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The Welfare Diffusion Objection to Prioritarianism

Tomi Francis

Global Priorities Institute, University of Oxford, Mill Street, Oxford OX2 0DJ, UK
Email: tomi.francis@philosophy.ox.ac.uk

Abstract
According to the Welfare Diffusion Objection, we should reject Prioritarianism because it implies the 'desirability of welfare diffusion': the claim that it can be better for there to be less total wellbeing spread thinly between a larger total number of people, rather than for there to be more total wellbeing, spread more generously between a smaller total number of people. I argue that while Prioritarianism does not directly imply the desirability of welfare diffusion, Prioritarians are nevertheless implicitly committed to certain principles for comparing different-number populations which, together with the Prioritarian same-person axiology, imply the desirability of welfare diffusion.

1. Introduction

This paper is about what I shall call the 'Welfare Diffusion Objection' to Prioritarianism. According to Prioritarianism, 'benefiting people matters more the worse off these people are' (Parfit 1997: 213). To be more precise, Prioritarianism of the sort I shall discuss holds that

(i) Benefits to the worse off matter more in an *axiological* sense: they do more to make an outcome better than same-sized benefits to the better-off. That is, I am talking about what (Parfit 1997: 213) calls *Telic* rather than *Deontic* Prioritarianism.

(ii) The worse off are those who have less *wellbeing*, rather than (for example) those who have access to fewer resources.

(iii) The sort of wellbeing in question is a person's wellbeing during her entire life, rather than during a part of her life or a moment in time.

(iv) Benefits to the worse off matter more only because these people are at a lower absolute level, and not because they are at a lower level relative to other people. Prioritarianism, as I use the term, thus rules out Egalitarianism.

Prioritarianism of this sort implies that it would be better for ten people to have slightly less than 50 units of wellbeing each – for concreteness, let's say 49 units each – than it would be for five people to have 100, and the remaining five people to have nothing. This is rather plausible.

It would be much less plausible to say that it would be better for ten people to have 49 units of wellbeing each, rather than for five people to have 100 while *nobody else exists*. In that case, we would be saying that it can be better to increase the number of people and spread a *lesser* total amount of whatever makes life worth living thinly among these people, even if in the smaller alternative population there would be perfect equality and everyone would be individually better off. As Ingmar Persson (2011, 2012) puts it, we would be committed to the 'desirability of welfare diffusion'. The Welfare Diffusion Objection to Prioritarianism holds that (i) Prioritarians cannot avoid saying that welfare diffusion is desirable, and that (ii) since this is very implausible, we should reject Prioritarianism.

Some philosophers have argued that Prioritarianism implies the desirability of welfare diffusion outright (Holtug 2010; Persson 2011, 2012). The most obvious argument for this claim starts from the observation that Prioritarianism can be construed as recommending populations with greater total *priority-weighted* wellbeing, where the priority weighting function is some strictly concave, strictly increasing function of wellbeing which maps the neutral level to zero.[1] Since larger populations with less total wellbeing can nevertheless have greater priority-weighted wellbeing, Prioritarianism of this sort says that such populations are better (Persson 2011, 2012). Another argument goes as follows: when we bring additional people into existence with lives worth living, these people are thereby benefited. Since Prioritarians care about benefiting people, they should say that bringing such people into existence makes the world better. And if they say that, they will have to say that welfare diffusion can be desirable (as we shall see in §2).

There are problems with both arguments. The first argument assumes that Prioritarianism requires us to compare different-number populations by their *sums* of priority-weighted wellbeing. But why think that Prioritarians need to compare sums of wellbeing, rather than aggregating in some other way, such as taking the average? Unless a case is made for aggregation by summation, the first argument is incomplete. The second argument assumes that, because creating people with good lives benefits these people, Prioritarians need to say that doing so makes the world better. But this argument seems to assume *Existence Comparativism*: the claim that a good (bad) life can be better (worse) for a person than non-existence. This claim is very controversial, so a Prioritarian might respond by simply denying Existence Comparativism.[2] To be fair, the second argument might be construed in another way: it might be argued that, even if creating a person with a good life does not make that person better off, we can still intelligibly say that the person is thereby *benefited*

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[1]We shall discuss *Critical Level* versions of Prioritarianism, which do not map the neutral level to zero, in §3.

[2]Many philosophers reject Existence Comparativism. See for instance Narveson (1967), Broome (1999: 168), Bykvist (2007) and Bader (2022).

(Parfit 1984; McMahan 2013). This plugs one gap in the argument at the cost of opening up another: why must a Prioritarian say that benefiting people *in this way* makes the world better? They might instead claim, quite reasonably on the face of it, that benefiting people makes the world better only when those who receive benefits are thereby made better off.

More broadly, both preceding arguments might be rejected because they mistakenly assume that Prioritarianism involves any commitments regarding comparisons of different-number populations in the first place. Prioritarianism might instead be taken to be a theory of same-person comparisons only.[3] Understood this way, Prioritarianism would seem to have nothing at all to say about whether wellbeing should be aggregated by summation or in another way, or about whether so-called 'existential benefits' make the world better, or about any other population-ethical matter. As Derek Parfit put it:

> Like the Principles of Personal Good, or Pareto Principles, the Prioritarian Principles that I have considered cannot be applied to cases in which, in the different possible outcomes, different people would exist. When we consider these cases, we need other principles. (Parfit 2012: 440)

If Prioritarianism is understood in this way, is the Welfare Diffusion Objection toothless? I shall argue that it is not. Prioritarianism of this sort does not imply the desirability of welfare diffusion outright. But Prioritarians still cannot avoid the Welfare Diffusion Objection entirely. One of the main distinctive features of Prioritarianism is that it is concerned with people's absolute wellbeing levels, rather than their wellbeing levels relative to other people (Parfit 1997: 214). I shall argue that even if we understand Prioritarianism to be a theory of same-person comparisons only, the Prioritarian concern for people's absolute wellbeing levels still supports some fairly minimal population-ethical principles. It turns out that these principles are enough to bridge the gap between same-person Prioritarianism and the desirability of welfare diffusion.

