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Against libertarianism

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Abstract The so-called *Mind argument* aims at the conclusion that agents act freely only if determinism is true. The soundness of this argument entails the falsity of *libertarianism*, the two-part thesis that agents act freely, and free action and determinism are incompatible. In this paper, I offer a new formulation of the *Mind* argument. I argue that it is true by definition that if an agent acts freely, either (i) nothing *nomologically grounds* an agent's acting freely, or (ii) the consequence argument for incompatibilism is unsound. I define the notion of nomological grounding, and argue that unless an agent's acting freely is nomologically grounded, unacceptable consequences follow. I then argue that if agents act freely and the consequence argument is sound, a vicious regress ensues. I conclude by considering the libertarian's dialectical options.

Keywords Free will · Libertarianism · Incompatibilism · *Mind* argument · Consequence argument · Grounding

1 Introduction

Libertarianism is the two-part thesis that, necessarily,[1] agents act freely only if determinism[2] is false, and some agents act freely. The so-called

[1] Throughout this essay, the adverb "necessarily" should be read as "It is broadly logically necessary that." Moreover, I treat metaphysical necessity and broadly logical necessity as equivalent.

[2] I will later define determinism more precisely; for now, it is enough to say that it is the thesis that given the past, and given the laws of nature, only one future is physically possible.

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Mind argument[3] aims at the conclusion that, necessarily, agents act freely only if determinism is true. A great debate about the *Mind* argument has arisen, and, at this point in the dialectic, many formulations have been offered, and many objections have been raised. My purpose here is to present a new formulation of the *Mind* argument.

I will begin by examining the definition of free action, and, in so doing, I will consider what follows from the proposition that some agent acts freely. I will argue that it follows that either (i) nothing *nomologically grounds* an agent's acting freely, or (ii) the consequence argument for incompatibilism is unsound. I will define the notion of nomological grounding and argue that the first horn of this dilemma is false. I will then argue that if agents act freely and the consequence argument is sound, a vicious regress ensues. This latter disjunct undermines libertarianism given that the consequence argument is widely regarded as the best argument for *incompatibilism*, which is the first conjunct of the libertarian thesis. I will conclude my presentation of the *Mind* argument by considering the libertarian's dialectical options, and suggesting that if these are the only options before her, the reasonable conclusion is that libertarianism is necessarily false.

2 The definition of free action

I begin by acknowledging that there is no uncontroversial definition of free action,[4] and that this might cast doubt on the viability of my project. While some of us take it to be obvious that:

> (DEF) For any agent S, for any act A, for any time t, and for some time t', S freely performs A at t = df. (i) S performs A at t and (ii) it is up to S at t' whether S performs A at t.[5]

Others balk at the suggestion that this is all there is to acting freely. But whether or not (DEF) is true, it is uncontroversial that:

> (UP) For any agent S, for any act A, for any time t, and for some time t', S freely performs A at t *only if* (i) S performs A at t and (ii) it is up to S at t' whether S performs A at t.

And this weaker claim is all that is needed for the argument I offer here.

There is, however, a claim that is both controversial and necessary for my argument:

[3] So named by van Inwagen (1983) because the argument has appeared so often on the pages of the journal *Mind*. See Hobart (1934), Nowell-Smith (1948), and Smart (1961). According to van Inwagen, there are three "strands" of the *Mind* argument; my argument seems to be an instance of the third strand.

[4] I here stipulate that the free actions considered in this essay are the free actions of finite agents who exist at times. If there is a being who exists outside of time and acts freely (e.g., God), nothing I say here is relevant to Her or His free actions.

[5] I note that this definition is neutral with respect to whether $t = t'$.

(A) Necessarily, if it is up to some agent S at some time t' whether S performs an act A at time t, then S at t' is both (i) able to perform A at t and (ii) able to refrain from performing A at t.

Philosophers known as "source theorists" deny this proposition, while "leeway theorists" insist that it is not only true, but trivially so. According to the source theorists, as long as an agent is in some sense the "source" of her actions, she can act freely even if she "does not have the ability to do otherwise" or "lacks alternative possibilities."

Given that the debate between source theorists and leeway theorists has become so contentious, and given that my argument depends on (A), I ought to pause to address the concerns that are likely to arise. First, there are source theorists who hold that although there may be some occasions on which agents act freely without having alternative possibilities, these agents do so only if they had alternative possibilities at some earlier time. Provided that there is some such minimal condition on free action, my argument succeeds. Second, and more importantly, I am arguing that if agents act freely, and if an agent's acting freely is nomologically grounded, and *if the consequence argument is sound*, a vicious regress ensues. But the consequence argument is sound only if (A) is true. It should be clear, then, that there is nothing untoward in my assuming the truth of (A).

