Mumford and Anjum on incompatibilism, powers and determinism

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ABSTRACT

Mumford and Anjum (2014) present a new argument for the incompatibility of free will and causal determinism. Although their argument depends on the assumption that free will is, or is the exercise of, a causal power, it does not appeal to any special features of this power. Their new argument does, however, depend upon a general thesis of the incompatibility of causal powers with causal determinism. I argue that Mumford and Anjum have provided no justification for this general thesis. As a consequence, their new argument for the incompatibility of free will and causal determinism is unsuccessful.

Keywords: free will, causal powers, compatibilism, determinism, causation.

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Stephen Mumford and Rani Lill Anjum (2014) have presented a striking new argument for the incompatibility of free will and causal determinism. A distinctive feature of their argument is that although it depends on the assumption that free will is, or is the exercise of, a causal power, it does not appeal to any special features of this power. On the contrary, Mumford and Anjum claim that if causal determinism is true, there are no (causal) powers. Their new argument depends upon a general thesis of incompatibilism about causal powers – including dispositions such as fragility, solubility, and so on, where these are construed as causal powers. Hence, if Mumford and Anjum are correct, their argument has implications that go far beyond the free will debate.

I shall argue that Mumford and Anjum have provided no justification for their thesis of the incompatibility of causal powers with causal determinism. As a consequence, they have not succeeded in providing a novel reason to be an incompatibilist about free will and causal determinism, even for those who construe free will in terms of the causal powers of agents.

1. The new argument

Mumford and Anjum's new argument is as follows:

(1) If causal determinism is true, all events are necessitated.
(2) If all events are necessitated, there are no powers.
(3) Free will consists in the exercise of an agent's causal powers.
Therefore, if causal determinism is true, there is no free will. (2014: 21)

Although Premise (3) is controversial, it may be granted for the sake of argument, given that the main point of Mumford and Anjum's article is not to establish this premise, but to argue that 'a powers-based solution [to the free will problem] should come down firmly on the side of incompatibilism. Free will as a power . . . should commit one to incompatibilism' (2014: 20–21). I shall discuss Premise (1), including the interpretation of the term 'causal determinism', later (§5). For now, it is enough to note that Premise (1)

certainly appears plausible, assuming a suitable account of what it is for an event to be necessitated.[1]

Premise (2), however, is a different matter. As Mumford and Anjum note, it is likely to be disputed, even by those who are realists about causal powers ('powers theorists') (22). Why should the existence of powers be supposed to be incompatible with the thesis that all events are necessitated? According to Mumford and Anjum, the reason is the special 'dispositional modality' that is associated with powers, which 'entails that *if an event or state of affairs is a matter of necessity then it cannot be the manifestation of a power*' (22; my emphasis). In support of this entailment claim, they say:

> The basis of the dispositional modality is the thought that causal powers are essentially capable of prevention and interference . . . , which shows that they do not necessitate their effects or manifestations. Even in the cases of successful causal production, for instance when a struck match lights, manifesting its disposition of flammability, it was not necessary that it did so. Something could have interfered with the process – water could have been thrown on the match before flame took hold – even if as a matter of fact it did not do so. Mumford and Anjum (2011: chs 3 and 8) argue that this feature is essential to something being a causal power and it follows that *if all is necessitated then nothing is genuinely powerful in this sense*. (2014: 22; my emphasis)

The trouble with this is that the italicized conclusion does *not* appear to follow, either from the considerations Mumford and Anjum explicitly provide in this passage (or elsewhere in their 2014 paper), or from those given in their 2011 work (*Getting Causes from Powers*) to which this passage refers. Moreover, it seems that, at the time of writing the 2011 work, Mumford and Anjum themselves thought as much, since in that work they explicitly allow that a result might be *necessitated* even if it is not necessitated *by its causes*, and hence that their powers-based account of causation does not rule out determinism. This concession appears in such passages as the following:

> Dispositionality is . . . never a source of the necessity of something in the world, even if it exists alongside it. In the deterministic case, for instance, where it is necessary that

[1] Plausible, that is, if we ignore the fact that causal determinism can allow for initial events in the universe (e.g., the Big Bang) that were not caused or necessitated by anything.