Let me be more specific. Given transitivity, Prioritarians cannot avoid the desirability of welfare diffusion if they accept the Mere Addition Principle, which says that additions of good lives do not make the world worse. I demonstrate this in §2. The Mere Addition Principle is pretty plausible in its own right – note that it says additions of good lives make the world *not worse*, not that they make the world at least as good – but it is particularly plausible for Prioritarians. I show in §3 that Mere Addition is supported by the principle of Separability, which encodes Prioritarians' professed concern for people's absolute levels. I also show that, given some minor further assumptions which most Prioritarians would accept, the Mere Addition Principle can replaced by a weaker principle which only says that creating *very* good lives never makes things worse.

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[3]By "same-person" comparisons, I mean comparisons involving the same people in each population under consideration. In contrast, "different-number" comparisons involve populations which have different numbers of people.

The upshot is that Prioritarians need to bite the bullet and learn to live with welfare diffusion, take radical measures like denying transitivity, or stop being Prioritarians. §4 will be of interest particularly to those who find the third option most palatable (or those who never accepted Prioritarianism in the first place): it demonstrates that, holding fixed transitivity and the Mere Addition Principle mentioned earlier, we can only avoid the desirability of welfare diffusion by accepting (a restricted version of) Totalism: the view that one population is better than another if and only if it has greater total wellbeing. I respond to several objections in §5.

2. The Mere Addition Argument for Welfare Diffusion

We begin with a few technical preliminaries. As was implicit earlier, I shall use real numbers to represent wellbeing levels. Positive numbers represent lives worth living, negative numbers represent lives worth not living, and zero represents neutral lives. Greater numbers represent better lives.

This leaves open the question of how ratios of the differences between wellbeing levels are to be understood. I shall use the following scale: for some fixed good quality of life q, a life is at $x \geq 0$ units of wellbeing if and only if it is equally as good as a life which lasts for x years at some constant good quality q. A life is at $-x$ if and only if one would rationally be indifferent between certainty of a life at x and a 50-50 gamble yielding a life at either $-x$ or x.[4]

A *population* is a finite set of possible people with associated wellbeing levels.[5] Populations represent the distributions in which precisely these people exist, with lives at the respective wellbeing levels, and nobody else exists. $p_i[w_i]$ denotes the population consisting of just person p_i at level w_i; similarly, if X is a set of possible people, $X[w_i]$ denotes the population containing the X-people at level w_i, and nobody else. Populations are disjoint when they have no persons in common. If X and Y are disjoint populations, we may write $X + Y$ for the population which consists of the X-people at their respective levels, the Y-people at their respective levels, and nobody else.[6] (When I write $X + Y$, I am always assuming that X and Y are disjoint; quantifiers should be understood to be restricted accordingly.)

We shall be interested in the at-least-as-good-as relation, denoted by $\succeq$. I take this to be a transitive binary relation on populations.[7] This is not a completely innocent assumption. Some philosophers, most notably Larry Temkin (1987, 1996, 2012) and Stuart Rachels (1998, 2001, 2004), have argued that the at-least-as-good-as relation is not transitive. Others believe that the at-least-as-good relation is option-set-dependent, and hence cannot be understood to be a binary relation

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[4]Readers who doubt that additional years of good life have constant marginal value presumably have some other scale of wellbeing in mind; these readers are invited to consider that scale. I discuss what happens if we get our scale from Expected Utility Theory in §5.2.

[5]Technically, I need to assume that there are at least two possible people. An obvious argument for this claim can be formulated, the details of which are left as an exercise for those readers who are not identical to the author.

[6]More precisely, $X + Y$ is the set-theoretic union of X and Y.

[7]Recall that a binary relation R is *transitive* iff whenever aRb and bRc, we have aRc.

on populations.[8] I'm sceptical of both positions, but I won't argue against them in this paper. Let's set them aside for the time being.

That is enough in the way of background. Let's see how the core commitment of Prioritarianism, when conjoined with the Mere Addition Principle, implies the desirability of welfare diffusion. To begin with, let's set these principles out more precisely. (Two of these principles unavoidably look a bit complicated when stated precisely, but they are easy to understand by examining Figures 1 and 2.)

We shall understand the core commitment of Prioritarianism to be the principle of

Strong Pigou-Dalton. Let $w^- < w$ be any wellbeing levels, and let a be any quantity of additional wellbeing. There is a small positive quantity of wellbeing ε' such that for any possible persons p_i and p_j, and any disjoint unaffected background population U, if $0 \leq \varepsilon \leq \varepsilon'$ then

$$U + p_i[w] + p_j[w^- + a - \varepsilon] \succ U + p_i[w + a] + p_j[w^- + \varepsilon]$$
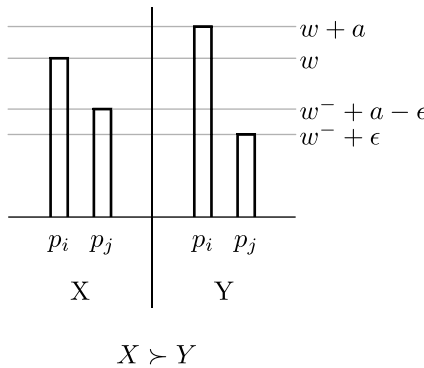

Figure 1. Strong Pigou-Dalton.

Strong Pigou-Dalton says that slightly smaller benefits to the worse off make the world better than slightly larger benefits to the better off. Put another way, transfers of wellbeing from the better-off to the worse-off make the world better even when they are slightly 'leaky', resulting in a small loss of total wellbeing. Prioritarians cannot reject this principle.

Next, we have the Mere Addition Principle:

Mere Addition. For any populations X and Y, if Y consists only of lives worth living, then $X + Y$ is not worse than X.

[8]See Frick (2014, 2022). Cusbert (2017) suggests that Temkin's Essentially Comparative View (2012) can be understood as implying option-set-dependent betterness, rather than intransitivity within choice sets.

As I mentioned earlier, Mere Addition does not imply that an addition of lives worth living is *at least as good*, or *better*, than no addition at all. Principles of that sort are suspect because they conflict with the Evaluative Procreation Asymmetry, according to which bringing lives worth living into existence never makes the world better.[9] Mere Addition, as stated here, faces no such objection.

