changes are not). They reject this reading as implausible: 'the idea that *all* mixing between gene pools or all changes beyond some threshold is bad seems clearly false' and they support their claim with an example (p. 13). I tend to agree that ruling out certain kinds of changes is a wrong move, but I am not sure about the case against employing thresholds. Surely, this is a matter of what threshold one has in mind; at least one example is not going to show that *no* threshold might work.

But there is a further problem. Once we allow for change in the genome but still maintain that the genome is identity-conferring (R&M say nothing to the contrary), the idea presents itself: why not adopt a position analogous to certain accounts of personal identity over time on which all that is required to preserve identity is some kind of *continuity* over time?[3] Identity understood in this way does not require that we maintain a set of unchanged genetic patterns in order to preserve species identity. Nor does it require that we distinguish between kinds of changes or even that we set a threshold beyond which changes are not allowed. All that it requires is some kind of counterfactual dependence of the genetic pool of temporally contiguous pairs of the same species. It would be good to see if this view of genetic identity and genetic integrity would also be prone to R&M's implausibility charge.

Disclosure statement

No potential conflict of interest was reported by the author

Notes

1. Page references, unless otherwise stated, are to R&M's article. In doing so I use the page numbering of the manuscript I was provided with.

2. In moral discussions concerning human integrity the analogous account is indeed criticized on normative grounds. But these typically refer to integrity as a virtue and this consideration certainly does not apply here; besides, virtue-related considerations are clearly more on the overall side than on the *prima facie.* See Cox, La Caze and Levine (2013), esp. the first two sections, for details.
3. The *locus classicus* in the literature is still Parfit (1984), Part Three.

References

Cox, D., La Caze, M. & Levine, M. (2013) Integrity, in: Edward N. Zalta (Ed) *The Stanford Encyclopedia of Philosophy*, Fall 2013 Edition. Available at http://plato.stanford.edu/archives/fall2013/entries/integrity/
Parfit, D. (1984) *Reasons and Persons*. (Oxford: Oxford University Press).