3 Worlds and times

In order to facilitate the discussion that follows, I note that I will adopt the convention of construing modal claims as claims about possible worlds, where possible worlds are *maximal possible state of affairs*.[6] A state of affairs is possible if it might obtain and actual if it does obtain. Moreover, a state of affairs O obtains if and only if some object instantiates some property or stands in some relation to itself or something else. *A* state of affairs O *includes* a state of affairs O' if it is not possible for O to obtain and O' to fail to obtain; and O *precludes* O' if it is not possible that both obtain. O is a maximal state of affairs if and only if for every state of affairs O', O either includes or precludes O'. The possible world that obtains is the actual world.

Moreover, for every state of affairs O that obtains, a corresponding proposition is true[7]. Indeed, "a proposition p is true in a state of affairs O if and only if it is not possible that O be actual and p be false. A proposition p is true in a world W, then, if it is impossible that W obtain and p be false."[8] In what follows, I will use 'p_w' to designate that a proposition p is true in a world W. If a state of affairs O obtains in both world W and world W', and if p is the proposition that O obtains, both p_W and

[6] Here I follow Plantinga (1976). This paragraph is a paraphrase of first few lines of Sect. II. 1.

[7] Which is not to say that the correspondence theory of truth is correct.

[8] Plantinga, ibid. I note that while Plantinga uses 'S' to refer to an arbitrary state of affairs, I use 'O'. I do so in order to avoid confusion in what follows.

$p_{W'}$ are true, and W and W' *overlap* with respect to O. If a state of affairs O is included in every possible world, and if p is the proposition that O obtains, p is true in every possible world. A proposition is true in every possible world if and only if it is necessarily true.[9] A proposition is true in at least one possible world if and only if it is possibly true.[10] If p_W is the proposition that p is true in W, p_W is necessarily true.[11]

With respect to the notion of a time, I will follow Finch and Rea in treating times as analogous to possible worlds:

> Abstract times might fruitfully be thought of as *present-tense maximal s*tates of affairs. Intuitively, and very roughly, a present-tense maximal state of affairs is a total state of the world at an instant, *minus* all of the past- and future-tense truths. More rigorously: Say that a state of affairs O is *future-directed* just in case either O's obtaining entails that some contingent thing will exist or O's obtaining entails that no contingent thing will exist; and then define a *past-directed s*tate of affairs in the obviously parallel way. Then a state of affairs O is present-tense maximal if and only if, for every atomic state of affairs O' that is neither future-directed nor past-directed, either O includes O' or O precludes O'.[12]

So, if a proposition P_t corresponds to a time t, P_t entails no proposition about which states of affairs are included in any time that is distinct from t.[13]

Of course, for any time t, and for any possible world W, W either includes or precludes t.[14] Moreover, if a time t obtains in both world W and world W', W and W' overlap with respect to t.[15] In this case, if P_t is the proposition that corresponds to t, P_t is true in both W and W'. Furthermore, if a time t includes a state of affairs O, and if W includes t, W includes O; that is, there is no possible world in which t obtains and O does not. Or: If a time t includes a state of affairs O, and if P_t is the proposition that corresponds to t, and if P_o is the proposition that corresponds to O, it is logically impossible that $(P_t \,\&\, -P_o)$. Likewise, if a time t precludes a state of affairs O, and if W includes t, W precludes O; that is, there is no possible world in which both t and O obtain. Or: If a time t precludes a state of affairs O, and if P_t is the proposition that corresponds to t, and P_o is the proposition that corresponds to O, it is logically impossible that $(P_t \,\&\, P_o)$.

[9] I will use '$\Box p$' to designate that proposition p is true in every possible world, and hence, broadly logically necessary.

[10] I will use '$\Diamond p$' to designate that proposition p is true in some possible world, and, hence, broadly logically possible.

[11] Because it is true in every possible world W that if W is the actual world, p is true.

[12] Finch and Rea (2008, p. 10). Here I use the terms 'O' and 'O'' where Finch and Rea use 'S' and 'S*'.

[13] I have in mind what some philosophers refer to as 'time slices' or 'simultaneity planes'.

[14] A time is a possible state of affairs; if it were not possible, its obtaining would entail contradictions, and, hence, every proposition. But if its obtaining entailed every proposition, it would entail propositions about what happens at other times.

[15] Those who find it helpful to think in metaphors might imagine that W and W' "share a temporal slice."

4 Free actions and diachronic relations

With this, I return to the thesis that:

> (A) Necessarily, if it is up to some agent *S* at some time *t′* whether *S* performs an act *A* at time *t*, then *S* at *t′* is both (i) able to perform *A* at *t* and (ii) able to refrain from performing *A* at *t*.

In order to facilitate discussion of this thesis, it will be useful to have in mind the picture of free action that it seems to suggest.