Finally, we need a principle which guarantees that welfare diffusion is not desirable. This shall be:

Different-Number Egalitarian Dominance. Let X and Y be any populations. If

  (i) X is a perfectly equal non-empty population of lives worth living;
 (ii) each person in X is better off than each person in Y;
(iii) each person in X exists in Y (and is therefore better off in X than in Y);
(iv) X has greater total wellbeing than Y,

then X is at least as good as Y.
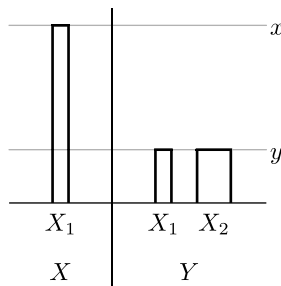
Figure 2. Different-Number Egalitarian Dominance: If $x|X| > y|Y|$, then X ≥ Y.

Different-Number Egalitarian Dominance tells us that smaller populations with greater total wellbeing and perfect equality of wellbeing are at least as good as larger populations with lesser total wellbeing. It is restricted to cases where the people in the smaller population also exist in the larger population. This restriction ensures that everyone who exists in the smaller population is better off, even if Existence Comparativism is false. Different-Number Egalitarian Dominance is therefore consistent with the narrow person-affecting principle, on which an outcome can only be better than another if it is better for some particular person.

Different-Number Egalitarian Dominance encodes avoidance of the Welfare Diffusion Objection: population axiologies which do not satisfy Different-Number Egalitarian Dominance say that welfare diffusion is sometimes desirable, or at least

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[9]Proponents of the Procreation Asymmetry include Frick (2014, 2017, 2020) and Roberts (2011). McMahan (2009, 2013) suggests we should accept a weaker version of the Asymmetry. As it happens, I think that we should reject the evaluative version of the Procreation Asymmetry; Broome (2004, 2005) provides the best argument I know of to that effect.

say that sometimes, welfare diffusion is not undesirable.[10] So population axiologies which do not satisfy Different-Number Egalitarian Dominance are open to the Welfare Diffusion Objection.

Putting these three principles together, it can be shown that

Proposition 1. No population axiology satisfies Strong Pigou-Dalton, Mere Addition and Different-Number Egalitarian Dominance.

Proof. Let p_i and p_j be any two possible people. Apply the Strong Pigou-Dalton principle with an empty unaffected background population, higher wellbeing level 50, lower wellbeing level 0, and 50 units of potential additional wellbeing. This tells us that there is some small positive quantity of wellbeing such that

$$p_i[50] + p_j[50 - \varepsilon] \succ p_i[100] + p_j[\varepsilon]$$

Different-Number Egalitarian Dominance implies that

$$p_i[100] \succcurlyeq p_i[50] + p_j[50 - \varepsilon]$$

Transitivity then implies that

$$p_i[100] \succ p_i[100] + p_j[\varepsilon]$$

which contradicts Mere Addition.

To get this argument through, we applied Different-Number Egalitarian Dominance to the case of comparing a *single-person* population with greater total wellbeing to a larger population with slightly lesser total wellbeing. Different-Number Egalitarian Dominance might seem suspicious in exactly these kinds of cases: it might be reasonable, for example, to think that it would be better for there to be ten billion people, at wellbeing level one hundred, than for there to be one person at level one hundred billion.

However, this objection can be brushed aside, because Proposition 1 still goes through even if we weaken Different-Number Egalitarian Dominance so that it applies only to populations of size n or larger (no matter how large n is, and assuming that there are at least $2n$ possible people). If X_i and X_j are disjoint sets of n possible people each, observe that by applying Strong Pigou-Dalton and transitivity n times, we can show that[11]

$$X_i[50] + X_j[50 - \varepsilon] \succ X_i[100] + X_j[\varepsilon]$$

From here, following the same strategy as in the proof of Proposition 1, it is easy to apply Different-Number Egalitarian Dominance and transitivity in order to show that

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[10]Different-Number Egalitarian Dominance could be false without smaller populations with greater total wellbeing being *worse* than larger populations with lesser total wellbeing. It would be enough for two such populations to be incomparable. But since it seems to me that the claim that the two populations are incomparable is not much more plausible than the claim that the larger population is better, I shall mostly ignore this distinction going forward.

[11]Strictly speaking, this claim should be (and can be) proved by induction on n. The proof is routine, and is omitted for brevity.

$$X_i[100] \succ X_i[100] + X_j[\varepsilon]$$

which contradicts Mere Addition.

Since Prioritarians cannot deny Strong Pigou-Dalton, the upshot of Proposition 1 is that they must choose between Mere Addition and Different-Number Egalitarian Dominance.

In the next section, I shall argue that Prioritarians cannot reasonably reject Mere Addition. I shall also argue that they are implicitly committed to the principle of Separability, which says that unaffected people can be ignored when comparing populations. Separability in turn provides strong support for Mere Addition, and even stronger support for a weaker version of Mere Addition which, if we slightly strengthen our Pigou-Dalton principle, implies the desirability of welfare diffusion.

3. Mere Addition and Separability

What distinguishes Prioritarianism from Egalitarianism? Parfit (1997: 214) answers: while Egalitarians are concerned with relations between people's wellbeing levels and the wellbeing levels of others, Prioritarians are solely concerned with people's absolute wellbeing levels. Consider a situation in which one person is at 100 and another is at wellbeing level 0, when both could instead have been at wellbeing level 50. Egalitarians decry this situation because it involves inequality: the less well-off person is not as well off as the better-off person. Prioritarians decry the same situation on different grounds: for them, the situation is regrettable not because it involves inequality, but because although there is nothing bad about the first person being at level 100 rather than level 50, it would have been better for the second person to be at level 50 rather than level 0, even though the two potential benefits are of the same size.

The Prioritarian concern for people's absolute wellbeing levels provides immediate support for the Mere Addition Principle.[12] Consider the application of this principle in the proof of Proposition 1. Mere Addition there implied that is not worse than $p_i[100]$. Egalitarians can reject this claim. They can say that, because the existence of p_j introduces inequality, it would be better if only p_i were to exist. But Prioritarians cannot say the same thing. Since they are concerned only with people's absolute levels of wellbeing, they cannot appeal to relations between p_i's wellbeing and p_j's wellbeing when both exist. On the face of it, Prioritarians can say that it is bad for p_j to exist only if existence is bad *for* p_j. But that cannot be the case: while p_j has only a low positive wellbeing level, a low positive level still represents a life worth living, though perhaps only barely.