> *Fa*, that is not because there was a disposition towards it. What delivers the necessity . . . is that, somehow, everything got fixed. That will include the fixedness of all the background conditions – *including which dispositions do, and which do not, act to produce the necessitated outcome* – but it was not those powers that necessitated that outcome. (2011: 178–79; my emphasis)

> . . . claim D [the claim that cases of necessity are never cases of dispositionality] should not be read as saying that necessity and dispositionality are incompatible absolutely. Rather it needs to be read as disposing towards *F* is never the necessitating of *F*, even if *F* is for some other reason, necessitated. (2011: 179)

Now, of course, Mumford and Anjum may have changed their minds about this issue. But if they have, they don't explain why. Nor do they even suggest that they have changed their minds, which is puzzling, given that they cite, in support of the new incompatibility claim, the chapters from Mumford and Anjum 2011 that contain the concessions.[2]

2. The Argument from the Possibility of Interference

How, then, might one argue that the powers-based account of causation *does* lead to the desired conclusion (Premise (2)) – that if everything is necessitated, there are no (causal) powers – given that the argument appears to be absent from Mumford and Anjum 2011 and 2014?

There is a major obstacle to providing such an argument. Consider the kind of case to which Mumford and Anjum appeal when arguing that causing is not necessitating (and for a dispositional modality that falls short of necessitating). Their argument depends on the idea that the particular causes (c_1–c_n, say) that produce a particular effect *e* (as, for example, when a struck match lights, manifesting its disposition of flammability) are compatible[3] with there being some 'interferer' (or 'preventer') – an 'additive interferer' –

[2] The two passages I have quoted are from ch. 8 of Mumford and Anjum 2011. See also ch. 3: 64.

[3] In its initial version, Mumford and Anjum's 'antecedent-strengthening' argument for the conclusion that causes do not necessitate their effects does not assume that the addition of the interferer be compatible with c_1–c_n. They say: 'If A necessitates B, we should have a true conditional of the form if A and ϕ, then B, *for any value of* ϕ' (2011: 57; my emphasis), which implies that in cases of necessitation the conditional should survive antecedent strengthening even when ϕ has a value that entails not-A. When discussing the implications of interference, however,

such that, had that interferer been present, then even if all the causes had still been present, the result would not have occurred (2011: 53–58, 60–63).[4] This is supposed to show that the causes of the match's lighting cannot be said to *necessitate* the lighting, since if they did, they would have produced the lighting even if the interferer had been present, which is obviously not so. In other words, according to Mumford and Anjum, in order to necessitate an effect, the causes would have to be *on their own* sufficient for that effect, which the possibility of interferers shows not to be the case. They dismiss the suggestion that a cause might be said to necessitate an effect by being 'sufficient in the circumstances', an expression that they regard as an oxymoron (2011: 70). Let us call this argument for the conclusion that causes never necessitate their effects – that causing is never necessitating – 'the Argument from the Possibility of Interference'.[5]

Mumford and Anjum need to establish that it follows, from their thesis that – because of the possibility of interference – causing is never necessitating, that if something is necessitated, it is not caused. An obstacle to establishing this is evident. Even if we accept that, if there *had* been an (additive) interferer or preventer *I*, such that, had it been combined with the actual causes of *e*, this would have resulted in the non-occurrence of *e*, we still need to consider: might it not have been *determined, and hence necessitated, that I was absent*? Let us grant that, if there had been a gust of wind, the match would not have lit, even if all the factors that in fact caused it to light had still been present.[6] And let us grant, at least for the sake of argument, that this shows that the causes of the lighting of the match were not, strictly, sufficient to produce the lighting (i.e., did not necessitate the

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Mumford and Anjum suggest that their argument against causal necessitation would be weakened (and the antecedent-strengthening argument undermined) if the only 'interferers' were 'subtracting' factors that *removed* one or more of the original causes (2011: 60). They rest their case on the possibility of 'additive interferers' – i.e., interferers that are compatible with the existence of the original causes. The fact that Mumford and Anjum's original antecedent-strengthening argument requires that the conditional remain true even if its antecedent is 'strengthened' in a way that makes it inconsistent is the basis of a criticism by Lowe (2012).