In drawing the picture, one might begin with two "time slices," *t′* and *t*, that are adjacent to one another on the temporal continuum.[16] One should then see that *S* at time slice *t′* is qualitatively distinct from *S* at time slice *t*. At *t′*, *S* is such that she is both (i) able to perform *A* at *t* and (ii) able to refrain from performing *A* at *t*; *S* at *t*, however, is no longer able to refrain. One might express this point in terms of properties, if one finds such talk useful: *S* at *t′* has both (i) the property of being able to perform *A* at *t* and (ii) the property of being able to refrain from performing *A* at *t*; *S* at *t*, however, lacks the latter property. In this case, *S changes* between *t′* and *t*. First she is one way, and then she is another; or, one might say, there is a *transition* from *how-S-is-at-t′* to *how-S-is-at-t*. This transition, as will soon become clear, is the foundation on which my formulation of the *Mind* argument is built.

In any case, this picture of free action suggests the next step is to argue for what I call the *trans-temporality thesis*, which is the claim that:

> (T′T) Necessarily, for any agent *S*, any act *A*, any time *t*, and any time *t′*, if (i) *S* performs *A* at *t* and (ii) it is up to *S* at *t′* whether *S* performs *A* at *t*, then $t' \neq t$.[17]

In *arguing* for this thesis (as opposed to drawing a picture), I begin by pointing out that, as any respectable grammar textbook tells us, *able to* is a modal term that expresses possibility.[18] And so it follows from (A) that:

> (MP) Necessarily, if *S* at *t′* is both (i) able to perform *A* at *t* and (ii) able to refrain from performing *A* at *t* then (i′) it is possible at *t′* that *S* performs *A* at *t* and (ii′) it is possible at *t′* that *S* refrains from performing *A* at *t*.

With this, it is worthwhile to remind ourselves that if *S* performs *A* at *t*, *t* includes *S*'s performing *A* at *t*. Indeed, given the definition of a time, it is logically impossible that *t not* include *S*'s performing *A*, and so it is logically impossible that *t* includes *S*'s refraining from performing *A* at *t*. What this means, then, is that if it is

[16] But one should not suppose that, strictly speaking, times are discrete. It will soon become clear that none of my arguments depends on the thesis that time is a series of discrete moments.

[17] Granted, some of us take the trans-temporality thesis to be obviously true. It is implied by what Loss (2009) calls the "highly intuitive principle" that, "For any time *t*, no one has any choice about the present (p. 67)." And, as Loss points out, this principle is a "counterpart of [a] postulate in Prior's Ockhamist tense logic." However, given that my argument hinges on this thesis, it seems a bit quick to assert it and move on. See Loss for the relevant citations of Prior.

[18] For an excellent discussion of mood and modality in English grammar, see Huddleston and Pullman (2002, pp. 172–208).

possible, at t', that S refrains from performing A at t, it is possible, at t', that t *not* obtain. And, by extension, this means that it is logically possible, at t', that some time t^* obtains, where t^* is some time that *precludes* S's performing A. In sum: if t' obtains and S performs A at t, there is a world W that includes both t' and t; and if it is possible at t' that S refrains from performing A, there is a world W^* such that (i) W and W^* overlap at t' and (ii) W^* does not include t.

With this we arrive at the thesis that:

(TP) Necessarily, if (i) it is possible at t' that S performs A at t and (ii) it is possible at t' that S refrains from performing A at t, $t' \neq t$.

And, if we consider (A) alongside (MP) and (TP), it is clear that the trans-temporality thesis (T′T) follows.

5 Free action and the *Transition* relation

But I should be clear: for all that the trans-temporality thesis asserts, the time at which it is up to an agent whether she performs an act is *later than* the time at which she performs it. In the present context, though, there is no reason *not* to assume that t' is earlier than t.[19] And so I will assume that for each instance of free action, there is some time t' at which it is up to an agent which act she performs and some later time t at which she performs the free act in question.

But it follows from this assumption that, for each free action, there is at least one time, e.g., t', at which it *is* up to an agent whether she performs an act, and there is at least one time, e.g., t, at which it *was* up to an agent whether she was going to perform it. It will be useful, in what follows, to refer to t' as an *is-up-to-time* with respect to whether S performs A at t and t as a *was-up-to-time* with respect to whether S performs A at t.

At this point, it ought to be clear that, for every free action, there is a *transition* from its *being* up to an agent which action she performs to its *having been* up to her what she was going to do. First, she is such that it *is* up to her whether she performs A at t; later, she is such that it *was* up to her whether she was going to perform A at t. It is trivially true, then, that she *changes* between the earlier and the later times. To put the point another way: if t is a was-up-to-time with respect to S's performing A at t, then, for some t' such that t' is an is-up-to-time with respect to S's performing A at t, a transition obtains between S at t' and S's performing A at t; moreover, this transition obtains *insofar as* t is a was-up-to-time with respect to S's performing A at t and t' is an is-up-to-time with respect to S's performing A at t. It is trivially true, then, that if t is a was-up-to-time with respect to S's performing A at t, then, for some t' such that t' is an is-up-to-time with respect to S's performing A at t, S at t' bears a *diachronic relation* to S's performing A at t.

