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Fairness and the Strengths of Agents' Claims

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John Broome has proposed a theory of fairness according to which fairness requires that agents' claims to goods be satisfied in proportion to the relative strength of those claims. In the case of competing claims for a single indivisible good, Broome argues that what fairness requires is the use of a weighted lottery as a surrogate to satisfying the competing claims: the relative chance of each claimant's winning the lottery should be set to the relative strength of each claimant's claim. In this journal, James Kirkpatrick and Nick Eastwood have objected that the use of weighted lotteries in the case of indivisible goods is unacceptable. In this article, I explain why Kirkpatrick and Eastwood's objection misses its mark.

INTRODUCTION

When it comes to the question of how agents' claims to goods should be arbitrated, one natural answer is that we are required to treat each agent's claim *fairly*. This is the answer that John Broome has defended, together with a particular account of what the requirements of fairness amount to.[1] According to a recent article by James Kirkpatrick and Nick Eastwood in this journal, Broome's account faces a problem when it comes to cases of competing claims to indivisible goods.[2] In this article, I'll explain why Kirkpatrick and Eastwood's objection to Broome misses its mark. Here is the plan for the remainder of the article. First, I'll distinguish between divisible and indivisible goods and explain how Broome's account of fairness is supposed to yield a verdict in cases of competing claims to divisible and indivisible goods. Then, I'll explain Kirkpatrick and Eastwood's objection to the way Broome handles cases of competing claims to indivisible goods. I'll argue that there is a problem with Kirkpatrick and Eastwood's objection. The problem is that the objection misses its mark: it leaves Broome's account of the requirements of fairness unscathed.

[1] John Broome, 'Fairness', *Proceedings of the Aristotelian Society* 91 (1990), pp. 87–101.

[2] James Kirkpatrick and Nick Eastwood, 'Broome's Theory of Fairness and the Problem of Quantifying the Strengths of Claims', *Utilitas* 27.1 (2015), pp. 82–91.

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DIVISIBLE AND INDIVISIBLE GOODS, THE PROPORTIONAL SATISFACTION OF COMPETING CLAIMS, AND WEIGHTED LOTTERIES

Let's begin by fixing terms. When it comes to the kinds of goods on which agents sometimes have claims, we can distinguish between *divisible* and *indivisible* goods. Divisible goods are goods that can be divided into parts such that each part retains its status as a good. Paradigmatic cases of divisible goods include: money, food, and so on. $1000 is good, and while $500 is less good, it still is a good. A full pie might be 'better' than a single slice, but even a single slice is still *a* good. In other words, divisible goods are goods that can be divided such that the resultant parts retain some value. Indivisible goods cannot be so divided: when indivisible goods are divided into parts, the parts fail to retain their status as goods. Paradigmatic cases of indivisible goods include: organs, medical care, shelter, and so on. A donor heart is good, but half a donor heart is not simply half as (or even much less) good – it isn't any good at all. Equally, half an appendectomy isn't at all good. It's possible to complicate this distinction between divisible and indivisible goods, but such complications are irrelevant for present purposes. But let me make one proviso.

Notice that, given certain assumptions about a particular case, paradigmatically divisible goods might count as indivisible, and vice versa. This is because whether a particular thing (this money, that organ) counts as a divisible or indivisible good depends on whether the good-making features of the thing in question allow for divisibility. In other words, it depends on what the particular instance of the thing is supposed to be good *for*. For instance, if what makes this $1,000 good is that it will allow an agent to purchase life-saving medical care (and any less than $1,000 will not do so), then, in a case like this, $1,000 counts as an indivisible good – even though, intuitively, it is the sort of good we can easily divide. Similarly, if what makes that donor heart good is that it will be useful for research (and half the heart will do just as well), then, in a case like this, a donor heart counts as a divisible good – even though, intuitively, it is not the sort of good we can easily divide. Going forward, I'll ignore this complication, instead adopting the convenient simplification that goods like donor hearts are indivisible because they are good *for* being transplants and that, conversely, goods like money are divisible because they are good *for* being all-purpose (rather than specific) means for accomplishing agents' ends.