[4] Mumford and Anjum sometimes make a distinction between 'preventing' and 'merely interfering', where the latter involves the modification, rather than the elimination, of an effect (2011: 54). This distinction is irrelevant to my discussion here, and I shall ignore it.

[5] I call it this, rather than 'the antecedent-strengthening argument', because of the problems about the interpretation of the notion of antecedent-strengthening mentioned in my previous note 3.

[6] This obviously depends on the assumption that the absence of a gust of wind is not one of the causes of the lighting. But Mumford and Anjum have arguments that such absences cannot be causes (2011: ch. 6, §7).

lighting). It does not follow, from this alone, that the lighting was not necessitated. For suppose it was determined, and thus necessitated, that no gust of wind was present. If so, it was necessitated that the lighting was not prevented by a gust of wind. And if it was determined, and thus necessitated, that *all* of the potential interfering factors were absent, then it was necessitated that there was no interferer. Suppose, in addition, that it was determined, and hence necessitated, that all the actual causes were present. If so, how could it fail to be determined, and hence necessitated, that the causes did produce the result to which they were disposed – namely, the lighting?

There is one way in which this necessitation could fail, but it is of no use to Mumford and Anjum. If the causes c_1–c_n constitute a set of dispositions that produce their effect *e* via *indeterministic* causation, then the following situation is possible: all of c_1–c_n are present, and no interfering factor is present, and yet *e* does not occur. If there are irreducibly indeterministic causal dispositions,[7] then even if there is *enough* for an effect to occur, the effect may still not occur, even in the absence of interfering factors. However, Mumford and Anjum explicitly reject any appeal to indeterministic causation in their argument that causes do not necessitate their effects. If they were to appeal to indeterministic causation, this would make their Argument from the Possibility of Interference redundant. Moreover, were they to appeal to indeterministic causation, rather than to the possibility of interference, for their conclusion that causes *never* necessitate their effects, they would be committed to the thesis that all causation involves irreducibly indeterministic dispositions, something that they provide no reason whatsoever to believe.[8]

Interestingly, Mumford and Anjum's own vector diagrams for the representation of powers-based causation seem apt to illustrate the problem they face from the suggestion that the absence of interferers might be necessitated. For the vector diagrams can represent the *absence* of a gust of wind (and of any other factor that would, if it were present,

[7] I use 'power' and 'disposition' interchangeably when describing Mumford and Anjum's account, following their endorsement (2011: 4) of this equivalence.

[8] '[T]he argument against necessity does not depend on there being probabilistic causation [a sub-category of indeterministic causation]' (Mumford and Anjum 2011: 77) or on there being 'irreducibly indeterministic dispositions' (2011: 76). '[T]he argument against causal necessitarianism does not rest . . . on indeterministic causation being the case. . . . [I]t is consistent with the . . . argument against necessity that if two tokens of the same dispositions were placed in identical contexts . . . they would produce identical manifestations. The argument against necessity required only that if something had been different, the manifestation need not have occurred.' (2011: 76)

dispose against a result) simply by failing to represent it by a vector on the diagram (cf. 2011: 72–74). Unless at least some of the relevant dispositions that are present are indeterministic ones (which, according to Mumford and Anjum, is not the typical case), then the dispositions that *are* present will generate a resultant power or disposition that does, or does not, meet a 'threshold' that represents *enough* for the result to occur (ibid.).[9] But if there is enough for the result to occur, and there are no indeterministic dispositions in play, and there *are* no interfering or preventing factors, then it seems undeniable that the result *will* occur.

