Pairwise Comparison and Numbers Skepticism

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In this article, we defend pairwise comparison as a method to resolve conflicting claims from different people that cannot be jointly satisfied because of a scarcity of resources. We consider Michael Otsuka's recent challenge that pairwise comparison leads to intransitive choices for the 'numbers skeptic' (someone who believes the numbers should not count in forced choices among lives) and Frances Kamm's responses to Otsuka's challenge. We argue that Kamm's responses do not succeed, but that the threat they are designed to meet is illusory. Once the method of pairwise comparison is understood in a manner consistent with its proposed use, the challenge disappears. In making this argument, we examine questions about the interpretation of pairwise comparison and maintain that it must be understood as a method for ensuring that decisions are justifiable from the perspective of each affected individual.

I

Several decades ago Thomas Nagel made a provocative suggestion about the 'general form of moral reasoning' and its connection to the idea of equality.[2] Some of what he said was not new: that moral reasoning involves putting oneself in the other person's shoes. He had developed that idea about moral reasoning earlier in *The Possibility of Altruism*.[3] Moreover, the importance of putting oneself in another's shoes was hardly unfamiliar in non-consequentialist thinking when Nagel wrote that book. Because it is a way of creating symmetry between oneself and another person, putting oneself in another's shoes seems to be a variant on the ancient idea of the golden rule, which requires one to treat others as one would have oneself treated by

[1] The authors are listed in alphabetical order. Their contributions are incommensurable.

[2] Thomas Nagel, 'Equality', *Mortal Questions* (Cambridge, 1979), p. 126. First delivered as the Tanner Lecture at Stanford University in 1977.

[3] Thomas Nagel, *The Possibility of Altruism* (Princeton, 1970).

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them. This ideal of moral symmetry is expressed in many of the great religions of the world,[4] as well as in popular culture.[5] Non-consequentialist philosophers from Immanuel Kant – in his conception of universalizability – to John Rawls – in his description of an original position in which basic institutional decisions are made – arguably employed something like a golden rule or symmetry argument.[6]

Nagel's argument, however, focuses on a dimension of moral reasoning that seems to be neglected by other writers. Golden rule arguments in the past have for the most part concerned either two-person contexts (may I break my promise to you? must I provide aid to you?) or social and political contexts (how should our institutions be designed?). Nagel's analysis purports to explain an important strain in moral reasoning in the broad range of cases between the two-person and the socio-political. This range is conceptually important; it encompasses the distributive questions confronting an individual when he deals with conflicting claims from different people that cannot be jointly satisfied because of a scarcity of resources. Nagel's proposal is to interpret the idea of putting oneself in another person's shoes as an iterated application of the method he calls 'pairwise comparison'.[7]

Nagel's discussion leaves many questions unanswered. It does not make clear why he thinks that equality, rather than some other ideal, emerges from an extended application of pairwise comparison.[8] In addition, the details of the method itself are sketchy. Still, we believe that the idea of iterated pairwise comparison is promising, and that non-consequentialists should hesitate to abandon it despite its uncertainties. Non-consequentialists possess few other tools, beyond brute appeal to intuition, for resolving conflicting claims among equally deserving people.[9]

Michael Otsuka has recently challenged the usefulness of pairwise comparison as a tool for non-consequentialists. Specifically, he attacks that method as 'providing a foothold for the numbers skeptic' – a

[4] Jeffrey Wattles, *The Golden Rule* (Oxford, 1996).

[5] Joe South and the Believers, 'Walk a Mile in My Shoes' (1970).

[6] Consequentialists, too, appeal to something like the universalizability or hypothetical consent. See, for example, R. M. Hare, 'Ethical Theory and Utilitarianism', and John Harsanyi, 'Morality and the Theory of Rational Behaviour', *Utilitarianism and Beyond*, ed. A. Sen and B. Williams (Cambridge, 1982).

[7] Nagel, 'Equality', p. 125.

[8] Derek Parfit, *Equality or Priority?* The Lindley Lecture (University of Kansas, 1991).

[9] Frances Kamm, *Morality, Mortality: Vol. I* (New York, 1983), ch. 6; Frances Kamm, 'Precis of *Morality, Mortality Vol I: Death and Whom to Save From It*', *Philosophy and Phenomenological Research* 58 (1998), 939–45; Rahul Kumar, 'Unanimity and Aggregation' (Unpublished MS); Rahul Kumar, 'Contractualism on Saving the Many', *Analysis* 61 (2001), 165–70; T. M. Scanlon, *What We Owe to Each Other* (Cambridge, 1998), chs. 5–9. See also Rahul Kumar, 'Defending the Moral Moderate: Contractualism and Common Sense', *Philosophy & Public Affairs* 28 (1999), 275–309.

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'numbers skeptic' being a proponent of the radical view that in choosing among the conflicting claims of different individuals, the number of individuals is irrelevant.[10] Pairwise comparison, however, has strong intuitive appeal not only for numbers skeptics, but for non-consequentialists in general, including non-consequentialists who believe in saving the greater number. Otsuka offers a critique that 'applies to anyone who is moved, in common with the numbers skeptic, both by the principle of non-aggregation and by pairwise comparison of the strength of the claims of different individuals'.[11] This set of convictions, Otsuka argues, snares its proponent in intransitivity.