Since we sometimes face competing claims to goods, then, together with the observation that goods are sometimes divisible and sometimes not, this means that an account of how claims to goods should be treated must be able to handle two sorts of cases: (i) competing claims to divisible goods and (ii) competing claims to indivisible goods.[3]

Let me briefly explain Broome's account by showing how it is designed to yield a verdict in (i)–(ii). Cases of competing claims for a divisible good, i.e. cases where more than one agent has a claim to the divisible good, are straightforward. Suppose that we have some bushels of grain, and that both Ann and Bryant have an equally strong claim to the grain. Since fairness requires that agents' claims to (divisible) goods be satisfied in proportion to the relative strengths of those claims, what fairness requires in a case like this is that we give half the grain to Ann and half the grain to Bryant. In this case, Ann's claim is satisfied because the proportional strength of her claim to the grain is 1/2 and she receives 1/2 of the grain; the same is true, *mutatis mutandis*, for Bryant.

Cases of competing claims for indivisible goods are more difficult. For, in the case of competing claims for an indivisible good, apportioning the good in accordance with the relative strengths of the competing claims is impossible. That is, although we could perhaps in principle divide up the good, doing so would destroy its status as a good: who wants half an appendectomy? So: what to do? Broome's suggestion is that the requirements of fairness can be met by using a weighted lottery as a surrogate. Instead of apportioning the *good* in accordance with the relative strengths of the competing claims, we should deliver the good – in full – to the winner of a weighted lottery wherein the probability of each claimant's winning the lottery is apportioned to the relative strength of her respective claim.[4] So, for example, if Ann's claim to the donor heart is twice as good as Bryant's, then what fairness requires is that the donor heart be given to the winner of a lottery where the probability of Ann's winning is 2/3 and the probability of Bryant's winning is 1/3.

It'll be useful in proceeding to have some formal characterization of these ideas and of Broome's account more generally, so let me take just a moment to provide that now. We can say that the strength of some agent, A's, claim to some good, G, can be represented by a two-place strength function S(A,G) where the output of S is a real number between 0 and 1, where 0 is the lowest possible degree of strength and 1 is the highest. Intuitively, if S(A,G) = 0, then A has no claim at all on G. And if S(A,G) = 1, then no other agent is such that they have a better

[3] There are also cases of non-competing claims to (divisible and indivisible) goods, but these cases won't concern me here. They also aren't the target of Broome's account. See Broome, 'Fairness', pp. 94–5.

[4] Broome, 'Fairness', p. 100.

claim to G than A.[5] Let's also say that for any good G, the number of equal parts into which G can be divided such that each part retains its status as a good is represented by a one-place function P(G) where the output of P is a real, positive, finite number equal to or greater than 1. Intuitively, if P(G)>1, then G is a divisible good; and if P(G) = 1, then G is an indivisible good.

With these two ideas in hand, and restricting our attention to cases where the good is at most finitely divisible, and the number of agents with claims to the good is finite and greater than 1 (i.e. cases of competing claims to goods), Broome's account of the requirements of fairness can be stated as two exhaustive requirements like so:[6]

Requirement 1: For all agents $A_{1\ldots n}$, where $P(G) > 1$:
A_x's share of G = $\frac{S(A_x,G)}{S(A_1,G)+[\ldots]S(A_n,G)} * P(G)$

Requirement 2: For all agents $A_{1\ldots n}$, where $P(G) = 1$:
A_x's chance of winning a lottery for G = $\frac{S(A_x,G)}{S(A_1,G)+[\ldots]S(A_n,G)} * P(G)$

Requirement 1 expresses the requirements of fairness for cases of competing claims to divisible goods. What it says is that an agent's share of a good should be proportional to the strength of the claim the agent has on that good. Requirement 2 expresses the requirements of fairness for cases of competing claims to indivisible goods. What it says is that an agent's chance of winning a lottery for the good should be proportional to the strength of the claim the agent has on that good. Putting things this way makes explicit Broome's idea that, in cases of indivisible goods, a weighted lottery functions as a kind of surrogate satisfaction for claims.[7] For notice that the right-hand term in both Requirement 1 and Requirement 2 is the same. The difference is that, in cases of indivisible goods, since agents cannot be given a share of the good proportional to the strength of their claim to it, they are instead given a 'share' in the lottery: they are given a chance of winning the lottery proportional to the strength of their claim.

This account of the requirements of fairness when it comes to the claims agents have on goods is simple, attractive and complete. Recently, however, it has come under attack. James Kirkpatrick and Nick Eastwood have recently offered an argument designed to show

[5] This is *not* to say that, when S(A,G) = 1 no other agent is such that they have an equally good claim to G.