To sum up: even if the Argument from the Possibility of Interference does establish that (in a relevant sense of 'necessitate') the causes of an effect *e* never necessitate *e*, it cannot establish that effects are never necessitated, unless it is supplemented with an additional argument for the following thesis: in *every* case of the causing of some effect *e*, either (a) it is not necessitated that all interferers to the production of *e* are absent, or (b) it is not necessitated that all the causes of *e* are present.

But do Mumford and Anjum have the resources to provide the crucial supplementary argument? I shall argue that they do not.

3. The 'possibility' of interference

It might be suggested that Mumford and Anjum have an easy way to establish that even if all interferers to the production of *e* are in fact absent, this cannot be something that is necessitated. Might they not argue as follows? 'The Argument from the Possibility of Interference involves the assumption that, for every case of causing, there is some *possible* interferer. But if the absence of an interferer *I* is necessitated, *I* is not a possible interferer. Hence, if the Argument from the Possibility of Interference is sound, then there must be, for every case of causing, some potential interferer whose absence is not necessitated.'

It is, I hope, obvious that Mumford and Anjum are not entitled to this line of reasoning. If we were to construe the Argument from the Possibility of Interference as requiring that a potential interferer be possible in the sense of *'not-necessitated-not-to-occur'*, the Argument would be entirely precarious. It would rest on an anti-deterministic

[9] In a case where a match is struck and (as a result) lights, Mumford and Anjum are committed to the possibility of representing, on a vector diagram, all the causes of the lighting, including a cause that corresponds to the striking (2011: 32–33). The details of this account are not my concern here.

assumption – the non-necessitation of the absence of relevant interferers – that we have been given no reason to accept. In other words, if we assume that relevant interferers must be possible in the *'not-necessitated-not-to-occur'* sense, the Argument would illegitimately beg the question against the possibility of determinism.[10]

What this makes clear, however, is that we must distinguish the following claims:

> *Weak possibility of interference*: For any case where causes c_1–c_n produce an effect *e*, there is some interferer *I* such that: *I* was absent, but if *I* had been present, the effect *e* would not have occurred, even if all the causes of *e* (c_1–c_n) had still been present.[11]

> *Strong possibility of interference*: For any case where causes c_1–c_n produce an effect *e*, there is some interferer *I* such that: *I* was absent, *it was not necessitated that I was absent*, and if *I* had been present, the effect *e* would not have occurred, even if all the causes of *e* (c_1–c_n) had still been present.

The considerations that Mumford and Anjum provide in support of their Argument from the Possibility of Interference warrant, at most, a version of the Argument that involves the weak, as opposed to the strong, sense of the possibility of interference. This vindicates my initial verdict (§2 above) that Mumford and Anjum's Argument from the Possibility of Interference does not, by itself, establish that the absence of all interferers is not necessitated.

4. Kinds of necessitation

What, then, *would* it take to establish that, in every case of causing, either (a) the absence of all interferers is not necessitated, or (b) the presence of all the causes is not necessitated,

[10] A point that Mumford and Anjum (2011) appear to acknowledge when discussing the connection between determinism and the Argument from the Possibility of Interference: see, for example, 2011: 63–64.

[11] The language that I use here (and elsewhere in this paper) may suggest that I believe that there are (possible) interferers such as a *particular* possible gust of wind that did not occur, but might have done. I intend no commitment to such particular possibilia. I am confident, however, that any phrases that I use that suggest this can be reformulated in a way that clearly avoids the commitment.

given that the Argument from the Possibility of Interference, in its non-question-begging form, does not by itself deliver this result?

