

Spectrum Arguments and Hypersensitivity¹

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In his masterpiece *Rethinking the Good* and in earlier work,² Larry Temkin argues that what he calls *spectrum arguments* give us powerful reason to deny

Transitivity: The ‘all-things-considered better than’ relation is transitive.³

I will focus on a version of Temkin’s most famous spectrum argument, involving tradeoffs between intensity and duration of pain. Other spectrum arguments involve tradeoffs between different evaluatively relevant dimensions, e.g. severity and number of illnesses, quality and number of lives lived, and so on. The main claims defended here generalize to all these structurally similar spectrum arguments. The *Pain Spectrum Argument*, then, begins with the

Spectrum Assumption: There are 1,000 levels of pain intensity such that level 1 is *very mild* pain, e.g. the sort one experiences when incurring a very mildly annoying hangnail, and level 1,000 is *extraordinarily* intense pain, e.g. the sort one experiences when being subjected to medieval torture techniques. The difference in pain intensity between adjacent pain levels is *slight*, just barely perceptible, e.g. no greater than the difference in pain intensity between no pain intensity at all and that of incurring a very mildly annoying hangnail, and/or no greater than a 0.01% difference in pain intensity. (If you think it’d take more than 1,000 slight differences in pain intensity to go from very mild pain to very intense pain, you can suppose that there are 100,000, or 10,000,000, such levels; at the very least, there is *some* finite number of levels that would do the job.)⁴

I will here take on board the Spectrum Assumption. We can call the following betterness claims about adjacent pain levels the *Premises* of the Pain Spectrum Argument:

Premise 1: 2 years of level 1,000 pain is better than M (many more) years of level 999 pain.

Premise 2: M years of level 999 pain is better than M+ (many many more...) years of level 998 pain.

Premise 3: M+ years of level 998 pain is better than M++ years of level 997 pain.
...and so on...

Premise 999: M+...+ years of level 2 pain is better than M+...++ years of level 1 pain.

¹ I am grateful to Roger Crisp, John Broome, Matt Clark, and Eden Lin for helpful comments.

² See *Rethinking the Good* (Oxford University Press, 2012) and ‘A Continuum Argument for Intransitivity’ *Philosophy and Public Affairs*, 1996, pp. 175-210.

³ Stuart Rachels has likewise argued against Transitivity, in ‘Counterexamples to the transitivity of *better than*’ *Australasian Journal of Philosophy*, 1998, pp. 71-83. Derek Parfit was perhaps the first to seriously explore spectrum arguments (e.g. in Part Four of *Reasons and Persons*, Oxford University Press, 1984), though he has never used them to argue against Transitivity.

⁴ The Spectrum Assumption corresponds to ‘claim 2’ in Temkin 1996, p. 179.

We can allow M to be as large as we like, and $M+$ to be as much larger than M as we like, and so on. Temkin's thought is that we can make M , $M+$, $M++$, etc sufficiently large so that each of the Premises is intuitively plausible.⁵ Given that the difference in adjacent pain levels is slight, this thought does seem correct. But the Premises together with Transitivity imply that 2 years of level 1,000 pain is better than $M+\dots++$ years of level 1 pain. In other words, the Premises together with Transitivity imply

Hangnails for Torture: There is some number of years of very low intensity hangnail pain that is worse than 2 years of extraordinarily intense torture pain.

Hangnails for Torture is the conclusion of the Pain Spectrum Argument. But it is intuitively implausible.⁶ It appears something has gone wrong somewhere. Some argue that our intuitions about large number cases like Hangnails for Torture are unreliable.⁷ Others argue that our intuitions about the Premises are unreliable.⁸ Temkin rejects both of these debunking responses.⁹ He thus thinks that spectrum arguments like the Pain Spectrum Argument *give us powerful reason* to deny Transitivity, though in *Rethinking the Good* he is officially noncommittal about whether we *should* deny Transitivity.