Frances Kamm suggests two responses that the numbers skeptic might give to avoid Otsuka's charge of intransitivity.[12] In this article, we argue that neither of these responses succeeds, but that the threat they are designed to meet is illusory. The problems in pairwise comparison Otsuka claims to find are an artifact of his idiosyncratic interpretation of that method. Once that method is understood consistently with its use by its proponents, the problems disappear.

Otsuka's argument is wrong, we maintain, but interestingly so. The hypothetical to which he seeks to apply pairwise comparison highlights some of the problems in the interpretation of that method. These problems do not, however, affect the straightforward application of pairwise comparison to forced choices among lives, nor do they limit the support that such an application lends to numbers skepticism. If we are to reject numbers skepticism, it must be because pairwise comparison does not exhaust the moral considerations relevant to forced choices among lives. But even if pairwise comparison provides only limited, incomplete guidance in making those choices, it remains a useful method for the non-consequentialist, and one which he should defend against wholesale attack. Otsuka's attempt to condemn pairwise comparison along with numbers skepticism is, we conclude, fundamentally misguided.

The article is organized as follows. In section II, we introduce Nagel's initial proposal for the method of pairwise comparison. His initial proposal did not address forced choices among lives, and in section III, we connect the method of pairwise comparison to numbers skepticism. Section IV summarizes Otsuka's argument against numbers skepticism. In section V, we analyze the two responses suggested by

[10] Michael Otsuka, 'Skepticism about Saving the Greater Number', *Philosophy and Public Affairs* 32 (2004), 413–26. Otsuka attributes numbers skepticism to John Taurek, 'Should the Numbers Count?', *Philosophy and Public Affairs* 6 (1977), 293–316, and Elizabeth Anscombe, 'Who Is Wronged?', *The Oxford Review* 5 (1967), 16–17.

[11] Otsuka, 'Skepticism', p. 421. Otsuka includes T. M. Scanlon, for example, in this larger group.

[12] Frances Kamm, 'Aggregation and Two Moral Methods', *Utilitas* 17 (2005), p. 23.

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Kamm's analysis that the numbers skeptic might give in order to avoid the charge of intransitivity. Finding these two responses lacking, in section VI, we argue that Otsuka's argument misconstrues the method of pairwise comparison and that once properly construed, it does not give rise to an intransitive ranking. In section VII, we generalize our analysis and conclude by speculating about why a philosopher as careful as Otsuka would construe pairwise comparison in the way that he does.

II

Nagel introduces the notion of pairwise comparison as an approach to resolving interpersonal conflicts. He argues that a consideration of each individual perspective in conflict settings will often favor a resolution that benefits some individuals over others.[13] The conflicts he discusses occur when the losers in each alternative do not fare equally badly. He writes:

> Where there is conflict of interests, no result can be completely acceptable to everyone. But it is possible to assess each result from each point of view to try to find the one that is least unacceptable to the person to whom it is most unacceptable. This means that any other alternative will be more unacceptable to someone than this alternative is to anyone. The preferred alternative is in that sense the least unacceptable, considered from each person's point of view separately.[14]

Nagel's method of evaluating alternatives aims to justify decisions from the perspective of the affected individuals by focusing on the (un)acceptability of each alternative to each person. It proceeds by a series of pairwise, or one-to-one, comparisons. First, for each 'result', the point of view of each individual is compared with that of every other, to identify the individual for whom that result is 'most unacceptable'. Adopting a Rawlsian idiom to simplify the exposition, we will call that person the 'worst-off' individual in that alternative, although we are aware that a person's point of view will include considerations other than his own well-being, and that other considerations will arguably make a result more or less acceptable from his point of view.[15] Then, the

[13] Nagel, 'Equality', pp. 123–5.
[14] Nagel 'Equality', p. 123.
[15] Some might insist that to take account of an individual's point of view, one must do something more, or different, than assess his well-being. Admittedly, on different conceptions of acceptability and well-being, the individual for whom an alternative is most unacceptable may not be its worst-off individual. But such divergence should not arise in 'pure numbers' cases, where differences in preferences, longevity, dependants, health, desert, etc. are stipulated away. In pure numbers cases, as discussed in section III, the individuals are assumed to be the same in all morally relevant respects. Some might insist that even if we use well-being as a proxy for acceptability, different conceptions of

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points of view of the worst-off individuals in each result are compared, to find which result is the 'least unacceptable' to its worst-off individual. That result should be chosen, as 'the one that is least unacceptable to the person to whom it is most unacceptable'. This, as Nagel sees it, is pairwise comparison.

As described, this method does not provide a determinate resolution to many conflicts. Nagel does not say how to rank results that are equally unacceptable to the persons for whom they are most unacceptable. In such a conflict, would he favor the result that was least unacceptable to the person for whom it was second-most unacceptable? It is also not clear whether the acceptability of the result to an individual depends on how he would fare in the alternatives. Is a given level of disadvantage as unacceptable to someone who would not do better in any alternative as it is to someone who would do better in all or most of them? In more general terms, we can ask whether someone can have a complaint about a result in which he is not the most disadvantaged, whether he can have a complaint about a result if he could do no better in any alternative, and whether he has a stronger complaint the better he could do in some other alternative. Although these are important questions, which we will consider at a later point, they do not arise in the context of a simple choice between saving the greater and the lesser number, to which we now turn.