We can make another, more precise, argument from the sole concern with absolute levels to the Mere Addition Principle. A sole concern for people's absolute wellbeing levels is captured by the principle of

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[12]It might be objected that if we take the restriction of Prioritarianism to same-person cases seriously, we cannot say that Prioritarians should accept different-number principles such as Mere Addition. But my claim is not that Prioritarianism *itself* supports Mere Addition. My claim is instead that a sole concern for people's absolute wellbeing levels – an important pre-theoretic intuition that underpins Prioritarianism – supports Mere Addition.

Separability. Let X, Y and Z be any populations. X is at least as good as Y if and only if $X + Z$ is at least as good as $Y + Z$.

Separability is widely accepted by Prioritarians. Indeed, Adler and Holtug (2019: 104) take a version of Separability to a defining feature of Prioritarianism. The version of Separability they are talking about is restricted to same-person cases, while mine is unrestricted (and needs to be).[13] But a sole concern for people's absolute wellbeing levels supports the unrestricted version of Separability just as well as it supports the restricted version. If unrestricted Separability is false, then the relative contributive values of populations X and Z depend not only on the absolute levels of the persons involved in X and Y, but also on the status of the unaffected people in population Z. Thus, one cannot deny unrestricted Separability without thereby expressing a concern for more than just people's absolute wellbeing levels.

Separability is hard to square with the negation of Mere Addition. If we deny Mere Addition, we think that sometimes it is worse to add lives worth living to the world. If we accept Separability as well, then we will have to infer that it is *always* worse to add such lives to the world. This claim is implausible in its own right. It can also be shown to be incompatible with a very compelling principle, namely the

Absolute Value Principle[14]. If X is a population consisting solely of lives worth living, and Y is a population consisting solely of lives worth not living, then X is better than Y.

At least, this is so if we accept

Non-Absolute Priority. For any positive quantity of wellbeing x, there is some sufficiently small positive quantity of wellbeing such that for any persons p_i and p_j, and any disjoint unaffected background population U,

$$U + p_i[\varepsilon] + p_j[\varepsilon] \not\succ U + p_i[x] + p_j[-\varepsilon]$$

Non-Absolute Priority says that we should not give absolute priority to those who are slightly below the neutral level, over those who are slightly above the neutral level. The opposite view, Absolute Prioritarianism, says that those who are below the threshold of a life worth living are to be prioritized absolutely over those who are above the threshold. On this view, it would be better to spare one person from a pinprick which would push them slightly below the neutral level, rather sparing trillions of people from suffering much greater harms which would not push them below the neutral level. Since most people do not find this kind of view very plausible, I shall not discuss it further.[15]

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[13]My thanks to an anonymous reviewer for pointing this out.

[14]This principle is sometimes called 'Priority for Lives Worth Living' (see for instance Blackorby *et al.* 2005: 135). I avoid this name because it is suggestive of Prioritarianism, whereas the Absolute Value Principle is satisfied by many non-Prioritarian population axiologies (such as Totalism and the Average view).

[15]See Crisp (2003) for a critical discussion of this kind of Absolute Prioritarianism.

Given Non-Absolute Priority and Separability, the Absolute Value Principle implies Mere Addition. We can show this by contradiction. If Mere Addition is false, there is some case in which an addition of a life at positive wellbeing level x is worse than no addition at all.[16] By Separability, adding a person (let's say p_2) at level x is therefore *always* worse than no adding no one. Now consider the following three populations.

$$
\begin{aligned}
A_1 &\quad p_1[-\varepsilon] \\
B_1 &\quad p_1[-\varepsilon] + p_2[x] \\
C_1 &\quad p_1[\varepsilon] + p_2[\varepsilon]
\end{aligned}
$$

By the negation of Mere Addition and Separability, B_1 is worse than A_1. By the Absolute Value Principle, A_1 is worse than C_1. Transitivity then implies that B_1 is worse than C_1. This contradicts Non-Absolute Priority.

I find the Absolute Value Principle utterly compelling, so this argument for Mere Addition seems to me decisive. But not everyone accepts the Absolute Value Principle. Critical Level (or Critical Range) Prioritarians, for example, believe that it can be worse (or not better) for there to be many lives that are positive, but below a 'critical level' $x^* > 0$, rather than for there to be fewer lives at a negative wellbeing level.[17]

It turns out, however, that even Critical Level Prioritarians do not avoid the Welfare Diffusion Objection. We can adapt the previous argument to make do with a weaker version of the Absolute Value Principle, which even Critical Level (and most Critical Range) Prioritarians would accept. We can then only get a weaker version of Mere Addition out, but it will be enough for our purposes. The weaker version of the Absolute Value Principle says that

> **Weak Absolute Value Principle.** There is a positive wellbeing level a such that if X is a population consisting solely of lives which are at least at wellbeing level a, and Y is a population consisting solely of bad lives, then X is better than Y.

Critical Level Prioritarians say that a large number of lives barely worth living can be worse than a smaller number of lives worth not living. But they do not say that a large number of *excellent* lives can be worse than a smaller number of negative lives. The former claim is pretty implausible, but one might perhaps reluctantly accept it in order to avoid the Repugnant Conclusion. The latter claim is even more implausible, and cannot be justified on this basis.

We also need a slightly different, but still compelling, Non-Absolute Priority condition I shall call Non-Absolute Priority 2. This condition is illustrated by Figure 3 over the page. The precise statement of the condition is as follows:

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[16]Strictly speaking, this does not follow from the negation of Mere Addition, since Mere Addition could be false because some addition of *multiple* lives worth living is worse, while additions of individual lives worth living are always incomparable with no addition at all. In practice this does not matter, because the instance of Mere Addition appealed to in the proof of Proposition 1 concerned an addition of a single life.

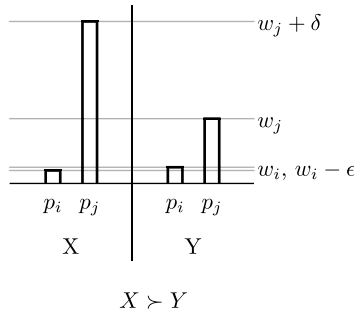[17]See Blackorby *et al.* (1995, 2005) for a discussion of critical level views.

$$X \succ Y$$

Figure 3. Non-Absolute Priority 2.

