

Lessons From Infinite Clowns

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The story of the clowns (the Clown Case) is absurd and strange. It might reasonably strike us as even more absurd and strange than Benardete's and Hawthorne's stories of the gods, of the assassins and of the deafening peals (Benardete 1964: 258-259, Hawthorne 2000: 428). In those cases, each of the infinite sequence of potential actors had the power to directly cause an effect of the type supposedly produced: each peal of sound could deafen, and each assassin could kill. It is definitely odd that people would be deaf before any individual peal reached them, or dead before any assassin carries out his mission. But many philosophers have learned to live with these as oddities of infinity, rather than demonstrations of the impossibility of the scenarios described or proof that we have a defective concept of the actual infinite. These oddities show that the potential situations involving these sorts of series are much stranger than we might have realized. One Zeno-series, somewhere in a possible world, against the background of stipulations about the members of that sequence, can be enough to constrain a vast array of other facts about that world. (The facts about our clowns ensured that the galaxies were rearranged, but almost any contingent fact could be linked to infinite series in an analogous way.)

Clown cases might be thought to show a repugnant absurdity in actual material infinities after all, or be thought to be subtly inconsistent or absurd for reasons disconnected with infinity (by analogy with Graham Oppy's treatment of some alleged paradoxes of infinity (Oppy 2006 pp 81-86). But I suspect they are just strange rather than impossible, in the tradition of Benacerraf 1962, Hawthorne 2000, Oppy 2006 about many other cases, and many others. Kaiserman, Magidor and Hawthorne think so too, so I will focus on exploring this sort of response.

If we do decide that the Clowns Case is a genuine possibility after all, there is more to learn in reflecting on the case. Hawthorne 2000 suggested that in many of the New Zeno cases, the "ensured" event is caused by the Zeno-series as a whole: for example, in a case where thinner

and thinner rigid boards are erected next to each other *ad infinitum* and a ball must stop without hitting any of them (since if it were stopped by one board, closer thinner boards would have already stopped it), it *does* seem plausible to say the boards as a whole stop the ball. That seems less plausible in some of the clown cases: the clowns' collective powers over balloon placing do not seem to be *causing* earlier arrangements of icecream, let alone the fortunate pre-established harmony of the stars and the galaxies. Over and above the thought that the clowns, individually or collectively, "stand down" because the balloons, icecream mountain, or galaxies are already in place, there is also the thought that the relation between the clowns' acts or omissions and the pre-condition just strikes us as nothing like causal: whatever the guarantee is, it seems logical rather than nomic.

Once we notice that the condition ensured need not have anything much to do with the direct powers of the clowns, individually or collectively, some of our puzzlement about this case might evaporate. The clowns cannot exercise their conditional decisions unless there are already balloons in the center of the room by noon; or there is a mountain of icecream outside at the right moment; or the stars and galaxies jump in just the right way. But we do not need to think this is because the clowns, collectively, have amazing logical or causal powers: perhaps it is just that the clowns collectively only have those patterns of intentions in worlds where the external conditions are suitable.¹ If Victoria has the power to (jump at t if and only if she is a widow at t), *and she jumps*, this jumping does not cause her to be a widow at the relevant time, still less somehow cause the death of a particular man (Albert) weeks or years earlier. So perhaps when the clowns collectively have a combination of powers and intentions that can only be had when there is about to be a mountain of icecream outside, this may be unmysterious in just the same way as Victoria's jumping is. This final response to the cases seems to me the most promising: new Zeno cases do not impugn the possibility of actual physical infinities, nor do they call for mysterious necessary connections or emergent causal powers, despite initial appearances.

Kaiserman and Magidor claim that "no deep philosophical lessons" can be learned from reflecting on the Clowns Case (Kaiserman and Magidor, <this volume>, <p 1>). Perhaps this is because the lessons they resist are ones they think are incorrect: they think it is incorrect that the

¹ I think this is the line Uzquiano 2012: 263 takes with cases like these, though he puts his solution in different terms.

clowns in these cases would have to have unusual *powers* to e.g. ensure the presence of icecream, or that they must *cause* outcomes like these. (They seem to take me to be committed to some of the positions they reject: the remarks occurring in Nolan (this volume) before "it seemed too good to be true", as opposed to what I say in the last section, are in a spirit of exhibiting how things seem to the narrator, rather than themselves being my verdicts on the cases.) They also want to resist drawing conclusions like those suggested by Bacon, Caie, and Arntzenius (Magidor and Kaiserman <p 23>). I agree with Kaiserman and Magidor that these lessons do not follow from New Zenon cases, though I think reflecting on the Clowns case helps us to see why.