III

Otsuka's critique of pairwise comparison occurs in the context of a discussion of the problem of choosing which lives to save when one cannot save all lives. Here is the problem.[16] Imagine two groups of different people who are the same in all morally relevant respects. Suppose you can save only one of the two groups and one group is larger. Should the number of people count in favor of saving the larger group? On one view – what Otsuka calls 'numbers skepticism' – it should not. Otsuka attributes to the numbers skeptic a commitment to pairwise comparison and argues that pairwise comparison leads to a choice-defeating intransitivity in the numbers skeptic's ranking of alternatives.

Nagel's initial discussion of pairwise comparison did not address forced choices among lives, or other conflicts in which the worst-off

well-being may yield different rankings, depending in part on how subjective a conception of well-being is adopted. Again, though, we do not think that this problem complicates the resolution of pure numbers cases. Furthermore, in our discussion of Otsuka's own hypothetical, which is not a pure numbers case, we will follow him in treating the number of limbs restored as a measure of both well-being and acceptability.

[16] Taurek, 'Should the Numbers Count?'.

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fare as badly in each alternative. The numbers skeptic, however, relies in part on the kind of one-to-one comparison of individual perspectives that Nagel prescribes. The classic argument for numbers skepticism maintains that the question about whom to save in a forced choice among lives must be assessed from the perspective of each affected individual. In discussing a choice between saving one person and saving five others, John Taurek writes:

> For each of these six persons it is no doubt a terrible thing to die. . . . [S]hould any one of these five lose his life, his loss is no greater a loss to him because, as it happens, four others (or forty-nine others) lose theirs as well. . . .[17]

Taurek seems to say that because the loss of one number rather than another makes no difference from the point of view of any individual lost, there is no reason to save the greater number. According to Taurek, a person confronted with the decision to save one group of people over another may as well flip a coin.[18]

In a choice between saving one person and saving five others, then, the method of pairwise comparison is consistent with numbers skepticism. When ranked in terms of how unacceptable each alternative is for the individual for whom it is most unacceptable, the two alternatives are tied. From the perspective of any individual who is not saved, there is no alternative that is less unacceptable than one which results in another person not being saved – a result as unacceptable to that other person. Thus, the method of pairwise comparison provides no basis for choosing the greater number, leaving the rescuer to break a tie between saving one person and saving five others.

IV

Otsuka's case against pairwise comparison and numbers skepticism employs a hypothetical with lesser stakes. To show where he goes wrong, it is necessary to present the hypothetical in some detail. Four people have each lost use of their limbs; the numbers skeptic possesses three pills that can restore the use of their limbs to varying degrees. For three of the four people, taking one pill restores the use of two limbs, but taking any additional pills does nothing more. For the fourth person, each pill restores one limb. Taking all three pills, this fourth

[17] Taurek, 'Should the Numbers Count?' p. 307. At places in that article, Taurek appears to find an incommensurability between individual losses that would be inconsistent with pairwise comparison. But that strikes us as a distinct strain in his argument.

[18] Anscombe puts forward a similar argument in holding that one is not required to save the larger group for the reason that one would thereby save a greater number of people in 'Who is Wronged?'. However, in contrast to Taurek, Anscombe does not regard it as impermissible to act upon that reason to save the larger group.

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person regains the use of three limbs. The numbers skeptic faces four courses of action involving the full distribution of the pills:

i. Give one pill to each member of the group of three.
ii. Give one pill to two members of the group of three and one pill to the fourth person.
iii. Give one pill to one member of the group of three and two pills to the fourth person.
iv. Give all three pills to the fourth person.

The resulting benefits for each course of action are summarized in the table below.

	Group of three	Fourth person
i.	3 have 2 limbs restored	He has no limbs restored
ii.	2 have 2 limbs restored, and 1 has no limbs restored	He has 1 limb restored
iii.	1 has 2 limbs restored, and 2 have no limbs restored	He has 2 limbs restored
iv.	3 have no limbs restored	He has 3 limbs restored

According to Otsuka, 'a numbers skeptic believes that one ought, at least when other things are equal, to give the drug to one person to restore the use of two limbs rather than to another person to restore the use of one limb'.[19] This view, according to Otsuka, reflects the numbers skeptic's commitment to the method of pairwise comparison. When comparing the claims of persons for whom a given situation is equally disadvantageous, Otsuka assumes that pairwise comparison, and the numbers skeptic, will favor the alternative that confers the greatest individual benefit. To be clear, this assumption is not part of Nagel's original formulation and would be rejected by those who believe that treating people as equals requires equal priority for the equally disadvantaged, even if they stand to benefit unequally. Still, since the loss of benefits one would receive in another alternative may be part of what makes the current alternative unacceptable, Otsuka's assumption is not inconsistent with Nagel's formulation, and we can accept it for the time being.

In another respect, though, Otsuka understands pairwise comparison very differently from Nagel. As Otsuka describes it, that method requires serial comparisons among single pairs of situations, or courses of action, no matter how many courses of action are open to

[19] Otsuka, 'Skepticism', p. 422.