Non-Absolute Priority 2. For some sufficiently small positive quantity of wellbeing ε, if $\mathcal{W}$ is any bounded interval of non-negative wellbeing levels, there is a sufficiently large positive quantity of wellbeing δ' such that given any unaffected background population U, if $\varepsilon \leq \varepsilon'$, $\delta \geq \delta'$ and w_i, w_j are in $\mathcal{W}$, then

$$U + p_i[w_i - \varepsilon] + p_j[w_j + \delta] \succ U + p_i[w_i] + p_j[w_j]$$

This principle looks a little complicated, but essentially it just says that it is always better to provide a sufficiently large benefit to a better-off person, rather than a very small benefit to a worse-off person. The required size of the benefit to the better-off person can increase as the gap between the two increases (which is why we quantify over $\mathcal{W}$). Note also that Non-Absolute Priority 2 only requires us to avoid giving absolute priority to people with wellbeing levels which are, at worst, only slightly negative.

Let's now see how these principles imply a weaker version of Mere Addition. Consider the following three populations, where a is a sufficiently high wellbeing level for the Weak Absolute Value Principle to apply, represents an arbitrarily small quantity of wellbeing, and a^+ is some arbitrarily good wellbeing level:

$$
\begin{array}{ll}
A_2 & p_i[-\varepsilon] \\
B_2 & p_i[-\varepsilon] + p_j[a^+] \\
C_1 & p_i[a] + p_j[a]
\end{array}
$$

By applying Non-Absolute Priority 2 finitely many times, it can be shown that B_2 is better than C_2.[18] The Weak Absolute Value Principle implies that C_2 is better

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[18]Let be a small enough quantity of wellbeing that Non-Absolute Priority 2 applies, and let a be large enough that the Weak Absolute Value Principle applies. Let n be the smallest number greater than $\dfrac{a + \varepsilon}{\varepsilon}$, and let $e = \dfrac{a + \varepsilon}{n}$; we then have $e \leq \varepsilon$. We can apply Non-Absolute Priority 2 repeatedly to show that

$$p_i[a] + p_j[a] \prec p_i[a - e] + p_j[a + \delta_1] \prec \ldots \prec p_i[a - ne] + p_j[a + \textstyle\sum_{i=1}^{n} \delta_i]$$

Writing a^+ to stand for $a + \sum_{i=1}^{n} \delta_i$, the last population is equal to
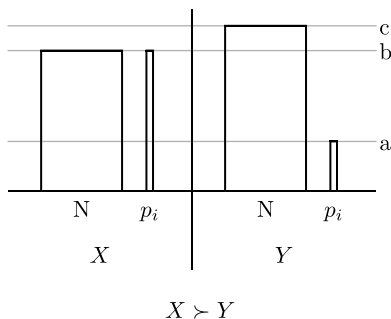
$$p_i[-\varepsilon] + p_j[a^+]$$

.

Figure 4. Priority-Utility Trade-Off.

than A_2. Transitivity then implies that B_2 is better than A_2.[19] Given Separability, this constitutes a proof of

Weak Mere Addition. There is some positive wellbeing level a such that for any population X, and any population Y consisting of lives at level a, $X + Y$ is not worse than X.[20]

This weaker version of the Mere Addition Principle is enough to commit the Prioritarian to the desirability of welfare diffusion. To show this, we need a same-person Prioritarian principle which is slightly different to Strong Pigou-Dalton. This principle, which is illustrated by Figure 4 above, is

Priority-Utility Trade-off. For any positive wellbeing level a, there are greater wellbeing levels b and c, with $c > b$, a set N of possible people of size n and a possible person p_i such that

(i) $N[b] + p_i[b] \succ N[c] + p_i[a]$
(ii) $nc > (n + 1)b$

As the name suggests, Priority-Utility Trade-Off requires that we give priority to the worse off in such a way that we sometimes sacrifice a significant amount of total utility. More precisely, it says that for any level of wellbeing a, we can find a large number of people at a higher level of wellbeing c such that, rather than having the unequal outcome in which one person at level a and the large number at level c exist,

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[19]We only really need the weaker conclusion that B_2 is not worse than A_2.

[20]In fact, we have proved something stronger: $X + Y$ is better than X. I shall not use this stronger claim, but it's worth noting, for those who may disagree that we are intuitively committed to the *undesirability* of welfare diffusion rather than its mere *non-desirability*, that we could use the stronger claim to show that Prioritarians are committed to the view that welfare diffusion can make things *better*, rather than merely not making things worse.

it would be better if instead all of these people existed at an intermediate wellbeing level b, even though this would mean a sacrifice of more than a units of total wellbeing. For example, although wellbeing level 100 is the level of a very good life by contemporary standards, Prioritarians (and Egalitarians) will presumably think that, rather than having one person at level 100 and another person at level 1001, it would be better if instead both were at level 500, even though this would come at the cost of more than 100 units of total wellbeing. As far as I can see, Prioritarians cannot reject this principle.

It can now be shown that

Proposition 2. No population axiology satisfies Priority-Utility Trade-off, Weak Mere Addition and Different-Number Egalitarian Dominance.

Proof. Let a be a wellbeing level witnessing Weak Mere Addition (that is, additions at level a are never worse). Priority-Utility Trade-off implies that there are wellbeing levels $b > c$, both of which are greater than a, a set N of possible people of size n and a possible person p_i such that $nc > (n + 1)b$ and

$$N[b] + p_i[b] \succ N[c] + p_i[a].$$

Now compare the population $N[c]$ with $N[b] + p_i[b]$. $N[c]$ has total wellbeing nc, which (from Priority-Utility Trade-Off) is greater than $(n + 1)b$ (the total wellbeing of $N[b] + p_i[b]$). Furthermore, $N[c]$ is a perfectly equal population of good lives, each person in $N[c]$ exists in $N[b] + p_i[b]$, and each person in N is better off in the former population than in the latter. Different-Number Egalitarian Dominance therefore implies that

$$N[c] \succ N[b] + p_i[b].$$

By transitivity, we then have

$$N[c] \succ N[c] + p_i[a],$$

which contradicts Weak Mere Addition.