Some of the things Kaiserman and Magidor go on to say *do* seem to me to be deep philosophical lessons from the cases. (I suppose "deepness" may be in the eye of the observer, but questions about how infinity could manifest in the concrete world seems a deep enough question for today's purposes.) They agree, as I read them, that the clowns collectively not failing in their conditional intentions (etc.) guarantees the presence of an icecream mountain, though not that it must cause it or has to be an exercise of the powers of the clowns to bring it about. I take it they also agree that this is what is going on in the case of Benardete's deafening peals or infinite assassins: the situation described is not possible unless the hearer is deaf before the peals reach her, or the victim is dead before any assassin has promised to act if he is still alive, but not because the pealing bells or the assassin collective need have any causal influence.

Kaiserman and Magidor seem to suggest that there is nothing (deep and philosophical) to be learned here for another kind of reason. In their section 2, they rightly point out that there are other possible cases of individual or group intentions that could not be consistently all carried out if we specified other facts about the case, even though no infinity is involved. (If I intend to jump if and only if the moon goes around the Earth, *and* I carry out my intention, *and* do not jump, *and* the moon goes around the Earth, something inconsistent would be happening. But no infinity is involved.) Again, seeing that the clowns case is exploiting facts about consistency of intentions not being violated with external circumstances bearing on whether those intentions would be violated, in the way that their simple cases help bring out, seems to me a useful lesson, rather than debunking.

I would go further. Kaiserman and Magidor focus on intention and some other concepts such as ability. But a similar point to theirs can be made about claims about what objects will do if... , without any intention involved and with no talk of ability. Benardete's deafening peals (Benardete 1964 258–259) ring out, let us say, after noon, the latest at 12:30, the second latest at 12:15, and so on ad infinitum. They ring out at precisely those times, and will deafen those who hear them, and are loud enough so they will be heard by anyone with hearing within, e.g. a mile. Amazingly, there will be nobody with hearing around the bells who was there and retained their hearing the whole time from before noon. So, were someone to be in the vicinity until noon and stay there, and have hearing just before noon, they will lose their hearing at noon, before hearing any peal. No *intentions*, conditional or otherwise, are parts of the case. Still, the lesson is the same, *mutatis mutandis*, as in the intentions case. Even Benardete's wall looks like it does not *cause* things to stop at its open surface, rather than it just being the case that no wall meets all the relevant stipulations in worlds where a ball crashes into any individual boards on its open side.

Hawthorne's legal Zeno cases (Hawthorne <this volume>) cause new trouble for the thought that there is no causation in New Zeno style cases. We do ordinarily talk about some actions causing changes in legal status, against the right legal background, and with Hawthorne I want to take a lot of that talk at face value: adverse legal judgements cause debts, divorce lawyers can literally affect the conditions in a divorce settlement, and so on. I am also convinced by Hawthorne's discussion that in principle the right pattern of laws can have a New-Zeno-like structure. In fact, I think it is more feasible than Hawthorne's cases suggest. Hawthorne's cases involve infinitely many officers of the law finishing their decrees at separated times that require amazing precision: even granting the possibility of Ambrosia and its infinite population, these officers have powers that might be different from our own. (Even if they do not finish at slightly different times but merely specify times their decrees come into effect in their acts, finite creatures like us would have trouble specifically picking out many of the times in Hawthorne's sequence with our finite powers.)

However, one person can do several things at once, legally speaking. An officiant at a mass wedding can cause all the couples before her to be married at one stroke. "I now pronounce that all the laws my parliament has agreed to this year are now in effect" looks like the sort of thing a

monarch could do to bring many laws into effect at once, given a suitable constitutional background. In some university graduation ceremonies, all the degrees to be awarded are approved by one formula, before the certificates of those degrees are handed out to graduates. And so on.

There seems to be no bar in principle to a legal action coming into effect by the officer describing it. In the land of Nectar, one way for legal officers to do their job is to indicate which acts they are performing indirectly. They might, for example, be handed a piece of paper that says that Zanthus is divorced from Ygor at noon, Xylia is divorced from Wasyl at noon... and, holding up the piece of paper, say "I hereby enact all of the conditions found on this piece of paper". Nectarian judges have consistently ruled, given background legislation, that this is enough to e.g. divorce Xylia from Wasyl at noon of the day of utterance.