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the decision-maker. This is a significantly different kind of comparison from the one Nagel described, which ranges over all the available alternatives.

Making binary comparisons, Otsuka claims that the numbers skeptic will prefer (i) to (ii), because in (i) he restores the use of two limbs for a member of the group of three, whereas in (ii), he restores the use of only one limb for the fourth person. The numbers skeptic will also prefer (ii) to (iii), because in (ii) he restores the use of two limbs for a member of the group of three whereas in (iii), he restores the use of only one limb for the fourth person. For a similar reason, the numbers skeptic will prefer (iii) to (iv). According to Otsuka, the numbers skeptic will rank the alternatives as follows: (i) > (ii) > (iii) > (iv).[20]

Otsuka then argues that the numbers skeptic ought to prefer (iv) to (i). In choosing (iv), the numbers skeptic is able to restore the use of three limbs for the fourth person. In choosing (i), the numbers skeptic is able to restore the use of two limbs at most for any one person. Given that the numbers do not count for the numbers skeptic, it does not matter in choosing (iv) over (i) that three persons will each lose out on having two limbs restored. Instead, what matters is that relative to the same baseline of no limbs being restored, the numbers skeptic is able to benefit one person to a greater degree than any other in (iv). Hence, the numbers skeptic ought to prefer (iv) to (i), according to Otsuka, but this results in a choice-defeating cycle of intransitive preferences.

V

Frances Kamm's analysis of Otsuka's argument suggests two lines of response that the numbers skeptic might give in order to avoid the charge of intransitivity.[21] The first is to reject the relevance of benefit size in the application of pairwise comparison. The second is to distinguish two morally relevant ways in which outcomes can be brought about in Otsuka's hypothetical. We examine the availability of each line of response for the numbers skeptic.

At first, it might appear that by rejecting the relevance of benefit size, the numbers skeptic can avoid the charge of intransitivity. As noted, Otsuka imputes to the numbers skeptic a preference for a greater benefit to A over a smaller benefit to B. This preference is required for his claim that the numbers skeptic will favor (i) over (ii), because all

[20] Otsuka notes that the numbers skeptic has additional reason to prefer (ii) to (iii) and (iii) to (iv). By restoring the use of two limbs in a person who has the use of no limbs rather than restoring the use of an additional limb in a person who already has the use of a limb, he aids the person who would otherwise be worse off in absolute terms. See Otsuka, 'Skepticism', p. 422.

[21] Kamm, 'Aggregation'.

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that distinguishes them, besides the number of individuals benefited (which doesn't matter), is the fact that an additional person in the group of three will have two limbs restored in (i), while the lone individual will have only one limb restored in (ii). But why should the size of the benefit, from the same low baseline, matter to the numbers skeptic? The worst off in (i) and (ii) are as badly off. Numbers skepticism neither requires nor precludes taking into account the size of the benefit. So the numbers skeptic could avoid a preference for (i) over (ii) simply by denying the moral relevance of benefit size. The numbers skeptic could argue – plausibly to us – that the one limb the lone person gets in (ii) should count for as much as the two limbs an additional person gets in (i), since each would have been in the worst-off position, raised from the same low baseline.

Although Kamm's analysis raises the possibility of such a response, she also points out that many people might find this first line of response implausible. If persons are at the same baseline, why shouldn't we select those who can achieve significantly greater benefit?[22] We argue, however, that even if one were to deny the relevance of benefit size, this will not by itself prevent intransitivity. A numbers skeptic who made binary comparisons of alternatives could prefer (ii) to (iii), and (iii) to (iv), without giving weight to benefit size. The reason is that in moving from (ii) to (iii), someone in the larger group goes from a better-off position to the worst-off position (no limbs), while no one goes from a better-off position to the worst-off position in moving from (iii) to (ii). The same holds for comparing (iii) and (iv). Indeed, this appears to be a more plausible basis for a numbers skeptic to rank (ii) > (iii) > (iv). The numbers skeptic would arguably be indifferent between (i) and (iv), since a move from one to the other results in at least one person being limbless who wouldn't be in the alternative. But that would leave a ranking of (i) = (ii) > (iii) > (iv) = (i), which still looks intransitive.

The second line of response that Kamm suggests the numbers skeptic might take is to distinguish two morally relevant ways in which the outcomes can be brought about in Otsuka's hypothetical. Earlier in her article, Kamm suggests that we might distinguish between conferring a large benefit by several smaller increments and conferring that benefit in a lump sum when it cannot be broken down into smaller

[22] Kamm, 'Aggregation', p. 22. Kamm also argues that the numbers skeptic has reason to reject consideration of benefit size. She writes, 'pairwise comparison of degree of benefit depends upon a hidden form of tying that involves balancing and substitution of morally equivalent benefits that anti-numbers people reject' ('Aggregation', p. 21). By 'balancing and substitution of morally equivalent benefits' Kamm has in mind the view that 'we morally get everything we would have got if we had saved A if we instead save B' – a view the numbers skeptic rejects ('Aggregation', p. 19).