We also have:

Corollary. No population axiology satisfies Separability, Non-Absolute Priority 2, the Weak Absolute Value Principle, Priority-Utility Trade-off and Different-Number Egalitarian Dominance.

Since the first four of these principles are satisfied by all plausible versions of Prioritarianism, the upshot is that no plausible version of Prioritarianism avoids the Welfare Diffusion Objection. Note also that even Prioritarians who deny Separability do not necessarily escape the Welfare Diffusion Objection. Proposition 2 does not appeal to Separability directly: I have used Separability only to support (Weak) Mere Addition. But (Weak) Mere Addition is

independently very plausible, and would be hard to deny even for those who do not find Separability particularly compelling.

4. A Related Argument for Totalism

The arguments of §2 and §3 are not only of interest to Prioritarians and their critics. Proposition 1, which we used to establish that Prioritarians cannot accept Mere Addition without leaving themselves open to the Welfare Diffusion Objection, can be repurposed into an argument for Totalism. Recall that Proposition 1 shows that no population axiology satisfies Mere Addition, Different-Number Egalitarian Dominance and Strong Pigou-Dalton. Strong Pigou-Dalton is controversial (albeit still intuitively compelling) because it says that benefits to the worse off matter *more* than benefits to the better off. A weaker Pigou-Dalton principle, which only says that benefits to the worse off matter *at least as much* as benefits to the better off, is accepted by virtually everyone:

> **Weak Pigou-Dalton.** Let p_i and p_j be any two possible people, and let U be any disjoint unaffected background population. If w^- is a lower wellbeing level than w, then for any positive quantity of additional wellbeing a,
>
> $$U + p_i[w^- + a] + p_j[w] \succcurlyeq U + p_i[w^-] + p_j[w + a]$$

Assume also a slight strengthening of Mere Addition, which says that additions of good *or neutral* lives cannot make the world worse. Call this principle Mere Addition*. Finally, consider a marginally stronger version of Different-Number Egalitarian Dominance, which applies to neutral as well as good lives and drops the requirement that those who exist in the population of better-off people must also exist in the population of worse-off people:

> **Different-Number Egalitarian Dominance*.** Let X and Y be any populations. If
>
>   (i) X is a perfectly equal non-empty population of good or neutral lives;
> (ii) each person in X is at least as well off as each person in Y;
> (iii) X has at least as much total wellbeing than Y,
>
> then X is at least as good as Y.

We shall now see that these three principles together imply

Totalism for Good Populations Suppose that non-empty populations X and Y contain only lives that are neutral or good. Then X is at least as good as Y if and only if $T(X)$ is at least as great as $T(Y)$ (where $T(X)$ denotes the total wellbeing of population X).

That is, we have

Proposition 3. Every population axiology which satisfies Mere Addition*, Weak Pigou-Dalton and Different-Number Egalitarian Dominance* also satisfies Totalism for Good Populations.[21]

Proof. Given transitivity, it is sufficient to show that every population consisting only of good or neutral lives is equally as good as a singleton population containing one person at the total wellbeing level. Different-Number Egalitarian Dominance* then requires these singleton populations to be ranked according to total wellbeing, and transitivity extends this ranking to all other populations with only good or neutral lives.

Let C be an arbitrary non-empty population of good or neutral lives. Let p_i be some person in C, and let C' be the set of people in C, except for p_i. Define populations A and B to be:

$$
\begin{array}{ll}
A & p_i[T(C)] \\
B & p_i[T(C)] + C'[0]
\end{array}
$$

Different-Number Egalitarian Dominance* implies that A is at least as good as C. C is obtainable from B by means of a series of pure transfers of wellbeing from better-off to worse-off, taking wellbeing from p_i each time. Weak Pigou-Dalton therefore implies that C is at least as good as B. Applying transitivity, we find that A is at least as good as B. But Mere Addition* implies that B is not worse than A. It follows that A and B must be equally good.[22] Recalling that A is at least as good as C and that C is at least as good as B, we can conclude that A and C are equally good too.

5. Objections and Replies

5.1. The Repugnant Conclusion

Proposition 3 strikes me as quite a good argument for Totalism for Good Populations. But is it *sound*? Here's one reason to think not: Totalism for Good Populations implies the Repugnant Conclusion, and many philosophers think the Repugnant Conclusion is false.[23] One might worry that this makes the

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[21]Huemer (2012) provides a similar argument. His argument assumes a more controversial version of the Mere Addition Principle, which implies that additions of good lives must render an outcome *at least as good*. This Mere Addition Principle is justified by an appeal to Existence Comparativism.

[22]We have $A \succcurlyeq B$ and $B \nprec A$. Since (by definition) $B \prec A$ iff $A \succcurlyeq B$ and $B \nsucccurlyeq A$, we have that $B \succcurlyeq A$, hence $A \sim B$.

[23]According to the Repugnant Conclusion, for any possible population of at least ten billion people, all with a very high quality of life, there must be some much larger imaginable population whose existence, if other things are equal, would be better, even though its members have lives that are barely worth living (Parfit 1984: 388). Although the Repugnant Conclusion has traditionally been regarded as a decisive counterexample to Totalism and other population axiologies, this traditional view no longer enjoys near-unanimity; see Zuber *et al.* (2021).

arguments of §2 and §3 suspect: these arguments assume (or near enough assume) principles which jointly entail the Repugnant Conclusion.[24]

I do not think that such thoughts should be of much comfort to Prioritarians. If the Repugnant Conclusion is false, then so is at least one of the premises of Proposition 3 (assuming transitivity). But can Prioritarians reasonably believe that one of these premises is false? I think not.

Consider first Mere Addition. This principle, while independently plausible, is made more plausible by the Prioritarian focus on people's absolute wellbeing levels. If the best way to avoid the Repugnant Conclusion is to reject Mere Addition, Prioritarians are in a tough spot: unlike others, such as Egalitarians, they have no natural explanation for how Mere Addition could fail.

Next consider Weak Pigou-Dalton. On the face of it, this principle is integral to Prioritarianism: surely if you believe that same-sized benefits to the worse-off matter more, you must believe that they make the world at least as good as same-sized benefits to the better-off.