[19] Of course, there are contexts in which this is not a safe assumption. And so I issue a promissory note: if confronted with an account of free action according to which it is sometimes up to agents what happened (in the past), I will make the same argument I make here, *mutatis mutandis*.

Because of the limitations of the English language, there is no expression with which to refer to this transition *qua transition*. Given that this is so, I stipulate that:

(DEF') The Transition relation obtains between S at t' and S's performing A at t = df. (i) S performs A at t and (ii) it is up to S at t' whether S performs A at t.

Of course, given the thesis that:

(UP) For any agent S, for any act A, for any time t, and for some time t', S freely performs A at t *only if* (i) S performs A at t and (ii) it is up to S at t' whether S performs A at t.

it is true by definition that an agent performs an act freely only if the Transition obtains between the agent herself at one time and the agent's performing the act at another time.

In addition, what I have thus far said about free actions applies more generally to its being up to an agent S at a time t' whether a state of affairs O obtains at t. If it *is* up to an agent whether a state of affairs obtains, and if that state of affairs does indeed obtain in such a way that it *was* up to the agent whether it obtained, the Transition relation obtains between the former and the latter. That is:

(TO) The Transition relation obtains between S at t' and O'*s* obtaining at t = df. (i) O obtains at t and (ii) it is up to S at t' whether O obtains at t.

6 Free action and grounding

With the discussion of the Transition in place, a dilemma comes into view: either something *grounds* the obtaining of the Transition relation between S at t' and S's performing A at t, or not. I have already suggested that I will argue that if the first horn of this dilemma is true, a second dilemma arises: either the consequence argument is unsound, or a vicious regress ensues. First, though, I will consider the implications of the second horn of this first dilemma. That is, I will consider the implications of the thesis that nothing grounds the obtaining of the Transition. I will then argue that these implications are so implausible that one ought to reject this thesis.

Of course, it will be impossible to evaluate this argument unless we have some idea of what *grounding* is (or is supposed to be). In a moment, I will discuss what I call *nomological grounding*, and I will formulate my argument against libertarianism in terms of this notion. However, because this notion is relatively technical, it seems worthwhile to begin by trying to get a sense of the grounding relation in general.

Since this topic has recently been getting a fair amount of attention, I will begin by considering how various participants in the debate characterize it. Rosen has recently pointed out that, "We say that one class of facts *depends upon* or is *grounded in* another. We say that a thing possesses one property *in virtue of* possessing another, or that one proposition *makes* another true. These idioms are

common."[20] He goes on to present examples of claims about grounding; for instance, he offers that, "One distinctive claim of legal positivism is that the grounds of law are wholly social, consisting ultimately in the acts of officials and the social practices in which they are embedded."[21]

Moreover, Schaffer provides still other examples in contending that:

> Grounding is…the notion the physicalist needs to explicate such plausible claims as "the fundamental properties and facts are physical and everything else obtains in virtue of them" (Loewer 2001, p. 39). It is the notion the truthmaker theorist needs to explicate such plausible claims as: "Must there not be something about the world that makes it to be the case, that serves as an ontological ground, for its truth?" (Armstrong 1997, p. 115).[22]

And P. Audi emphasizes the distinction between grounding and causation:

> [T]here is a non-causal relation of determination, *grounding*, often expressed by the term 'in virtue of'. This relation corresponds to certain non-causal explanations, including those philosophers give, e.g., in saying that a statue has its aesthetic properties in virtue of its physical properties, or that a thing has its dispositional features in virtue of its categorical features, or that a person has a reason to believe that *p* in virtue of her perceptual experiences. Indeed, it is the fact that there are such explanations, together with the fact that their correctness cannot be underwritten by any causal relation, that makes it incumbent on us to recognize grounding.[23]

Each of these passages attempts to convey that the notion of grounding is philosophically ordinary, whether we use the term 'grounding' or not.

Within the free action debate, the notion of grounding is expressed in terms of providing an *account* of free action. To provide such an account is nothing other than to say what it is *in virtue of* which a free act is free. If, for instance, a philosopher offers an account of free action according to which free actions are indeterministically caused by mental events of a particular sort, she thereby contends that a free act's being free is *grounded in* its being caused by the relevant kind of mental event. And if a proponent of agent causation offers an account of free action according to which free acts are caused, directly, by the agent who performs them, she makes an analogous claim about agents and causes.

With this, we can move on to the notion of *nomological grounding*. In order to characterize this notion as precisely as possible, I begin by stipulating that:

'W' designates some possible world W.
'L^W' designates the proposition that expresses the conjunction of all the laws of nature that obtain in W.[24]

[20] Rosen (2010, p. 109).