[6] Thanks to an anonymous referee for pointing out the need to restrict the requirements to cases of a finite number of competing claims to (at most) finitely divisible goods.

[7] Broome, 'Fairness', pp. 95–6.

that Broome's account is unacceptable on the grounds that the use of weighted lotteries in the case of competing claims for indivisible goods is somehow problematic. In other words, they think that Requirement 2 is unacceptable. In the following section, I'll present this argument and explain how it goes wrong.

THE CALCULATION OBJECTION

Kirkpatrick and Eastwood's objection to Broome begins by asking us to consider a case such as:

> *Medicine-1*: Both Ann and Bryant have a claim to a medicine that cannot be divided without rendering it ineffective. If Ann does not receive the medicine, she will die. If Bryant does not receive the medicine, he will lose a finger.[8]

According to Broome's account, what we should do is enter Ann and Bryant into a weighted lottery where their respective chances of winning the lottery are apportioned to the relative strength of their claims to the (life- or finger-saving) medicine and where the winner will receive the medicine. The problem, according to Kirkpatrick and Eastwood, is that it is radically unclear how to assign those chances. According to them, this is because it is radically unclear how to assign values to the strength of Ann and Bryant's claims. Platitudes such as 'Ann's claim is much stronger than Bryant's' will not help, for the fact that Ann's claim is much stronger than Bryant's doesn't tell us anything about what, precisely, the strength of Ann's claim is and what, precisely, the strength of Bryant's claim is.[9] And that is what we need to know, if we are to do what Broome's account of fairness tells us to do, viz. assign each a discrete chance of winning a weighted lottery for the medicine. In other words, we need a way to *calculate* the (correct) chances to assign in the weighted lottery.

The situation is worsened, according to Kirkpatrick and Eastwood, once we notice the possibility of further sorts of cases, such as:

> *Medicine-2*: Both Ann and Charles have a claim to a medicine that cannot be divided without rendering it ineffective. If Ann does not receive the medicine, she will die. If Charles does not receive the medicine, he will lose an arm.[10]

[8] Kirkpatrick and Eastwood, 'Quantifying', p. 86. Kirkpatrick and Eastwood borrow this example from Brad Hooker, 'Fairness', *Ethical Theory and Moral Practice* 8 (2005), pp. 329-52, at 349.

[9] Kirkpatrick and Eastwood, 'Quantifying', pp. 87–8.

[10] Kirkpatrick and Eastwood, 'Quantifying', p. 88.

Intuitively, just as in Medicine-1, Ann has the strongest claim to the medicine. But equally intuitively, Charles has a stronger claim than Bryant did in Medicine-1; so, Charles should be assigned a higher chance of winning the lottery than Bryant was in Medicine-1. But according to Kirkpatrick and Eastwood, 'The difficulty comes when one tries to calculate how much more an arm should count for than a finger.' And because, according to them, 'there does not seem to be an accurate way of calculating this difference', and because 'fairness cannot require of an agent the impossible or the nearly impossible . . . we have reason to doubt that fairness can require us to calculate the percentages of weighted lotteries.'[11] Call this the *calculation objection* to Broome's account of fairness. In the next section I'm going to explain why, if it works, the calculation objection actually shows far more than that Requirement 2 is in trouble. I'll then explain the problem with the calculation objection: it is misdirected.

THE EXTENDED CALCULATION OBJECTION AND MISSING THE MARK

The first thing to notice about the calculation objection is that, if it works, it shows far more than Kirkpatrick and Eastwood intend it to show. To see this, notice that the calculation objection is designed by Kirkpatrick and Eastwood as an objection to Broome's Requirement 2 – the requirement governing claims to indivisible goods. Put in terms of that requirement, the complaint is that we have no way of calculating S(A,G) (i.e. the strength of an agent's claim to a good) for any of the agents involved. This means that, beyond mere guesswork, we have no way of assigning to any agent the chance of her winning the weighted lottery. What this is supposed to show is that Requirement 2 cannot be correct: it requires us to do something it is impossible to (accurately) do, and since fairness cannot require of us that we do something impossible, Requirement 2 is unacceptable. But putting things this way reveals that, if it works, the calculation objection is not just an objection to Requirement 2, it is also an objection to Requirement 1 – the requirement governing claims to *divisible* goods. This is because, according to Requirement 1, in order to calculate an agent's fair share of a divisible good we shall also need to calculate S(A,G). But if the complaint in the case of Requirement 2 and indivisible goods is that we cannot calculate S(A,G), the same goes for Requirement 1. In other words, either we are at a loss for calculating S(A,G) or we are not. If we are, then we are at a loss whether we are attempting to calculate S(A,G) in order to satisfy Requirement 1 or Requirement 2. If we are

[11] Kirkpatrick and Eastwood, 'Quantifying', p. 88.

not, then the objection is moot. Call the form of the objection that says we are at a loss to calculate S(A,G) wherever it occurs the *extended calculation objection*.

