Rethink Priorities' Welfare Estimates

Introduction

Comparing amounts of suffering between members of different species is fraught with philosophical and physiological questions, to which these fields have yet to provide many answers. Rethink Priorities (RP) has recently made an attempt at this challenge using "moral weights". While RP's authors accept that the work is flawed in many important ways, it is probably the strongest effort so far, and so we will use their results as preliminary placeholders for the real numbers.

To be clear, the concept we are discussing here (i.e. moral weights) is a combination of both of the following:

- the probability that members of a certain species are sentient; and
- (loosely speaking) how much the members of a certain species are capable of experiencing valenced states (i.e. states where there is the feeling of intrinsic goodness or badness associated with them)

RP estimates the probability of sentience for shrimps to be approximately 30% (assumed to be the same as crabs, see p.14).[1] Conditional on sentience, they are also unlikely to have the same capacity for suffering and pleasure that humans have, and so their overall "moral weight" is ~3%, while humans are defined to have a moral weight of 100%.

Implications for human-shrimp ratio - how to compare between human and shrimp interventions

If we take the Rethink Priorities welfare estimates at face value, shrimp suffering over a given unit of time is worth 3.1% of human suffering over the same unit of time, i.e. human suffering is worth 32x more.

RP's 95% confidence interval for the moral weight on shrimp is the extremely large range of 0 to 115%. This means an intervention that reduces human suffering is somewhere in the range of being infinitely more valuable, to only 87% as valuable as reducing the suffering of a shrimp.

To compare a lifetime of farmed shrimp suffering to a lifetime of human suffering:

- Farmed whiteleg shrimps typically live for around 120 days (⅓ of a year).
- Average global human lifespan was 71 years in 2021.
- Therefore, an intervention to reduce human suffering for a lifetime is 32 x 71 x 3 = approximately **7,000x** more valuable than an intervention to reduce farmed shrimp suffering for a lifetime.
- The comparison would be similar for wild shrimps. Estimates for their lifespan vary - around one to two years.

[1] See median (50th percentile) estimate on p.2.

Rethink Priorities' Moral Weight Methodology

To estimate the moral weight for different species, RP approaches the problem from an evolutionary perspective. The report states that there are three main theories of why valenced states may have evolved in some animals:

- The ability to:
    1. represent information;
    2. to make decisions; and
    3. to learn things via valenced experiences.

By looking for the presence of certain traits that suggest one of these three abilities, RP used proxies for different species' experiences of valenced states. They settled on 94 different traits (including love-like behaviour, parental care, problem solving, tool use, and neuron count).

All but one of the proxies chosen are present and maximal in humans, meaning that for all of these proxies the welfare estimates can only approach the value assigned to humans at 100%, and not exceed it. The one exception to this (i.e. the only proxy where non-human species could score higher than humans) is time perception (the subjective experience of the speed of time).[2] It is easy to imagine that there could be proxies that humans do not exhibit but other species do, which would increase the estimates for non-human species. Due to all these potential missing proxies not present in humans, these estimates are probably best thought of as a lower bound. It would be extremely difficult to have a similar work without these sorts of underlying human-centric assumptions.

The report estimates the moral weight ranges for 11 different species. The ranges in the report are very large. The size of the range reflects how little is known about the species.[3] [4] The range for shrimps is the second largest in the report (after octopuses) and is extremely large, ranging between 0% and 115% relative to humans. This reflects how little is known about shrimps.

The Shrimp Life Cycle

A related report by RP speculates that insects can suffer to very different extents over their lifecycle. A similar result might be true for shrimps, whereby larval shrimps can suffer much less than mature shrimps (see this comment thanks to our own Lucas). This would affect our model, as shrimps on SWP farms may live longer (e.g. at lower stocking density), thus spending more time in the mature part of their lifecycle. However, this report is very speculative (and based on insects, not shrimps).

Limitations

RP recognises many serious issues with their approach in the report, including:

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[2] The rate of subjective experience can be measured by doing experiments involving strobing lights at different frequencies and measuring brain activity.

[3] Our knowledge of the 11 species seems to decrease as we go from terrestrial vertebrates to invertebrates (e.g. the percentage of known information on the proxies found for pigs was 72%, and for silkworms it was 20%).

[4] It seems as though less available research on a species does not only increase the uncertainty, but also **decreases** the estimate for that species *"While carp and salmon have lower scores than pigs and chickens, we suspect that's largely due to a lack of research."*

1. The human-centricity at the heart of their approach. It is very plausible that (say) octopuses are capable of experiences that we cannot access, and thus can not be indicated by using proxies derived from human behaviour.
2. As we are just at the very beginning of our journey in understanding consciousness and sentience, it is of course entirely possible that all three of the theories on which they have based their work are wrong.
3. The results are dependent on the list of traits selected, and it's likely that many of the traits selected are irrelevant for the capacity to experience valenced states, or that many of the relevant traits are missing.
4. The proxies are evenly weighted, but some of them may be much more relevant than others.
5. They relied on existing academic studies to answer whether a species has a particular trait or not, and they found very few papers claiming that a certain trait is **not** present in a certain species. They expect this comes from the publication bias in academia, where positive results are favoured due their higher likelihood of being published.
6. Their analysis treats the traits as being present or absent, while many of the traits should also contain a magnitude, i.e. how strongly these traits are present, e.g. how often the species uses tools, not just if they use them at all.

The RP report is the first serious attempt to quantitatively estimate the capacity for subjective experience of different species. Although there are serious problems with the approach, further attempts can use the RP report as a starting point. However, there are some fundamental flaws (such as its human-centricity) that may require an entirely new approach. Computational neuroscience is an example of a fledgling field which may hold the answers to some of these questions.

Some extra links

- RP's welfare range table in its entirety can be found here:
  The Welfare Range Table (EA Forum Version)

- The RP authors also created a template to conduct back of the envelope calculations (BOTECs) for the impact of animal welfare interventions on DALY-equivalents averted, using moral weights as an input: FAW BOTEC Template. I quickly edited this to apply it to shrimps: BOTEC For Shrimp

- Another RP report on theories of wellbeing:
  Revised Axiological Asymmetries and Cause Prioritization.docx