Maybe that's a little too quick, though. Let's imagine for the sake of argument that Prioritarians can deny the letter of Pigou-Dalton principles while maintaining their spirit. Suppose, for instance, that a Prioritarian can adopt something like Parfit's (2004) Perfectionism, and say that pure transfers of wellbeing from better-off to worse-off people can make the world worse when they involve the loss of the best things in life, but not when they do not. This view may help Prioritarians avoid the Repugnant Conclusion, but it will not help them avoid the Welfare Diffusion Objection. The problem is that if we can apply Pigou-Dalton whenever the best things in life are *not* lost, we can still construct cases where Different-Number Egalitarian Dominance will be violated. For example, by applying an argument of the same form as the proof of Proposition 1, Prioritarians could likely be pushed to accept that a population consisting of ten billion people, each at level 100, would not be better than a population of eleven billion people, each at level 90.[25] The latter population could retain the best things in life, since 90 years of good quality life leaves plenty of space for perfectionist goods. But the claim that the latter population is not better than the former still violates Different-Number Egalitarian Dominance, and still leaves Prioritarians open to the Welfare Diffusion Objection.

The third possibility is that the Repugnant Conclusion is to be avoided by denying Different-Number Egalitarian Dominance*. But this idea is, on the face of it, wrong-headed. The point of Different-Number Egalitarian Dominance* is to say that smaller populations are better than larger ones when each person in the smaller population is better off than each person in the larger population, provided that the smaller population *also* has greater total wellbeing. Those who

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[24]Different-Number Egalitarian Dominance is a premise of Proposition 1. Mere Addition* is almost identical to Mere Addition, which is a premise of Proposition 1. Weak Pigou-Dalton is closely related to Strong Pigou-Dalton, which is the last premise of Proposition 1.

[25]Begin with a population *A* of ten billion at 100. Add one billion at level 1, and raise the *A*-people to level 101, resulting in population *B*. Finally, let *C* consist of all eleven billion people at 90. Prioritarians will presumably judge that *C* is better than *B* (or, if not, the numbers may be adjusted as necessary). Mere Addition implies that *B* is not worse than *A*. By applying transitivity, we find that *C* is not worse than *A*, contradicting Different-Number Egalitarian Dominance.

wish to avoid the Repugnant Conclusion will presumably accept this claim, along with the stronger claim that the smaller population is often better even if it has *less* total wellbeing. At any rate, denying Different-Number Egalitarian Dominance is a way of conceding the Welfare Diffusion Objection, not a way of avoiding it.

5.2. The Cardinalization Objection

I have argued that Prioritarianism is open to the Welfare Diffusion Objection. But does the Welfare Diffusion Objection really have any intuitive bite? That depends on how we determine the scale of wellbeing. I have generally worked with a scale based on years of good life, with one unit of wellbeing corresponding to one year of good quality life. But we could generate the scale of wellbeing in another way: by appealing to utility functions generated by Expected Utility Theory.[26] If our wellbeing scale is generated in this way, it is at best unclear that we can have sensible intuitions regarding total amounts of wellbeing.[27] It seems reasonable to think that since the utility functions which generate our wellbeing scale are mere representation devices spat out by a complex mathematical theorem, we cannot really be said to have an intuitive grasp of that wellbeing scale. If our intuitions regarding total quantities of wellbeing are baseless in this way, then perhaps the Welfare Diffusion Objection is nothing to worry about, since it appeals to precisely these sorts of baseless intuitions. Call this the 'Cardinalization Objection'.

I do not think that the Cardinalization Objection is of much help to Prioritarians. This is because it seems to me that the Objection works just as well against Prioritarianism itself: if we lack sensible intuitions concerning the moral importance of quantities of wellbeing, then we have no reason to accept that same-sized benefits to the worse-off matter more. The Cardinalization Objection can therefore only render the Welfare Diffusion Objection impotent by rendering it unnecessary.

Another way of responding to the Cardinalization Objection is to simply brush it aside. Whatever the merits of cardinalizing wellbeing via Expected Utility Theory, we can still talk about other wellbeing scales for which our intuitions regarding quantities of wellbeing are not baseless, such as the 'years of good life' scale. At least on the face of it, Prioritarians are committed to Strong Pigou-Dalton and Different-Number Egalitarian Dominance on the years-of-good-life scale. So the Welfare Diffusion Objection seems to be a live problem for Prioritarianism on the years-of-good-life scale, even if it is not a problem on the scale generated by Expected Utility Theory. That's fine for my purposes: one problem is enough.

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[26]I am assuming that the axioms of Expected Utility Theory are satisfied for the prudential betterness relation on prospects; if they are not, it is not possible to represent the betterness relation as maximizing the expectation of a real-valued utility function. See Morgenstern and Von Neumann (1944), Savage (1954) or Fishburn (1982), among many others, for proof of the equivalence between a relation on gambles satisfying the axioms of Expected Utility Theory and the representability of this relation by a utility function.

[27]This line of thought is suggested by Greaves (2015).

5.3. Quarantine

Yet another response to the Welfare Diffusion Objection is to attempt to 'quarantine' the problem, along with all other difficulties associated with different-number cases. Parfit (2004) summarizes this strategy with an analogy:

> It's very difficult to formulate acceptable welfarist theories that could apply to cases that involve infinite quantities of such things as suffering and happiness. That's a worry, but it doesn't undermine our confidence in the theories that can handle cases with only finite quantities. (Parfit 2004: 257)

Similarly, one might think that although it is difficult to formulate acceptable theories of different-number comparisons, this should not undermine our confidence in theories like Prioritarianism, which only apply to same-person comparisons.

It seems to me that there is a more promising and a less promising interpretation of the quarantine strategy. On the more promising interpretation, when *all* theories applicable to domain D face severe difficulties when extended to the larger domain D', in some cases this should not decrease our confidence in the theories applicable to D. On the less promising interpretation, if theory T applicable to domain D faces some particular difficulty whenever it is extended to domain D', this should not make us sceptical of T, even if some other theory T' applicable to D can be extended to D' without facing a similar difficulty.

Since some non-Prioritarian views (for example, Totalism) *can* avoid the Welfare Diffusion Objection when extended to different-number cases, only the less promising interpretation of the quarantine strategy could help to defend Prioritarianism. Yet Parfit's analogy does not help to make the quarantine strategy seem plausible on this interpretation. Consider two theories, T and T', applicable to the evaluation of populations involving finite quantities of suffering and happiness. If some extension of T can deal with populations involving infinite quantities of suffering and happiness in an acceptable way, and no extension of T' deals with such populations in an acceptable way, this *does* seem to provide strong support for T over T'.