Now, as far as I can tell, Kirkpatrick and Eastwood do not mean to be deploying the extended calculation objection.[12] That is, they do not mean to be objecting to Broome's account of fairness when it comes to the case of competing claims over divisible goods: Indeed, even among other authors equally suspicious of Requirement 2, Requirement 1 is taken for granted as expressing exactly what fairness requires in the case of competing claims to divisible goods.[13] But I expect their response would be to embrace this result: if the calculation objection really amounts to the *extended* calculation objection, then so much the worse for Broome's entire account! So, going forward, I'll concern myself with this (stronger) version of the objection.

This way of putting things helps bring into focus what I think is the real problem with the (extended) calculation objection. The objection targets our ability to calculate, in any given case, the degree of strength of an agent's claim to a good (i.e. S(A,G)). As a first move in response to this objection, notice that in a range of cases, although we might not be able to calculate the exact values of S(A,G) for each agent, we can calculate the *relative* values of S(A,G), and, given the nature of Requirement 1 and Requirement 2, the relative values of S(A,G) are all we need. For instance, suppose we have:

> *Medicine-3*: Both Ann and Amy have a claim to a medicine that cannot be divided without rendering it ineffective. If Ann does not receive the medicine, she will die. If Amy does not receive the medicine, she will die.

How strong is Ann's claim to the medicine? How strong is Amy's? Equivalently: what are the values of S(Ann, Medicine) and S(Amy, Medicine)? I admit that I do not know how to assign these values. But notice that Broome's account of fairness does not require us to assign absolute values to the strength of agents' claims to goods. For, on the assumption that Ann's and Amy's claims to the medicine are of equal strength, we can still solve for the appropriate chances to assign Ann and Amy in a weighted lottery. To do this, we simply assign the same real number between 0 and 1 to both S(Ann, Medicine) and S(Amy, Medicine) and churn out the result via Requirement 2.[14] The same goes not just in cases of equal strength; similar remarks apply whenever we think there

[12] Kirkpatrick and Eastwood, 'Quantifying', p. 86.

[13] See, for instance, Hooker, 'Fairness', p. 349.

[14] The same is of course true in the case of a divisible good, i.e. a case governed by Requirement 1.

is a clear relationship between the strength of agents' competing claims for a good. If, for instance, one claim is twice as strong as another, we can equally well satisfy Requirement 2 (or, for that matter, Requirement 1). So even if it is true that in no case can we assign absolute values to the strength of agents' competing claims, the extended calculation objection does not show that it is impossible in *all* cases to satisfy the requirements of fairness. In particular, we can satisfy the requirements of fairness when we are in a position (as we sometimes are) to assign *relative* values to the strength of agents' claims. The calculation objection only shows that it is impossible to satisfy the requirements of fairness when we are at a loss for assigning *both* absolute *and* relative values to the strengths of agents' claims to goods.

Kirkpatrick and Eastwood might well agree with this. Their point, it seems, is that we are often – perhaps most of the time – at a loss for assigning both absolute and relative values to the strengths of agents' claims to goods: most of the time, we find ourselves in situations such as Medicine-1 and Medicine-2, trying to calculate how much more an arm should count for than a finger. So one strategy for resolving the debate in favour of Broome's account would be to show that, *pace* Kirkpatrick and Eastwood, most of the cases of competing claims to goods we face are more like Medicine-3 than they are like Medicine-1 and Medicine-2, i.e. they are cases where we can (at least) assign relative values to the strengths of agents' claims to goods. I won't pursue this strategy here. Though I think it is true, my interest is not in attempting to convince you that, most of the time, we are able to assign relative or absolute values to the strengths of agents' claims to goods.[15]