[21] Ibid. p.110.

[22] Schaffer (2009, pp. 364–365).

[23] Audi (2012), 101.

[24] 'L^W' is a rigid designator, and, so, if a world W' is governed by the same laws as W, L^W is true in W'. To affirm $((L^W)_{W'}$ & $(L^{W'})_W)$ is to affirm that W and W' are governed by the same laws of nature. In

'O' designates some arbitrary state of affairs O.
'P_O' designates the proposition that O obtains.
'O'' designates some arbitrary state of affairs O'.
'$P_{O'}$' designates the proposition that O' obtains.

And:

'$G_W\,(O',O)$' designates the proposition that, in W, the obtaining of O' nomologically grounds the obtaining of O.

Next, it should be emphasized that:

$$(\mathrm{NN})\Box\left[G_W\left(O',O\right)\rightarrow\Box\left(\left(P_{O'}\&L^W\right)\rightarrow P_O\right)\right].$$

In other words, if the obtaining of O' *nomologically grounds* the obtaining of O, the obtaining of O' *nomologically necessitates* O's obtaining.

But, as the preceding discussion of grounding ought to have conveyed, there is more to the notion of grounding than mere necessitation. If the obtaining of one state of affairs is grounded in the obtaining of another, the former is somehow *dependent* on, or *posterior to*, the latter. Because it is notoriously difficult to offer a reductive and informative definition of the relevant sort of dependence, and because no such definition is called for in the present context, I will not attempt to provide one. Instead, I will simply gesture at the sort of grounding I have in mind.

First, it seems obvious that some states of affairs are such that, if they obtain, their obtaining is *partially grounded* in the obtaining of some other states of affairs. For instance, the obtaining of "*S's knowing that O obtains"* or *"its being true that O obtains*"[25] is partially grounded in the obtaining of O. Moreover, it seems equally obvious that there are cases in which both the obtaining of a states of affairs O and the obtaining of a distinct state of affairs O' are *co-grounded* in the obtaining of yet another state of affairs O*. In a case of co-grounding, it may be nomologically impossible for O to obtain unless O' obtains, and, yet, neither the obtaining of O nor the obtaining of O' even partially grounds the obtaining of the other.[26] For instance, it may be nomologically impossible for a barometer to correctly register a drop in air pressure unless a thunder storm is taking place. However, the reading of the barometer does not even partially ground the water's pouring down.[27] As it happens,

Footnote 24 continued
affirming $(((L^W)_{W'}\ \&\ (L^{W'})_W)\ \&\ (W\neq W'))$, one affirms that the same laws of nature govern distinct worlds. In what follows, I will assume that for any world W, the proposition L^W that expresses the conjunction of all the laws of nature that govern L^W is maximal, so that for any proposition p_L that expresses a law of nature that governs *some* possible world, either L_W includes p_L or precludes p_L. In this case, $[(L^W)_{W'}\ \&\ (L^{W'})_W]$ is equivalent to $(L^W)_{W'}$; moreover, $[(L^W)_{W'}\ \&\ (L^{W'})_W]$ is equivalent to $(L^{W'})_W$. Roughly if a proposition L^W expresses the conjunction of *all* laws of nature that govern a world W, there is no world W' such that (i) $(L^W)_{W'}$ is true in W' and (ii) W' is governed by ("extra") laws that do not govern W. The same argument against libertarianism can be made without this assumption, but it would complicate things needlessly. I should add here that the assumption that there is a proposition that expresses the laws of nature that obtain in a possible world does not entail that laws of nature are propositions.

[25] If there is such a state of affairs.

[26] Thanks to an anonymous referee for drawing my attention to this issue.

[27] Thanks to Jennifer Lackey for suggesting this example.

though, the notion of co-grounding plays no role in my formulation of the *Mind* argument, and so it is unnecessary to dwell on it here.

Moreover, the notion of nomological grounding is supposed to involve some sort of *synchronic* necessitation relation. But, of course, the obtaining of a state of affairs at one time might nomologically necessitate the obtaining of a distinct state of affairs at another time. It seems, then, that if one is to capture the notion of nomological grounding, one ought to be able to capture the distinction between diachronic and synchronic nomological necessitation, and to make it clear that the latter, and not the former, is the necessitation relation relevant to nomological grounding. But while this may be necessary in offering a satisfying characterization of nomological grounding *per se*, it will soon become clear that this is not necessary in the context at hand. We are here considering the implications of libertarianism, and libertarianism implies that there is no state of affairs such that its obtaining diachronically nomologically necessitates the obtaining of the Transition. If the obtaining of the Transition is nomologically necessitated, it is synchronically nomologically necessitated.