But denying Transitivity is insufficient to accommodate the underlying intuition driving the Premises. According to the Premises, each of the pains listed in Premises 1, 2, etc is worse all-things-considered than its predecessor. This is so *despite* the fact that each is slightly better than its predecessor with respect to pain intensity, and *because* each is so much worse than its predecessor with respect to pain duration. The slight differences in intensity cannot neutralize the huge differences in duration. The intuition behind the Premises is thus that slight differences in pain intensity cannot make very big, at least not *arbitrarily* big evaluative differences. More precisely the underlying intuition is one of opposition to

Hypersensitivity: There is some *slight* difference in pain intensity between pains A and B that can neutralize *any* difference in pain duration between A and B, in a way that makes a difference to how A and B evaluatively compare to each other.

The point of denying Transitivity is to accommodate the conjunction of the Premises with the denial of Hangnails for Torture. I will now argue that denying Transitivity is insufficient to accommodate our anti-Hypersensitivity intuitions.

For any pain intensity level that is less than 1,000, there are three possible answers to the question of whether there is some number of years M of pain at this intensity level that is worse than 2 years of pain at intensity level 1,000:

⁵ He writes that, 'for any unpleasant or "negative" experience, no matter what the intensity and duration of that experience, it would be better to have that experience than one that was only a little less intense but twice as long' (this corresponds to 'claim 1' in Temkin 1996, p. 179). But he goes on to offer the weaker claim that, if you don't think making the duration *twice* as long is enough to get the intuition that the longer but slightly less intense pain is worse, you can make it *four* times, *ten* times, or *one hundred* times as long, etc.

⁶ The claim that there is *no* number of years of very low intensity hangnail pain that is worse than 2 years of extraordinarily intense torture pain corresponds to 'claim 3' in Temkin 1996, p. 179.

⁷ For example, see John Broome's *Weighing Lives* (Oxford University Press, 2004) pp. 55-59, and Michael Huemer's 'In defence of repugnance' *Mind* 2008, pp. 899-933.

⁸ See Alex Voorhoeve's 'Heuristics and biases in a purported counterexample to the acyclicity of "better than"' *Politics, Philosophy and Economics* 2008, pp. 285-299, and his 'Vaulting Intuition: Temkin's Critique of Transitivity' *Economics and Philosophy*, 2013, pp. 409-423.

⁹ See his *Rethinking the Good*, sections 5.7 and 9.3. For another response to those sceptical of the reliability of intuitions about large number cases, see my 'Intuitions about large number cases' *Analysis* 2013, pp. 37-46.

- (i) 'Yes'
- (ii) 'No'
- (iii) 'It's indeterminate'

For intensity level 999, anti-Hypersensitivity intuitions support the Yes answer. Insofar as the difference in pain intensity between level 1,000 and level 998 (and beyond) is not 'slight', these intuitions will fail to support Yes. For intensity level 1, intuitions against Hangnails for Torture support No, but needn't support No for levels higher than 1. This pairing of intuitions, indeed, the conjunction of the Premises with the denial of Hangnails for Torture, together imply that for some intensity levels between 1 and 999 (inclusive) the answer is Yes, while for some others the answer is No.

Let's temporarily set aside 'It's indeterminate' as a possible answer. Then as we head from intensity level 999 toward intensity level 1, the pattern of answers looks like this:

Level 999: 'Yes'
 Level 998: 'Yes'
 ...
 Level X: 'Yes'
 Level Y: 'No'
 (Levels X and Y are adjacent levels located somewhere in between 998 and 2.)
 ...
 Level 2: 'No'
 Level 1: 'No'

Since intensity levels X and Y are adjacent, the difference in intensity between them is slight. Next consider how different pains at intensity levels X and Y respectively evaluatively compare with 2 years of torture, i.e. 2 years of pain at intensity level 1,000. On the above picture, it is true that

- (*) There is some M such that pain at intensity level X lasting M years is *worse* than 2 years of torture, *but* pain at intensity level Y lasting M+ years is *not* worse than 2 years of torture, no matter how large the difference between M years and M+ years.