Instead, my point – and this is why Kirkpatrick and Eastwood's objection misses its mark – is that an account of how to do this, i.e. an account of how to assign values to the strengths of agents' claims to goods, is not itself part of an account of the requirements of fairness. The requirements of fairness tell us how we should treat agents' competing claims on goods. Abiding by those requirements in any particular case means we shall need to (accurately) assign (absolute or relative) values to the strengths of agents' competing claims. Kirkpatrick and Eastwood proceed to point out that doing so is at least in some, or, let's grant, in most, cases, impossible. But then, according to them, because 'fairness cannot require of an agent the impossible or the nearly impossible', the requirements of fairness cannot require us to assign values to the strengths of agents' claims.[16] Now, I agree that the requirements of fairness cannot themselves plausibly require us to

[15] Thanks to an anonymous referee for urging clarity on this point.
[16] Kirkpatrick and Eastwood, 'Quantifying', p. 88.

do the impossible. But we must be careful here to distinguish between what the requirements of fairness themselves require us to do and what must be true, given what those requirements require us to do, in order for us to be capable of abiding by them. To mark this distinction, call the latter sort of entity the *background conditions*. Background conditions are the conditions that must hold in order for us to be capable of abiding by some set of requirements – the requirements of fairness, or any other sort of requirement.[17]

Consider, by way of explanation, two analogies with two very different sets of requirements. First, consider one account of the requirements of rationality for belief.[18] According to *Bayesian probabilism*, agents' beliefs – in particular, their degrees of belief or *credences* – are rational in so far as they obey two requirements:[19] first, the agents' credences must conform to the axioms of the probability calculus (the 'synchronic requirement'); second, agents' credences must evolve in accord with Bayes's rule, e.g. via conditionalization (the 'diachronic requirement').[20] According to this simple version of probabilism, conformance with the synchronic and diachronic requirements is necessary and sufficient for the synchronic and diachronic rationality, respectively, of the credences of any particular agent. And in so far as a particular agent's credences do not conform to one or the other requirement – for instance, her credence in a particular proposition and her credence in its negation do not sum to 1, or she uses some rule other than Bayes's rule for updating on incoming evidence – the agent's credences are *ipso facto* irrational.

Focus for the moment on the diachronic requirement. In order to abide by the diachronic requirement, agents must know what, for any particular proposition, their prior credence in that proposition actually is. Rough guesses will not do: it will not do, for instance, to know that you are more confident that the Mets will not win the pennant this season than that they will. You must know exactly *how much more confident you are*. Otherwise, when you receive new evidence (the Mets come into the All-Star break at better than .500, say) it is impossible for you to correctly update your credences in accordance with Bayes's

[17] Thanks to two anonymous referees for suggesting this way of putting things.

[18] Thanks to an anonymous referee for suggesting the analogy with Bayesian requirements of rationality.

[19] This is a rather simple version of (extremely) subjective Bayesianism. But I'm not interested in the plausibility of this account *per se*, only in displaying the analogy with the requirements of fairness.

[20] It's not important here what form of conditionalization we think is more plausibly required by rationality, e.g. whether we think Jeffrey conditionalization is superior to simple conditionalization. For more on this issue, see Richard C. Jeffrey, *The Logic of Decision* (Chicago, 1983).

rule. The difficulty, to paraphrase Kirkpatrick and Eastwood, comes in calculating how much more confident you are that the Mets will win the pennant than that they will lose. Now, we should happily admit that, because it is unlikely (perhaps impossible) that you know, precisely, what your prior credences actually are, it will be unlikely (perhaps impossible) that you abide precisely by the requirements of rationality. But it would be a mistake to conclude, therefore, that there is something wrong with Bayes's rule, with the requirements of rationality as such. The problem is that the background conditions for rationality in belief have not been met.

Or consider one account of the requirements of freedom. According to a broadly republican account of freedom, freedom requires independence from arbitrary power, in particular the arbitrary will of other agents.[21] Now, several philosophers – in particular Philip Pettit – have argued that in order to enjoy freedom of this sort, agents must be part of a political society wherein institutions, including especially those institutions surrounding the rule of law, have a certain structure.[22] These institutions and their particular shape represent the background conditions for the requirements of agential freedom: absent these, agents will usually (perhaps always) be to some extent subject to the arbitrary will of others, and so, to that extent, unfree. Suppose we discover that the political institutions needed to abide by the requirements of freedom are for some reason unachievable. (Perhaps we find ourselves outside the so-called 'circumstances of justice.'[23]) We should happily admit that, in such a situation, because it is unlikely (perhaps impossible) that you are independent from the arbitrary will of others, it is unlikely (perhaps impossible) that you are free. But it would be a mistake to conclude, therefore, that there is something wrong with the republican conception of freedom, with the requirements of republican freedom as such. The problem is that the background conditions for freedom have not been met.