For present purposes, then, this definition of nomological grounding will do:

> (NG) The obtaining of some state of affairs O' nomologically grounds the obtaining of some state of affairs O in $W =$ df. (i) O obtains in W; (ii) O' obtains in W; (iii) O and O' are distinct states of affairs; (iv) the obtaining of O does not partially ground the obtaining of O'; (v) the obtaining of O and the obtaining of O' are not nomologically co-grounded in the obtaining of some state of affairs O^*; (vi) the obtaining of O' nomologically necessitates the obtaining of O; and (vii) the nomological necessitation relation between O and O' is synchronic rather than diachronic.

We need not be any more precise than this.

This discussion of nomological grounding began when I pointed out that if ever the Transition relation obtains between an agent S at time t' and S's performing act A at time t, either some state of affairs *nomologically grounds* the obtaining of the Transition relation between S at t' and S's performing A at t, or not. Of course, what may be said of S's performing A at t may also be said of the obtaining of any state of affairs O: for any instance of the obtaining of the Transition between an agent S at a time t' and the obtaining of a state of affairs O at t, this obtaining of the Transition is either nomologically grounded in the obtaining of some state of affairs O', or it is not. As I said, I will first address the second horn of the dilemma, and argue that if it is true, implausible consequences follow. Once this argument is in place, I will move on to argue that if the first horn of this dilemma is true, a second dilemma arises.

7 Free action and nomological grounding

First, let us consider that it is true by the definition of nomological grounding that:

> (NFD) Necessarily, if (i) the Transition obtains, in W, between S at t' and the obtaining of O at t, and there is no state of affairs O' that nomologically

grounds this obtaining of the Transition in W, then (ii) for any state of affairs O', if (a) O' obtains in W, (b) O' is not the obtaining of the Transition, (c) the obtaining of the Transition does not partially ground the obtaining of O', and (d) O' does not bear a diachronic nomological necessitation relation to the obtaining of the Transition, it is nomologically possible that O' obtains and the Transition does not.

In what follows, I will refer to (NFD) as the *no-further-difference thesis*. The question now is: why should anyone find it implausible?

In answering this question, let us imagine a sparsely populated world W in which the Transition obtains between S at t' and S's performing A at t. Let us add that t' is earlier than t, S does not act freely prior to t, S is the only agent who exists in W, t is the last time that obtains in W, no state of affairs that is even partially grounded in the obtaining of the Transition obtains, and the obtaining of the Transition bears no diachronic necessitation relations to the obtaining of any state of affairs in W. Now let us suppose that the obtaining of the Transition in W is not nomologically grounded. In this case, there is a world W' such that (i) W and W' overlap at every time and (ii) L^W is true both in W and W', and, yet, (iii) the Transition does not obtain between S at t' and S's performing A at t in W'. In this case, there are two worlds that differ *only* with respect to whether the Transition obtains; there is no further difference between them.

If we pause to consider what this thesis amounts to, it should be clear why one would find it implausible. It implies that although S at t' in W and S at t' in W' instantiate exactly the same properties, bear exactly the same relations, have exactly the same beliefs and desires, are in exactly the same circumstances, have exactly the same histories, are governed by exactly the same laws of nature, and have exactly the same skills, it is up to S at t' in W whether she performs A, but this is not up to S at t' in W'. S at t' in W and S at t' in W' are alike in every respect, except that S at t' in W is able to refrain from performing A at t and S at t' in W' is not. Of course, they are both able, at t' to perform A at t: they both do so. Moreover, when they both perform A, they do so for exactly the same reasons, after exactly the same process of deliberation (or lack thereof), and with exactly the same beliefs and desires in mind. And, yet, S at t in W *freely* performs A, while S at t in W' performs A non-freely.

Of course, this point about W and W' can be generalized. For any possible world W, if the Transition obtains between S at t' and S's performing some A at t, and if there is no state of affairs the obtaining of which nomologically grounds the obtaining of the Transition, there is a possible world W' such that W and W' differ only with respect to whether the Transition obtains between S at t' and S's performing A at t (and with respect to whether states of affairs partially grounded in the obtaining of the Transition obtain). And, in fact, this point generalizes to any instance of the obtaining of the Transition relation between some agent S at some time t' and the obtaining of some state of affairs O at some time t.

Granted, these considerations do not constitute a proof of the falsity of the no-further-difference thesis. However, it should be clear, at this point, why there is good reason to affirm what I call the *grounding thesis*:

(GT) Necessarily, if some agent S at some time t' bears the Transition relation to the obtaining of some state of affairs O at some time t, the obtaining of some state of affairs O' nomologically grounds this obtaining of the Transition.