In a fit of legal experimentation, one such divorce officer considered and described an infinite set of decrees: that Urania is divorced from Valentina at 12:30pm, that Urania is divorced from Valentina at 12:15pm, and indeed that Urania is divorced from Valentina at each time t such that t is found in the sequence 12:30pm, 12:15pm, 12:07.30pm, and so on. The divorce officer announced "I hereby enact all of the conditions so specified". Urania and Valentina were indeed married before noon of the relevant day, and Nectar has similar unusual laws to Hawthorne's Ambrosia, holding that later decrees of divorce fail to produce divorces if the couple has been divorced before that decree is to come into effect. (And the couple has not subsequently remarried.)

One divorce officer, with suitable legal scaffolding, can purport to enact infinitely many of these decrees. This leaves us with a familiar difficulty: it does not look like Urania and Valentina can be married any time after noon, since it would be after many of these decrees. (And let us suppose there are no attempts to remarry them set to take effect that day.) But none of the decrees can operate to divorce them on its own, since each decree has some others coming into effect earlier that would have divorced Urania and Valentina if they were married by the time they would have come into effect.

Hawthorne's puzzles are not only generated by legal systems. Social organisations such as clubs also have rules, and those rules and their application also seem to have social causes and effects. (A member being expelled looks like the kind of thing that can be caused and have effects in turn, and that seems like a paradigm of the sort of thing that club procedures can ensure.) So we do not even have to wait for hypothetical legislators: we can form Zeno Club! "The 0th rule of Zeno club is that Zeno club shall have a treasurer, and for all counting numbers n , the n th rule of Zeno club is that if none of the succeeding rules of Zeno club make Gerald the treasurer, Gerald becomes treasurer at 12:01pm minus $n/n+1$ minutes". Those wishing to form Zeno Club can experiment with all sorts of rules for ensuring there are officers without any particular rule ensuring who it is, inducting or expelling members using Zeno-series of provisions, and so on. (I predict a Zeno-series of club rules will not ensure there is a mountain of icecream outside the meeting hall.)

In both the legal case and the club case, we might suspect that there are unobvious limits on legal systems, or clubs, to effect legal or club changes. Another case, more discussed in the literature, is whether legal systems, or indeed clubs, can bring about *inconsistent* outcomes. In Bolton and Cull's "Contradiction Club", for example, (Bolton and Cull 2020), "inconsistent" rules about officers apparently yield that Graham both is and is not High Priest of the club. Perhaps this means that social reality can be inconsistent, but those not tempted to find literal contradictions in the social world might be inclined to think we need a less naive theory of what it takes for a club to appoint an officer, or determine that someone is *not* one of their officers. Likewise for laws: some think that some legal bodies have the power to create literal contradictions in the legal world, but perhaps we just need a less direct theory of how legal statuses are generated by the acts of legal bodies. (See e.g. Armour Garb 2022, Priest 2017, but also Beall 2017, Joaquin 2024.)

I am not sure yet whether the best thing to say about the Nectar and Ambrosia cases is that legal entities can have more legal powers than we suspected, or to say that the cases rely on the same sorts of rules of thumb that lead to contradiction when we consider certain cases of clashing laws or inconsistent outcomes of club rules. Of course, if the right set of laws could result in inconsistencies in the legal world, we have even more options on the table in Hawthorne's legal

cases: perhaps couples are both divorced and not divorced, when subject to suitable new-Zeno-style legal processes. I look forward to thinking more about Ambrosia cases and the limits of producing change in the legal and social worlds. My current guess is that there will be ways some Ambrosia style cases can fail due to non-obvious conditions on legal actions being successfully carried out; though sometimes, if enough is stipulated about the cases, divorces or grantings of citizenship might be entailed, like the presence of icecream mountains can be entailed by a rich enough specification of a Clown Case.

Cases like the Clown Case show that "New Zeno" puzzles can be generalized: being able to exploit a Zeno-sequence in the way suggested by e.g. Benardete's cases allows us to construct scenarios where the Zeno process can ensure all sorts of outcomes, even when those outcomes are intuitively beyond the power of the objects involved in the process. Given the extravagant powers such cases *seem* to confer, they could make those of us who learned to live with the original set of cases think again. On the other hand, the response I prefer is to see these cases as bringing out a feature that the cases had all along: they can only arise when the circumstances of the rest of the possible world they are located in co-operate. In worlds where mountains of icecream were going to appear anyway, or worlds where the galaxies were going to dance anyway, those things happening while clowns think hard about balloons is not so mysterious. Perhaps the most impressive thing about the clowns' actions is that they improve our understanding of New Zeno puzzles.²

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