In general, then, the point is that, just as the ability to accurately assess one's credences and membership in a community governed by the rule of law are background conditions on the requirements of rationality for belief and the requirements of freedom, respectively, so the ability to accurately assign values to the strengths of agents' claims to goods is a background condition on abiding by the requirements of

[21] Philip Pettit, *A Theory of Freedom: From the Psychology to the Politics of Agency* (Oxford, 2001).

[22] See Philip Pettit, *Republicanism: A Theory of Freedom and Government* (Oxford, 1997) and Pettit, *Theory*. The exact details of Pettit's account don't matter for present purposes.

[23] See John Rawls, *A Theory of Justice* (1971, Cambridge), esp. §22.

fairness. Discovering that the background conditions for abiding by the requirements of fairness are not achieved should not shake our confidence in the requirements themselves, any more than discovering that one doesn't live in a society governed by the rule of law should shake one's confidence in a republican conception of what is required in order to be free.

Now, perhaps Kirkpatrick and Eastwood will reply by pointing out that, at least unlike the case of the requirements of republican freedom, in the case of the requirements of fairness *extreme* pessimism about the possibility of achieving the relevant background conditions is warranted. That is, we should be extremely pessimistic about the possibility of our ever achieving the ability to accurately assign values to the strengths of agents' claims to goods. But what should we conclude about some set of requirements if it turns out that the background conditions necessary for abiding by those requirements are not, as a matter of fact, achievable? What I am insisting on is that it would be a mistake to conclude that the requirements themselves are somehow in error. Perhaps what we need, if we discover that the background conditions for abiding by some set of requirements is unachievable, is a set of heuristics, or make-do requirements, designed for our particular circumstances.[24] Those make-do requirements, importantly, will be shaped by our understanding of what the genuine requirements in the domain are. For instance, on the discovery that, say, abiding by the Bayesian requirements of rationality is unachievable by us because access to our precise priors is not in the offing, we do not jettison those requirements as the requirements of rationality: instead, what we do is develop heuristic rules that approximate those requirements. Similarly, on the discovery (if it were a discovery) that, say, abiding by Broome's requirements of fairness is unachievable by us because of our utter inability to assign values to the strengths of agents' claims to goods, we do not jettison those requirements as the requirements of fairness: instead, what we do is develop heuristic rules that approximate to those requirements. As I noted above, I am less sceptical than Kirkpatrick and Eastwood are about our ability to develop an account of how to assign values to the strengths of agents' claims to goods, and pursuing this line would take me too far afield here. So I'll leave it at that.

What all of this means is that, in the face of cases like Medicine-1 and Medicine-2, what the (extended) calculation objection really does is highlight our need for an account of the strengths of agents' claims.

[24] I am not suggesting this is the case with respect to the requirements of fairness since, unlike Kirkpatrick and Eastwood, I am not as pessimistic about our ability to come up with a way to assign values to the strengths of agents' claims to goods. But pursuing such an account is beyond the scope of this article.

For it is our lack of such an account that makes it impossible for us to satisfy the requirements of fairness in such cases. But if this is right, then, as we have seen, the calculation objection is not really an objection to Broome's account of fairness – it is not appropriately thought of as an objection to the requirements of fairness, but instead as a kind of scepticism about the possibility of achieving the background conditions necessary for abiding by those requirements. And that, as we've just seen, is a different matter.