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parts. In the first case, given that we can come close to equality by partially distributing the benefit to each individual, we might not accept inequality. In contrast, we might accept inequality in the second case, since the individual could only get a larger benefit or none at all.[23] As an illustration, Kamm offers the following example, which seems to suggest a different distinction, between failing to provide a benefit and failing to save someone who already has a benefit. She writes:

> I might choose to distribute intelligence genes in a conflict case so that many have adequate intelligence, leaving one person with nothing rather than make the one a genius by giving him all three genes. But this alone (all by itself) does not prove that I have a reason to save several people of normal intelligence rather than someone who is already a genius. I might also choose to give several people each reasonable life spans rather than create one very long-lived person, but this alone does not imply that if I can save either someone who already has long-life-span genes or else several with shorter-life-span genes, my first choice commits me to saving the latter rather then the former.[24]

The choice of distributing intelligence genes so that many have adequate intelligence would appear to be analogous to ranking (i) > (ii) > (iii) > (iv); the numbers skeptic chooses to provide three people with two limbs, leaving the fourth person with nothing even though he could be made to have three limbs. In ranking (i) > (ii) > (iii) > (iv), the numbers skeptic rejects inequality that results from distributing the benefit in multiple increments. In contrast, the choice of saving someone who is already a genius over several others of normal intelligence would appear to be analogous to the numbers skeptic's ranking of (iv) > (i); in that ranking, the numbers skeptic ensures that the fourth person retains the use of three limbs. In ranking (iv) > (i), the numbers skeptic could be seen as accepting an inequality of benefit that results from granting the fourth person a large benefit in a lump sum. Rather than confer two limbs to another person, the numbers skeptic could be seen as accepting inequality because he can confer a larger benefit to one person.[25] If the ranking of (iv) > (i) involves aiding the person with three limbs in a way that is permissible, whereas as the ranking of (i) > (ii) > (iii) > (iv) does not, then the numbers skeptic avoids the charge of intransitivity.

The problem with this second response is that it appears to be irrelevant to Otsuka's hypothetical. To begin, Kamm's example

[23] Kamm, 'Aggregation', p. 18.
[24] Kamm, 'Aggregation', pp. 22–3.
[25] Kamm writes, 'when Otsuka imagines in the second scenario the anti-numbers theorist preferring to help someone who will have three limbs rather than help each of three people have two limbs, making there be a three-limbed person in existence could involve giving him only one pill, the same number any one of the three could get. This is because, for example, his system employs the pill more efficiently' ('Aggregation', p. 22).

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suggests a quite different distinction from the one she drew earlier, here between failing to provide a benefit and failing to save someone who already has a benefit. In her example, the relevant distinction appears to be that in one situation, by not providing the person with all three genes, he is made no worse off than he already is, whereas in the other situation, by not saving him when he is already a genius, he is made worse off. A numbers skeptic, and non-consequentialists more generally, may very well recognize this distinction in deciding what to do in these two situations (indeed, she may ignore the size of the benefits lost in making life-saving decisions). But the distinction – between failing to benefit someone and failing to prevent the loss of benefits he already has – finds no place in Otsuka's hypothetical. The fourth person in that hypothetical does not start out with the use of three limbs; it is only as a result of receiving the pills that he is able to use all three. The numbers skeptic who possesses the pills cannot make the fourth person worse off in the same way that he might make worse off a person who already is a genius by not saving him. Instead, the agent in Otsuka's example selects among different alternatives simply by making different distributions of the three separate pills to individuals who are all initially limbless.

Furthermore, even if we ignore the misleading loss vs. acquisition feature of Kamm's intelligence example, there is no morally relevant difference in moving to and from (iv) in terms of distributing the benefit in smaller increments and in a lump sum. The fourth person would get three limbs by receiving the three pills; he would be left limbless by receiving none of them. Both 'courses of action', as Otsuka calls them, result from three separate, or separable, decisions about the allocation of three separate pills. As the allocator gives, so he declines to give – there is no difference in his method. The difference between the fourth person and the other three is that the three can more efficiently 'process' a single pill, while the fourth person can derive benefit from additional pills and they cannot. But Kamm does not even suggest how this difference in the consumption of scarce resources would result in a difference in the method involved in pursuing any one course of action over another.

Thus, neither of Kamm's responses avails the numbers skeptic. On reflection, however, it is not clear that the skeptic needs any help. Otsuka's claim of intransitivity should puzzle even strong opponents of numbers skepticism. Numbers skeptics such as Taurek compare individual perspectives in a simple, straightforward way. Their error, if any, appears to lie in their exclusive reliance on that method rather than on their possession of an unstable set of preferences – an error of oversimplification, not incoherence. Further, opponents of numbers skepticism should be troubled by the alleged complicity of pairwise

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comparison in the intransitivity. As noted, pairwise comparison has strong intuitive appeal not only for numbers skeptics, but for non-consequentialists in general, including non-consequentialists who believe in saving the greater number. In order to show that Otsuka has falsely diagnosed the error of the numbers skeptic, we will show that he has misunderstood the method of pairwise comparison.