In the present case, the fact that Prioritarianism cannot be extended to different-number cases without incurring the Welfare Diffusion Objection is a strike against it. Granted, population axiology is notoriously difficult, all theories of different-number cases have their intuitive difficulties, and these difficulties need to be balanced against each other in the final analysis. But the Welfare Diffusion Objection still weighs against Prioritarianism, even if other objections weigh against other theories.

6. Concluding remarks

I have argued that the Welfare Diffusion Objection poses a significant challenge to Prioritarianism, even if we think of Prioritarianism as a theory of same-person comparisons only. Importantly, I have assumed throughout this paper that the at-least-as-good-as relation is both option-set-independent and transitive. If

Prioritarians want to avoid the Welfare Diffusion Objection, their best bet may be to challenge one or the other of these assumptions. They might say that in order to properly restrict Prioritarianism to same-person choices, transitivity needs to be similarly restricted so that it does not allow one to chain together betterness claims which come from Prioritarian comparisons of same-person choices and non-Prioritarian comparisons of different-number choices.[28] Or, they might say that the Prioritarian weighting of benefits applies only to gains and losses which would render people better or worse off than they otherwise would have been. Given Existence Comparativism, the resulting version of Prioritarianism would either have to be intransitive (if losses and gains depend on the two outcomes being evaluatively compared) or option-set-dependent (if losses and gains depend on the set of relevant alternatives).[29] Taking any such path would be a significant departure from traditional ways of thinking about value, and would open the Prioritarian to other objections, like the prospect of susceptibility to value pumps.[30] Perhaps such objections can be answered, or perhaps they cannot.[31] Another possibility in the vicinity is to abandon axiological or 'telic' Prioritarianism, but retain a deontic version of Prioritarianism. Because the 'ought-to-bring-about-rather-than' relation is less obviously transitive than the 'better-than' relation, intransitive deontic Prioritarianism seems to me more plausible than its intransitive telic counterpart.

There are several options for those who are not prepared to give up transitivity or option-set-independent betterness. One is to simply bite the bullet and accept the desirability of welfare diffusion. While this position seems to me unattractive, it might fairly be said that every transitive population axiology takes one unattractive position or another. The desirability of welfare diffusion is not clearly more implausible than other controversial positions in population axiology, such as acceptance of the Repugnant Conclusion.[32] It also may be that adopting a version of Prioritarianism which implies the desirability of welfare diffusion has payoffs elsewhere. For instance, unlike Totalism, Total Prioritarianism has the plausible implication that it would be worse to create a number of people at wellbeing level $-x$ and the same number of people at x than it would be to create nobody at all (Holtug 2010: 255).[33] Total Prioritarianism also implies, again rather plausibly, that it can be better for there to be more total negative wellbeing spread thinly among a larger number of people than for there

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[28]Thanks to an anonymous reviewer for pointing out this possible response.

[29]Otsuka (2022: 538) suggests that Parfit would have endorsed a similar view.

[30]A particularly compelling money/value pump for cyclic theories has recently been provided by Gustafsson and Rabinowicz (2020). Gustafsson (2022) further claims that intransitive, acyclic theories are also vulnerable to value pumps, although this argument is less secure than the value pump argument against cyclicity. Value pumps would, on the face of it, appear to be effective against option-set-dependent theories which involved cycles of betterness among pairwise choices.

[31]Perhaps by defending a decision theory involving resolute choice (McClennen 1985), or to some other unorthodox decision theory (Ahmed 2017).

[32]However, the 'Super-Repugnant Conclusion' (Holtug 2010: ch. 9), which might be difficult to avoid for a Prioritarian who accepts the desirability of welfare diffusion, is more implausible than the Repugnant Conclusion.

[33]By 'Total Prioritarianism', I mean the view that ranks populations according to their total priority-weighted wellbeing.

to be less total negative wellbeing spread thickly among a smaller number of people (Holtug 2010: 256–257).

How bad would it be for a Prioritarian to accept the desirability of welfare diffusion? The precise answer to this question depends on the details of how much priority is to be given to the worse-off. But here's a rough answer. I expect that many Prioritarians will believe that it is better to bring two people from level 1 to level 20 than it is to bring one person from level 20 to level 100. If that is true, and Mere Addition is also true, then it would not be worse for there to be thirty billion people at level 20 than it would be for there to be ten billion people at level 100. I find this last claim difficult to believe.

Another option is to deny the Mere Addition principle. As I argued extensively in §3, this option should not be taken by a Prioritarian. But one could abandon Prioritarianism for this reason, and instead accept Egalitarianism. This seems to me a reasonable response to the arguments of this paper: it is not crazy to claim that it can be worse to add people with lives worth living when (and because) doing so would introduce significant inequality. That said, it's worth mentioning that Proposition 2 shows that rejecting Mere Addition alone is not enough to avoid the Welfare Diffusion Objection: one would also need to reject Weak Mere Addition, which might be a hard pill to swallow even for an Egalitarian.

A final option is to accept all of the premises of Proposition 3, taking the desirability of welfare diffusion to rule out Prioritarianism and taking Mere Addition to rule out Egalitarianism. One would then be left with Totalism for Good Populations. The obvious next step is to accept unrestricted Totalism, but one is not actually forced to this position. One can, compatibly with the premises of Proposition 3, give priority to the worse off whenever the worse off are below the neutral level at the outset. There is more to be said for this restricted version of Prioritarianism than it might at first seem. Roger Crisp (2003: 755), noting the apparent absurdity of prioritizing the rich over the super-rich, claims it is plausible that 'when people reach a certain level, even if they are worse off than others, benefiting them does not, in itself, matter more'. If he is right, then there is some threshold after which considerations of priority no longer apply. Plausibly, such a threshold should be non-arbitrary. If so, what better candidate could there be than the neutral level of wellbeing?

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Tomi Francis is a Postdoctoral Research Fellow in Philosophy at the Global Priorities Institute, University of Oxford. His current work focuses on questions which are relevant for assessing the strengths of our moral reasons to bring about a better long-term future for humanity. His website can be found at https://www.tomifrancis.com/.