Let me make one more point before concluding. It might be tempting to think that Kirkpatrick and Eastwood's account still shows that there is something especially troubling about *Broome's* account of the requirements of fairness, since the background conditions necessary for abiding by those requirements seem so demanding. But this would be a mistake. It might be possible to replace Broome's Requirement 2 with a requirement that did not require a way to assign values to the strengths of agents' claims. For instance, we could say that, in the case of competing claims on indivisible goods, we should simply give (all of) the good to the agent with the stronger claim – without entering the agents into a lottery. This manoeuvre might appear to obviate the need for a way to evaluate the strengths of agents' claims to goods, i.e. it might seem to make the background conditions necessary for abiding by the requirements of fairness less demanding.[25] But this appearance is misleading. For notice that it is overwhelmingly plausible that claims to *divisible* goods can also vary in their strength. Moreover, *any* plausible account of the requirements of fairness must take this fact into account, at least when it comes to divisible goods. It's not plausible, for instance, to suggest that when the strength of two agents' claims to a divisible good vary, we simply give all of the good to the agent with the stronger claim. An account of the requirements of fairness according to which this was true would be a non-starter. But this means that each and every account of the requirements of fairness – Broome's or otherwise – will require, as a part of their background conditions – some way or other of evaluating the strengths of agents' claims to goods, since fairly distributing *divisible* goods also requires evaluating the strengths of agents' claims. So while it is true that Broome's account requires some way to evaluate the strengths of agents' claims to goods *also* in the case of *indivisible* goods, this does not make the background conditions necessary for abiding by Broome's requirements (in particular Requirement 2) any more demanding than any other plausible account of the requirements of fairness. The calculation objection highlights a gap in our understanding of how to

[25] Thanks to an anonymous referee for suggesting this line of response.

abide by the requirements of fairness, viz. the lack of an account of the strengths of agents' claims. So the calculation objection does not give us any special reason to reject Broome's account of the requirements of fairness. Instead, it gives us reason to develop an account of the strengths of agents' claims to goods – an account that, after all, any account of fairness will require.[26]

Let me reiterate this last point. I am not arguing, in cases such as Medicine-1 and Medicine-2, that Requirement 2 tells us all we need to know about what it would be fair to actually do. What the calculation objection shows is that this is false: because of the possibility of cases like Medicine-1 and Medicine-2, in order to know what it would be fair to actually do we need, in addition to an account of the requirements of fairness, an account of how to evaluate the strengths of agents' claims to goods. But this should not come as a surprise: every plausible view about the requirements of fairness, in so far as it is sensitive to the fact that the strength of agents' claims comes in degrees, requires such an account. The calculation objection therefore doesn't give us reason to think that Broome's account of the requirements of fairness is false. What it gives us reason to think is that Broome's account of the requirements of fairness is not an account of how to evaluate the strengths of agents' claims to goods. And why would we have thought otherwise?

CONCLUSION

Broome offers us an account of the requirements of fairness that is simple, attractive and complete: fairness requires that agents' claims to goods be satisfied proportionally to the strength of those claims. In the case of indivisible goods, Broome's account says that we are required to provide agents with a kind of surrogate satisfaction: an

[26] It's possible that Kirkpatrick and Eastwood anticipate this line of thought, for they consider and reject two possible methods for assigning absolute values to the strength of agents' claims: the use of authorities and the use of rules. See Kirkpatrick and Eastwood, 'Quantifying', pp. 89–90. The idea in each case would be that, in order to assign the absolute values we need in order to conform to Requirement 2 in cases like Medicine-1 and Medicine-2, we could appeal either to some authority whose job it was to assign such values, or we could follow a rule for assigning the relevant values. They argue quite correctly that neither method is acceptable by Broome's own lights. But the conclusion they draw from this is again incorrect: they conclude that, because Broome's account of the requirements of fairness stands in need of an account of how to evaluate the absolute strength of agents' claims to goods, and because an appeal neither to authority nor to rules is acceptable by Broome's own lights, his account of the requirements of fairness is somehow unacceptable. But this is the wrong conclusion: what we should conclude is that, for *any* account of the requirements of fairness to be applicable by us to cases like Medicine-1 and Medicine-2, we shall also require an account of how to assign absolute values to the strength of agents' claims.

entry into a weighted lottery for the good where the agent's chance of winning is itself proportional to the strength of the agent's claim. This account delivers sensible verdicts across cases of competing claims to both divisible and indivisible goods. Kirkpatrick and Eastwood think that Broome's account is unacceptable because, given the possibility of cases where we are at a loss to evaluate the strengths of agents' claims to indivisible goods, we will be at a loss as to how to abide by the requirements of fairness. I've shown that Kirkpatrick and Eastwood's complaint goes not just for cases of indivisible but also for cases of divisible goods. But I've also argued that Kirkpatrick and Eastwood's complaint is misguided: it does not show that anything at all is wrong with Broome's account of what fairness requires: it merely points out – what should be obvious on reflection – that a story about the requirements of fairness is not the same as a story about how we should evaluate the strengths of agents' claims to goods. A story of the latter kind is needed by *any* account of the requirements of fairness, and we've been given no reason to think that Broome's account is in a worse position with respect to the need for such a story than any other view.

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