VI

As noted in section IV, Otsuka's conclusion that a numbers skeptic will have intransitive preferences assumes a form of pairwise comparison significantly different from Nagel's. Otsuka restricts the decision-maker to a series of binary choices: (i) is chosen over (ii), (ii) is chosen over (iii), (iii) is chosen over (iv), and (iv) is chosen over (i). This would make sense if each of the binary choices involved a different set of feasible alternatives; if, for example, the set of feasible alternatives in the first choice was (i) and (ii), whereas in the second choice, the set of feasible alternatives was (ii) and (iii). But this is not how the case is set up; the decision-maker can distribute the pills in (at least) four ways. Why should Otsuka restrict the decision-maker to a series of binary comparisons, rather than a comparison of all four available alternatives?

In section VII, we will argue that Otsuka's method has a more serious problem than a lack of fidelity to Nagel – namely, that its artificially restricted comparisons will inevitably yield anomalous results. For now, we want to argue that more reasonable interpretations of pairwise comparison, which are consistent with Nagel, do not lead the numbers skeptic into intransitivity.

According to Nagel, the decision-maker should select the alternative least unacceptable to the individual for whom that alternative is most unacceptable – in the Rawlsian idiom we have been using, the alternative in which the worst-off will be best off. Nagel's method requires us to pick the alternative with the best-off worst-off individual. This itself is controversial, since that alternative may leave everyone else much worse off than they would be in alternatives where the worst-off individual was just slightly worse off than the next-worse-off. This, however, is not a controversy raised by Otsuka's hypothetical, and it is not one we need to enter.

One way of doing pairwise comparison would be to rank alternatives solely by the absolute position of the worst-off individual in each. That would make Otsuka's four alternatives equal or on a par, but there would be no intransitivity. This 'static' approach looks only at how badly off the worst-off individual fares in each situation; it does not track individuals across alternatives to see if they would be better

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off elsewhere. In contrast, a 'dynamic' approach does. Nagel's brief description is consistent with both static and dynamic interpretations. But in treating alternatives as equal even if one is Pareto-superior to others, the static approach ignores differences that seem morally relevant. For example, it would not distinguish a situation where two individuals were in the worst-off position from a situation in which only one was in the same worst-off position as before and the other was far better off (even if the latter situation also had lesser or equal inequality, by the preferred measure of inequality). We think the numbers skeptic should regard the second situation as morally superior. Without counting numbers, he can regard the benefits to one of the two in the second situation as a moral gain. The fact that one individual *remains* as badly off in that situation as both are in the first situation doesn't give that individual a complaint – he shouldn't begrudge the other an improvement that costs him nothing. Since the static approach, in denying Pareto-optimality, is insensitive to morally relevant differences, we will reject it in favor of a dynamic approach, which tracks individuals across situations.

On this dynamic approach, we would still favor the alternative in which the worst-off individual was best off. However, in case of a tie, such as the four-way tie in Otsuka's hypothetical, we would look to see if any of the worst-off individuals could be made better off in another alternative without making someone else as badly off as he, the worst-off, was in the original alternative. If so, that individual would have a complaint about that alternative. He would have no complaint if he would be no better off in any alternative. Alternatives in which no one had a complaint would be favored over those in which someone did. If more than one alternative gave someone a complaint, those alternatives would be equal or on a par, unless the complaints were of unequal strength. (Although it is not clear how complaint-strength should be assessed, we don't think we need to resolve that issue here.[26])

[26] Another question we do not resolve is whether someone could complain about an alternative in which he is *not* the worst-off individual when there is another alternative in which he would be better off and no one would be made worse off than she is in the initial situation, even if someone would *remain* worse off than the complainant is in the initial situation. (Could complain even if someone would *be made* worse off in the alternative than in the initial situation, but still not as badly off as he, the complainant, would be in that alternative despite his improvement?) We suspect that much depends on the absolute position of the complainant. If he is sufficiently well off, he won't have a complaint, even if he would be better off in an alternative in which no one would be worse off. This is a contentious issue, which we fortunately need not resolve. In Otsuka's hypothetical, the only individual who is not worst off and could be made better off (Fourth Person in (ii) and (iii)) could not be made better off without someone else being made worst off.

We also do not need to address the non-identity issues raised by the possibility that an individual present in some alternatives is absent in others. For our purposes, we can

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A numbers skeptic, of course, won't count the number of complaints against each alternative. Let us now apply this approach to Otsuka's hypothetical using the following table:

	Ed	Fred	Ted	Ned
i.	2	2	2	0
ii.	2	2	0	1
iii.	2	0	0	2
iv.	0	0	0	3

Call the trio in the first three columns Ed, Fred and Ted; the loner, Ned. Starting at the bottom, two of the three have a complaint about (iv) – Ed because he would get two limbs in (iii) without Ned or anyone else becoming[27] as bad off in (iii) as he, Ed, is in (iv); Fred because he would get two limbs in (ii) without Ned or anyone else becoming as bad off as he, Fred, is in (iv). Only Fred would have a complaint about (iii) – the same kind of complaint he has about (iv) – that he would be better off in (ii) without anyone becoming as badly off as he, Fred, was in (iii). Ted could not complain about (iv), (iii) or (ii), since the only alternative in which he would have limbs is (i), where Ned would become limbless. Ned could not complain about (i) – while he could gain limbs in (ii), (iii) or (iv), someone else would become limbless in each of those alternatives.