In what follows, I will consider the implications of the grounding thesis. In particular, I will consider what I call the *second dilemma*: if the obtaining of the Transition between an agent S at time t' and the obtaining of some state of affairs O at t is nomologically grounded in the obtaining of some state of affairs O', either it is up to S at t' whether O' obtains or not. But, I will argue, if it is up to S at t' whether O' obtains, a vicious regress ensues; and if it not up to S at t' whether O' obtains, the consequence argument is unsound.

8 The consequence argument

With respect to the consequence argument, it seems that the place to begin is with a definition of determinism. In the present context, it is useful to define determinism in terms of worlds, times, and the laws of nature. If we recall our earlier stipulations, and add that:

'P_t' designates the proposition that corresponds to some time t.
'$P_{t'}$' designates the proposition that corresponds to some time t'.
'P_{tW}' designates the proposition that P_t is true in world W.

And:

'D_{W}' designates the thesis that determinism is true in world W,

then:

$$D_W = \text{df.}\,\Box\left(\left(P_{tW} \& L^W\right) \rightarrow P_{t'}\right).$$

The advantages of this formulation of the thesis of determinism are precision and simplicity. Because there is no mention of causation, the many questions about its nature and existence may be set to the side.

Since determinism is a thesis about propositions, and since the conclusion of the consequence argument is about actions, there must be some way to bridge the gap. And so it is that the consequence argument is formulated, whether implicitly or explicitly, by way of the notion of *not having power over the truth value of a proposition p*. This notion is then translated into talk of its not being up to an agent whether a proposition is true,[28] which is defined in terms of a would- or a might-conditional. In what follows, I will assume that:

(W)$\forall S \forall t$(It is not up to S at t whether p)) = df. $\forall S \forall t$(There is nothing that S at t can do such that, if S were to do it, p would be false)).[29]

[28] Or some similar notion, such as *not having a choice about*, *its being unavoidable that*, or its *being unpreventable that.*

[29] I will revisit this assumption in Sect. 10.

Moreover, I stipulate that:

'$\Box N_{s,t}p_W$' designates the proposition that: $\Box(p_W$ and $\forall S \forall t$(It is not up to S at t whether p)).

And I will formulate the consequence argument in terms of this N-operator.

At this point, the crucial notion of a *transfer principle* may be introduced. All formulations of the consequence argument depend, whether implicitly or explicitly, on some such principle. Various transfer principles have been formulated, and it is not entirely clear which of them are valid. At least one formulation, however, has so far proved immune to counterexample, and so I will rely on it:

$$\text{Transfer} = \{\Box N_{s,t}p_W, \Box(p \rightarrow q)\} \vdash \Box N_{s,t}q_W$$

Then the consequence argument may be formulated as:

1.	D_W & P_{tW} & p_W	Assumption
2.	$\Box$ ((D_W & P_{tW} & p_W) $\rightarrow$ $\Box$ ((P_t & L^W) $\rightarrow$ p))	Consequence of determinism
3.	$\Box$ ((P_t & L^W) $\rightarrow$ p))	1, 2
4.	$\Box$ $N_{s,t}(P_t$ & $L^W)_W$	Premise
5.	$\Box$ $N_{s,t}p_W$	3, 4, Transfer
6.	$\Box$ ($D_W \rightarrow N_{s,t}p_W$)	1, 5

The conclusion of this argument is, of course, the incompatibilist's thesis: Necessarily, if determinism is true, then for any agent S, for any time t, and for any proposition p, it is not up to S at t whether p.

Since the purpose at hand is to argue that if the consequence argument is sound and libertarianism is true, a vicious regress ensues, there is no need to dwell on an evaluation of the consequence argument itself. I will mention, though, that $\Box N_{s,t}P_{tW}$ is entailed by the trans-temporality thesis: for any possible world in which t obtains, no agent is *at t* able to do anything such that, if she were to do it, P_t would be false. It is also worth mentioning that $\Box N_{s,t}(P_t$ & $L^W)_W$ follows from $\Box N_{s,t}P_{tW}$ by way of what I call the *law-addition principle*, which is the principle that:

$$\text{(LAP)}\Box N_{s,t}p_W, \vdash \Box N_{s,t}(p \& L^W)_W$$

Although it is possible to formulate the consequence argument without invoking this principle, it seems that no formulation of the consequence argument is sound if (LAP) is invalid. Every formulation of the consequence includes an appeal to the so-called "fixity of the laws," which may be expressed, roughly, as the principle that given that the laws of nature are, in fact, the laws of nature, there is nothing that anyone can do about them. But this is the reasoning behind (LAP): insofar as L^W expresses the laws of nature that obtain in W, no one in W has any more power over the truth value of (p & L^W) than she does over the truth value of p. It is safe to assume, then, that if the consequence argument is sound, the law-addition principle

is valid.[30] In the next stage of my formulation of the *Mind* argument, I will invoke (LAP).