There is a potentially distracting complication to be set aside. As Mumford and Anjum formulate their new argument for incompatibilism, its Premise (2) appears to employ an unqualified notion of the necessitation of events (cf. §1 above). Yet it would seem uncharitable to require Mumford and Anjum to argue that their powers-based conception of causation rules out the kind of necessitation (of the absence of interferers and the presence of causes) that is associated with, say, logical or theological fatalism. Presumably, what Mumford and Anjum had in mind, in formulating Premise (2), was not *every* kind of universal event-necessitation, but rather, the kind of universal event-necessitation *that would be the case if causal determinism were true*. But what kind of necessitation is this?

5. Causal determinism and necessitation

According to Mumford and Anjum, their new argument concerns only 'determinism as it should be understood by those who are serious about powers' (2014: 21). They are not, for example, concerned with a conception of determinism such as that articulated by David Lewis, according to which it is the thesis 'that if two worlds with the same laws of nature coincide in their histories until time *t*, then they will do so after *t*', since determinism understood in this way is 'conducive to a package of Humean metaphysics that the realist about causal powers will reject' (22).

The kind of determinism they have in mind is, they say, one that '[has] causation as its vehicle' (21) or '[resides] in an all-encompassing web of causation' (22). An example they give to illustrate this is the thesis that 'every state or event is causally necessitated by preceding states or events' (21; citing Watson 1982: 2).

But now a problem is evident. Suppose that, by 'causal determinism', Mumford and Anjum mean a view that includes, in its definition, the thesis that events are necessitated by their causes, in a sense of 'necessitate' that would conflict with the Argument from the Possibility of Interference. If so, then, of course, causal determinism is immediately ruled out, on the powers-based conception of causation, by Mumford and Anjum's thesis that, because of the possibility of interference, causal powers do *not* necessitate their effects. But to establish that causal determinism, in this restricted sense, is ruled out by the powers-based conception of causation would be a comparatively trivial

result, and a hollow victory. Why so?[12] It is no surprise that the thesis that causes do not necessitate their effects is incompatible with causal determinism if causal determinism is defined as a thesis that requires a necessitation relation between causes and their effects. However, if one accepts, as Mumford and Anjum must do, that even if absences are not themselves causes, the absence of potential interferers is *relevant* to causation (since it makes a difference to whether a given set of causal powers produces an effect), it seems inappropriate to adopt a definition of causal determinism that ignores the role of these causally relevant features merely on the grounds that, being absences, they do not count as causes.[13] But that is precisely what Mumford and Anjum would be doing if they were to take causal determinism to be the thesis that 'every state or event is causally necessitated by preceding states or events' (see above) and combine it with an interpretation of 'causally necessitate' that requires that events be necessitated (solely) *by their causes* (in a sense that conflicts with the Argument from the Possibility of Interference).[14]

If, however, Mumford and Anjum allow for conceptions of causal determinism that do *not* include, in their definition, the thesis that events are necessitated by their causes (in a sense that would conflict with the Argument from the Possibility of Interference), then they confront, once again, the question why we should suppose that, in every case of the causing of some effect *e*, either (a) it is not necessitated (by causal determinism) that all interferers to the production of *e* are absent, or (b) it is not necessitated (by causal determinism) that all the causes of *e* are present.

Mumford and Anjum are not, I submit, entitled to assume that there is no such relevant conception of causal determinism. An obvious candidate is indicated by one of the characterizations of determinism that Mumford and Anjum appear to endorse, according to which 'an event is determined just in case there are conditions whose joint occurrence is

[12] Thanks to an anonymous referee for inviting me to expand my argument here.

[13] See note 6 above.

[14] The passage from Watson 1982 cited by Mumford and Anjum does not support an interpretation of 'causally necessitate' that would conflict with their thesis that causes do not necessitate their effects. In the cited passage, Watson says that determinism is 'the view, *roughly*, that every event and state of affairs is *"causally necessitated"* by preceding events and states of affairs' (1982: 2; my emphasis). Watson invites the reader in search of more precise formulations to consult an article by van Inwagen (1975) that defines determinism in terms of laws of nature rather than a necessitation relation between causes and their effects.

sufficient for the occurrence of that event' (2014: 21, citing Kane 1996: 8). Consider the thesis (CD):

> (CD): For every time *t*, the total state of the universe at *t*, including the total distribution of powers (thus including, of course, the existence of any causes and interferers) at *t* is such as to *determine* a unique total state of the universe, including its total distribution of powers, at any later time.