This is so *because* M+ years at intensity level Y is slightly better than M years at intensity level X with respect to pain intensity, and *despite* the fact that M+ years at intensity level Y is so much worse with respect to pain duration. (*) appears to offend against our anti-Hypersensitivity intuitions.

Importantly, (*) appears to *directly* offend against our anti-Hypersensitivity intuitions, not merely indirectly, i.e. by implying Hypersensitivity when taken together with various other claims. For instance, we could argue that (*) taken together with Transitivity¹⁰ implies that

- () There is some M such that pain at intensity level X lasting M years is worse than pain at intensity level Y lasting M+ years, no matter how large the difference between M years and M+ years.

¹⁰ Note that the operative principle here is not strictly identical to Transitivity, but it is very close to Transitivity, and would be denied by Transitivity-deniers. What Temkin calls the *Internal Aspects View*, which implies Transitivity, would license the inference from (*) to ().

And () constitutes Hypersensitivity, directly offending against anti-Hypersensitivity intuitions. This is all true, but it is not all that is true. It is also true that (*) directly offends against anti-Hypersensitivity intuitions, independently of the derivation of () appealing to Transitivity. For (*) allows that a slight difference in pain intensity makes an arbitrarily large evaluative difference. We can at this point distinguish Hypersensitivity from

*Hypersensitivity**: There is some *slight* difference in pain intensity between pains A and B that can neutralize *any* difference in pain duration between A and B, in a way that makes a difference to how A and B respectively evaluatively compare to some third pain, C.

Whereas () constitutes Hypersensitivity, (*) constitutes *Hypersensitivity**. Even if we accept (*), we can avoid () and hence avoid Hypersensitivity if we deny Transitivity. So if we deny Transitivity we need not face anything more than *Hypersensitivity**. Nonetheless, our anti-Hypersensitivity intuitions do not discriminate between Hypersensitivity and *Hypersensitivity**. Both are counterintuitive. It seems implausible that a slight difference in pain could make an arbitrarily large evaluative difference, be it to how two pains evaluatively compare to each other, or to how they respectively evaluatively compare to some third pain.¹¹

Let's now bring back in 'It's indeterminate' as a possible answer to our question of whether, for any pain intensity level that is less than 1,000, there is some number of years M of pain at this intensity level that is worse than 2 years of pain at intensity level 1,000. As we head from intensity level 999 toward intensity level 1, the pattern of answers now looks like this:

Level 999: 'Yes'
 Level 998: 'Yes'
 ...
 Level X: 'It's indeterminate'
 Level Y: 'It's indeterminate'
 ...
 Level 2: 'No'
 Level 1: 'No'

Does introducing indeterminacy help us avoid Hypersensitivity? For reasons parallel to those given above, we now have

(I*) It is indeterminate whether there is some M such that pain at intensity level X lasting M years is *worse* than 2 years of torture, *but* pain at intensity level Y lasting M+ years is *not* worse than 2 years of torture, no matter how large the difference between M years and M+ years.

While (I*) doesn't constitute *Hypersensitivity**, it does constitute

¹¹ Temkin might here raise the point that the factors relevant and significant for how two items evaluatively compare to each other can differ from the factors that are relevant and significant for how these two items respectively evaluatively compare to some third item. Though this may support the in principle *possibility* of accepting *Hypersensitivity** while rejecting Hypersensitivity, it would not support the *plausibility* of doing so; it remains counterintuitive that a slight difference in pain intensity would plausibly make an arbitrarily large evaluative difference in one context but not in the other.

*Indeterminate Hypersensitivity**: It is indeterminate whether there is some *slight* difference in pain intensity between pains A and B that can neutralize *any* difference in pain duration between A and B, in a way that makes a difference to how A and B respectively evaluatively compare to some third pain, C.