Two individuals, Ed and Fred, would have a complaint about (iv), and one, Fred, about (iii). But a numbers skeptic would not appear to have any basis for regarding the complaint(s) about one situation as stronger than those in the other – at least on Otsuka's assumption that the good in restoring successive limbs is additive.[28] As noted, no one would have a complaint about (i), as there is no alternative that would leave the worst-off there, Ned, better off without someone else becoming as bad off as Ned is in (i). Also, no one would have a complaint about (ii), since the worst-off there, Ted, could not be made better off without Ned becoming as badly off as he, Ted, is in (ii). And, as we observed earlier, there is no alternative in which anyone besides the worst-off individual would have a complaint. There is only one individual in any

assume the same population in each – an assumption both Nagel and Scanlon appear to make in discussing the appraisal of results or principles.

[27] We use 'becoming' in an atemporal sense, consistent with the dynamic interpretation of pairwise comparison we have adopted: an individual 'becomes' worse off in one alternative if there is another in which he would have been better off.

[28] Fred's complaint about (iv) arguably would be weaker than Ed's, since Ned would have to lose two limbs for Fred to gain two, while Ned would only have to lose one for Ed to gain two. But that difference shouldn't matter to the numbers skeptic, since Fred's complaint about (iii) would be as strong as Ed's about (iv).

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of the alternatives who is not worst off but could be made better off – Ned in (ii) and (iii). He's not worst off in those alternatives, since he has at least one limb while someone else has none. And although he could gain the use of (at least) one additional limb in (iv), that gain would mean that (at least) one other would become limbless – worse off than he, Ned, is in (ii) or (iii).

Thus, a numbers skeptic doing pairwise comparison in the dynamic manner we have suggested would be indifferent between (i) and (ii) and indifferent between (iii) and (iv), judging (i) or (ii) to be better than (iii) or (iv). This ranking would rest on the simple fact that no one has a complaint in the first two alternatives, while someone has a complaint in the second two, and an equally strong complaint under each alternative. There is no intransitivity.[29]

VII

Otsuka's restriction of pairwise comparison to pairs of alternatives guarantees anomalous results by ignoring information that may be critical in determining whether the standard for a complaint is satisfied, i.e. whether another alternative would be better for the worst-off individual(s) in either of the two alternatives under consideration, without being worse for any one else. To see this, consider a simpler set of alternatives than Otsuka's.

Take a case where the rescuer can (i) save A (on one island); (ii) save B (on a different island); (iii) save C (on the same island as B); or (iv) save B and C. If the numbers skeptic compares only (i) and (ii), ignoring the availability of (iv), he will be indifferent between them. Likewise for (ii) and (iii). But he will prefer (iv) to either (ii) or (iii), because when (iv) is considered, C will have a complaint in (ii) and B in (iii) – that he would be better off in (iv) without making the other, B or C, worse off than he would be in (ii) or (iii), respectively. So Otsuka's version of pairwise comparison yields (i) = (ii) = (iii) < (iv). But since the numbers skeptic would be indifferent between saving A and saving B and C, (i) = (iv), yielding an intransitivity. That, however, clearly results from the artificially restricted comparison. Looking at all four alternatives together, a numbers skeptic would prefer (i) to either (ii) or (iii), since no one would have a complaint in (i) while B and C would have complaints

[29] Things may be more complicated if each of the trio doesn't get to keep his gains, e.g. if Ed gets two limbs in (iii) but Fred and Ted get them in (ii) (or, what amounts to the same thing, if 'Ed' etc. aren't rigid designators, but definite descriptions, which may fit different individuals in the four alternatives). But in that case, there will still be complaints about (iii) and (iv), since there will still be one individual in each who could have gained limbs in (iii), and one in (ii), without anyone else becoming limbless. And there will still be no complaints about (i) and (ii), since whoever is limbless in those alternatives could not have gained limbs without someone else becoming limbless.

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in (iii) and (ii), respectively. This would yield the perfectly transitive (i) > (ii) = (iii) < (iv) = (i).[30]

Applying the same kind of analysis to Otsuka's own hypothetical, it is easy to see how he goes wrong. If the numbers skeptic limits himself to comparing (i) and (iv), ignoring numbers and considering benefits as well as baselines, he will prefer (iv) to (i), since there is a greater benefit to Ned in moving from (i) to (iv) than to Ed, Fred, or Ted in moving from (iv) to (i). But once the numbers skeptic considers all four alternatives, benefit size ceases to be decisive, and his preferences are reversed. What is decisive is that the limbless individuals in (i) and (ii) could not get limbs without someone else becoming limbless, so they have no complaint (as we have defined 'complaint'), whereas the limbless individuals in (iii) and (iv) could get limbs without someone else becoming limbless, so they have a complaint. This also gives the numbers skeptic a reason to prefer (i) to (iv).[31]

We conclude by speculating about why a philosopher as careful as Otsuka would find it appropriate to limit himself to binary comparisons in evaluating four alternatives. We suspect that Otsuka has implicitly adopted what Shelley Kagan has called a 'transport argument' – the