What is it for one state of the universe to *determine* a subsequent state? Here is a suggestion: a total state of the universe S1 at time *t* determines a total state of the universe S2 at time (t + 1) if and only if (i) the operation of the totality of causal powers that are present in S1 at *t* results in the total state S2 at (t + 1); (ii) if the totality of causal powers that are present in S1 at *t* had *not* resulted in S2 at (t + 1), this could only have been because of the presence of some interfering factor; (iii) all potential interfering factors were absent.[15]

Could a realist about causal powers object to this conception of causal determinism on the grounds that it is based on an alien metaphysics? I see no basis for such an objection. More generally, I see no reason to exclude this conception from the scope of 'determinism as it should be understood by those who are serious about [causal] powers' (2014: 21). If so, however, Mumford and Anjum cannot legitimately avoid the question whether causal determinism, so understood, might be true.

If causal determinism, in the sense of (CD), were true, then a Laplacian demon, with complete knowledge of the state S of the universe at *t*, including the total distribution of powers at *t*, would be able to predict, with certainty, the (unique) state S* of the universe at (t + 1) that is the causal consequence of its state at *t*. Now of course, the demon can acknowledge that there are states of the universe at (t + 1) other than S* that are *possible* outcomes of its state S at *t* in the following sense of 'possible outcome': *if* the state of the universe at *t* had been different, and there had been interferers present at *t* that were in fact absent at *t*, then the state of the universe at (t + 1) would have been different

[15] Determinism is, of course, standardly characterized in terms of laws of nature. See, for example, van Inwagen 1983: 3, van Inwagen 1993: 185, McKenna 2009: §1.3, Hoefer 2010: §2, Watson 2003: 3. I have deliberately avoided characterizing determinism in these terms, however, because Mumford and Anjum are sceptical about whether a causal powers theorist should invoke laws of nature in addition to causal powers (2011: 99, 104).

from what it actually was. But to say that these other (t + 1)-states are 'possible outcomes' of S at t in this attenuated sense is obviously compatible with its being determined (by the actual state S at t) that none of these merely possible outcomes will occur.

I submit, then, that (CD) is a conception of causal determinism which the powers theorist has no reason to treat as an irrelevant conception, and which is compatible with the thesis that causes never necessitate their effects, in the only sense in which this non-necessitation claim is licensed by Mumford and Anjum's Argument from the Possibility of Interference (cf. §3 above).

What (CD) *does* appear to rule out, of course, is that the transition of the universe from one state to the next ever involves the operation of *indeterministic* causal powers. But as we have seen, Mumford and Anjum's argument that causal powers never necessitate their effects is intended to be compatible with there being no such indeterministic causal powers (§2 above).

6. Conclusion

Mumford and Anjum fail to provide grounds for the conclusion that their powers-based conception of causation rules out causal determinism, even on the assumption that the mechanism of causal determinism consists in the operation of causal powers, and even if we accept their thesis that, because of the possibility of interference, there is a sense in which causal powers never necessitate their effects. The appearance that their Argument from the Possibility of Interference may rule out such a version of causal determinism is, I have argued, illusory. But if a powers-based conception of causation is compatible with causal determinism, Mumford and Anjum's new argument for the incompatibility of free will and causal determinism is undermined.

It would, of course, be unreasonable to expect Mumford and Anjum to provide a full defence of their new argument within the scope of a five-page paper. However, I hope to have shown that the only consideration to which they appear entitled to appeal, in support of Premise (2) of their new argument – namely, the Argument from the Possibility of Interference – is intrinsically incapable of justifying that crucial premise.[16]

[16] Thanks to Robert Frazier and to an anonymous referee for *Analysis* for comments on earlier versions of this paper.

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