And we can compare this with

Indeterminate Hypersensitivity: It is indeterminate whether there is some *slight* difference in pain intensity between pains A and B that can neutralize *any* difference in pain duration between A and B, in a way that makes a difference to how A and B evaluatively compare to each other.

Do Indeterminate Hypersensitivity and Indeterminate Hypersensitivity* offend against our anti-Hypersensitivity intuitions? I believe that they do. Perhaps more importantly for present purposes is the dialectical significance of Indeterminate Hypersensitivity for those like Temkin who seek to argue that spectrum arguments give us powerful reason to deny Transitivity. Indeterminate Hypersensitivity allows that

(I) It is indeterminate whether there is some M such that pain at intensity level X lasting M years is worse than pain at intensity level Y lasting M+ years, no matter how large the difference between M years and M+ years.

And if (I) is true, then we can deny the Premises of the Pain Spectrum Argument, according to which each of the pains listed in Premises 1, 2, etc *is* worse all-things-considered than its predecessor. According to (I), this is not true of each of the pains listed in the Premises. In particular, this is not true of pains at intensity levels X and Y. Instead, it is only indeterminate whether the pain at intensity level Y is worse than the pain at intensity level X. Temkin and many others thus rule out Indeterminate Hypersensitivity as implausible in claiming that the Premises *are* plausible.

But just as our intuitions do not discriminate between Hypersensitivity and Hypersensitivity*, they do not discriminate between Indeterminate Hypersensitivity and Indeterminate Hypersensitivity*. It seems just as implausible that it is *indeterminate whether* a slight difference in pain intensity could make an arbitrarily large evaluative difference, whether this difference made is to how two pains evaluatively compare to each other, or to how they respectively evaluatively compare to some third pain. Intuitively, it is determinate that no slight difference in pain intensity could make either such arbitrarily large evaluative difference.

Our anti-Hypersensitivity intuitions are what are driving the Premises. Temkin and others suggest that we can accommodate anti-Hypersensitivity intuitions alongside intuitions opposed to Hangnails for Torture by denying Transitivity. But I have just argued that denying Transitivity is insufficient to accommodate these intuitions. Denying Transitivity, accepting the Premises, and denying Hangnails for Torture together yield Hypersensitivity*. But our anti-Hypersensitivity intuitions do not discriminate between (Indeterminate) Hypersensitivity and (Indeterminate) Hypersensitivity*. Intuition would have it that these forms of Hypersensitivity, with and without the ‘*’, should stand or fall together.

Where does all this leave us? It leaves us with the thought that, in response to spectrum arguments, it is plausible that we should either thoroughly embrace Hypersensitivity or else thoroughly reject it. If we go the former route, we will reject at least some of the Premises of the Pain Spectrum Argument, thereby avoiding Hangnails for Torture. If we go the latter route, we will answer ‘Yes’ for *each and every* pain intensity

level, in response to the question of whether, for any pain intensity level that is less than 1,000, there is some number of years M of pain at this intensity level that is worse than 2 years of pain at intensity level 1,000. And this would commit us to Hangnails for Torture.

It also leaves us with the thought that, contrary to Temkin, spectrum arguments give us no reason to deny Transitivity. The point of denying Transitivity in response to spectrum arguments is to accommodate our anti-Hypersensitivity intuitions. But I have just argued that denying Transitivity fails to do this.

Of course, I have not here argued *for* Transitivity. Nor have I argued against all the arguments raised against Transitivity. I have, however, argued that the most famous and (to my mind) the most forceful argument against Transitivity does not succeed. While for the reasons offered above it seems doubtful that spectrum arguments give us powerful reason to deny Transitivity, they do give us powerful reason to abandon our anti-Hypersensitivity intuitions or else abandon our intuitions opposed to conclusions like Hangnails for Torture. In this sense, Temkin is absolutely right to insist that spectrum arguments compel us to rethink the good.