[30] We could make a similar point using Gregory Kavka's argument that the numbers skeptic has intransitive preferences with respect to the three options of (i) saving one person who needs all the available supply of a drug; (ii) saving five others with the drug; and (iii) saving four of those five while letting the fifth die. Kavka claims that the numbers skeptic would be indifferent between (i) and (iii), generating an intransitivity (since the skeptic would be indifferent between (i) and (ii) and prefer (ii) to (iii)). See Gregory Kavka, 'The Numbers Should Count', *Philosophical Studies* 36 (1979), pp. 285–94. David Wasserman and Alan Strudler argue that the numbers skeptic might well prefer (i) to (iii), because (iii) 'involves the gratuitous waste of a life'. See 'Can a Nonconsequentialist Count Lives?', *Philosophy and Public Affairs* 31 (2003), p. 74. Another way of putting this is in terms of pairwise comparison and the availability of a complaint. No one would have a complaint in (i), since none of the five could be made better off without the one being made as badly off as they are in (i). The fifth would have a complaint in (iii), since he could be made better off without anyone else being made as badly off as he is in (iii) (anyone, that is, who was not already as badly off as he is in (iii)). But if, per Otsuka, we could make only binary comparisons, the fifth could not make this complaint.

[31] Arguably, Ned would have a complaint about (i) (though not as we've defined complaint), based on the fact that he could get a greater benefit by moving from (i) to (iv) than anyone else could get by any move. Ned's complaint would be that he, the worst-off individual, could have received a greater benefit (by one limb) than anyone else without making anyone *worse* off than he, Ned, is now. But unless the worst off are to be accorded no priority at all, Ned's complaint would surely be far weaker than the complaint from a worst-off individual that he could have been made better off without making anyone *as badly off* as he, the complainant, is now. It is irrelevant that the limb-additions are stipulated to be of additive value. Going from two limbs to none – the cost Ed, Fred and Ted would each have to pay to give Ned three limbs – is *morally* more important than Ned's gain of one more limb than anyone else could acquire. If the numbers skeptic recognizes Ned's complaint in (i), he would give the alternatives the perfectly transitive ranking of (ii) > (i) > (iii) = (iv) < (ii). There still is no complaint in (ii), and Ned's complaint in (i) is weaker than Fred's in (iii) and Ed's or Fred's in (iv).

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claim that once we identify a moral factor that plays a role in some context, we can assume it plays the same role in any context.[32] Here, having found that benefit size plays a decisive role in comparing two alternatives, Otsuka appears to assume that it plays a decisive role in all the other comparisons involved in evaluating the four alternatives. But as we have just argued, there is no reason to think it does.

The failure of Otsuka's challenge against the numbers skeptic highlights what we take to be a general tension between transport arguments and the view that decisions must be justifiable from the perspective of each affected individual. This tension arises because the complaint that individuals have against a given alternative may vary with the choice context. As we illustrated, a person's complaint depends on how she fares in comparison to other alternatives. If different alternatives are available or existing alternatives are no longer available, her complaint about a given alternative may change. When the basis for evaluation involves individuals' complaints, one cannot assume that the ranking of an alternative remains invariant across choice contexts, and it will thus be inappropriate to make a transport argument.[33]

This tension between transport arguments and the view that decisions must be justifiable from the perspective of each affected individual should not come as a surprise. Transport arguments seem most appropriate in evaluating alternatives against some measure of

[32] Shelley Kagan, 'The Additive Fallacy', *Ethics* 99 (1998), pp. 23–4.

[33] It is striking that Otsuka employs another transport argument in the first part of his article. The argument in section II of his article characterizes the obligation to save lives as a disjunctive obligation. In the example, each of three people (A, B or C) will die if she does not receive some drug. There is enough of the drug to save one person. The rescuer then discovers a herb that, when mixed with the drug, will allow her to save two people. Otsuka writes that the numbers skeptic could affirm an obligation to save either A&B, or A&C, or B&C even though she need not commit herself to an obligation to save B&C rather than A alone, which is an obligation that Otsuka takes the numbers skeptic to deny (p. 417). Suppose it becomes impossible to save either A&B or A&C. Otsuka points out that some may find it surprising that fulfilling the initial obligation does not require one to save B&C over A. He writes, 'why does a disjunctive obligation to save any two in the case under discussion – i.e., to save A&B, or A&C, or B&C – not reduce to an obligation to save B&C when one cannot save A&B or A&C' (p. 420)? Otsuka must be assuming that the evaluation of alternatives is independent of the context of choice, but the obligation that one has when confronted with a choice of saving A&B, or A&C, or B&C, need not be the same as the obligation that one has when confronted with a choice of saving B&C or A. Otsuka's underlying assumption is made clear in n. 17 in which he points out that the numbers-skeptic violates the principle that 'if x is to be preferred to y when they are elements of the feasible set S, then x must be preferred to y when they are elements of the feasible set T which is a subset of S'. This principle is similar to the axiom of 'basic contraction consistency' as described by Amartya Sen, 'Internal Consistency of Choice', *Econometrica* 61 (1993), p. 500. The plausibility of the axiom rests on the assumption that the ranking of an alternative does not change in the light of the feasible alternatives – an assumption we have argued against.

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goodness that is independent of choice context – a kind of evaluation to which non-consequentialists object. What does come as a surprise is that Otsuka appears to overlook this tension.

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