9 The grounding regress

At this point, we are in a position to appreciate how the grounding regress begins. In an attempt to ward off objection, I begin with the notion of a *determiner* of an agent *S*'s performing an act *A* at a time *t*. A determiner may be characterized, roughly, as the earliest time at which it is nomologically necessary that *S* performs *A* at *t*. Of course, it follows that if libertarianism is true, some time *t** is the determiner of every free action. With this in mind, libertarians often discuss the precise point in the genesis of a free action at which it becomes *determined* that an agent performs one action rather than another. Some say that the intention to perform an act is distinct from the act itself, and that, in some cases, once an agent forms the intention to perform an act, it is nomologically necessary that she performs it,[31] while others contend that until an agent performs the act itself, it is not nomologically necessary that she does so. Moreover, in conducting this discussion, some libertarians suggest that the *Mind* argument seems sound only if one makes false assumptions about the determiners of free acts.[32]

I mention this to emphasize that my formulation of the *Mind* argument includes no premises (suppressed or otherwise) about which states of affairs are included in the determiner of a free action. Instead, my argument depends only on their being *some* determiner of a free act, which, again, is entailed by the truth of libertarianism. In what follows, I will assume, for ease of exposition, that if an agent *S* freely performs act *A* at time *t*, *t* itself is the determiner of *A*. In this case, if libertarianism is true, *t* is the earliest time at which it is no longer up to S whether *S* performs *A* at *t*.

At this point, let us remind ourselves of the first dilemma: if the Transition obtains between an agent *S* at time *t′* and the obtaining of some state of affairs *O* at *t*, either this obtaining of the Transition is nomologically grounded or not. I already considered the second horn of the dilemma and argued for the grounding thesis. But, of course, if the grounding thesis is true, a second dilemma arises: If the obtaining of

[30] For those familiar with McKay and Johnson (1996), it may be useful to consider how the law addition principle maps onto what they say there. First, let us stipulate that '$\Box M_{s,t}p_{W'}$ designates the proposition that $\Box(p_w$ & $\forall S \forall t$(there is nothing that *S* at *t* can do such that, if she were to do it, *p* might be false)). Next, let us consider that, although they gave a counterexample to a similar inference principle, McKay and Johnson did not give a counterexample to this: (*NpMq*) ($\Box N_{s,t}p_W$ & $\Box M_{s,t}q_W$) entails $\Box N_{s,t}(p \,\&\, q)_W$. Let us further consider that it seems plausible that $\Box M_{s,t}(L^W)_W$ is true. But if $\Box M_{s,t}(L^W)_W$ is true and (*NpMq*) is valid, the law addition principle is valid. Unless there is some reason to think that, despite appearances, (*NpMq*) is invalid, it is safe to assume that the law addition principle is valid if the consequence argument is sound.

[31] It is relatively common for participants in the free will debate to draw a distinction between *derivatively* free acts and *non-derivatively* free acts. Moreover, philosophers who do so might characterize *S*'s performing *A* at *t* as an example of the former and her forming the intention to perform *A* as an example of the latter. If there is such a distinction, my argument is directed at non-derivatively free acts.

[32] See, e.g., Ekstrom (2001), (2003), Franklin (2011), Kane (1996), (1999), and (2011).

some state of affairs O' nomologically grounds an obtaining of the Transition, either it is up to S at t' whether O' obtains or not. In this section, I will first argue that if the second horn of the second dilemma is true, the consequence argument is invalid. I will then assume that the first horn of the second dilemma is true and that the consequence argument is valid, and argue that if this is the case, a vicious regress ensues.

With this, I stipulate that:

'p_{At}' designates the proposition that an agent S performs an act A at time t.
'T_{SA}' designates the state of affairs of S at t''s bearing the Transition relation to S's performing A at t.

And:

'P_{TSA}' designates the proposition that the Transition relation obtains between S at t' and S's performing A at t.

And now let us consider the second horn of the second dilemma: the Transition obtains between S at t' and S's performing A at t, the obtaining of some state of affairs O' nomologically grounds this obtaining of the Transition, and it is not up to S at t' whether O' obtains. Then:

7.	$G_W\ (O', T_{SA})$	Assumption[33]
8.	$\Box\ ((P_{O'}\ \&\ L^W) \rightarrow P_{TSA})$	7, definition of nomological grounding
9.	$\Box\ (P_{TSA} \rightarrow p_{At})$	Definition of the Transition
10.	$\Box\ ((P_{O'}\ \&\ L^W) \rightarrow p_{At})$	8, 9
11.	$\Box\ N_{s,t'}(P_{O'})_W$	Assumption, second horn, second dilemma
12.	$\Box\ N_{s,t'}(P_{O'}\ \&\ L^W)_W$	11, law addition principle
13.	$\Box\ N_{s,t'}(p_{At})_W$	10, 12, Transfer

If the consequence argument is valid, then, and if the grounding thesis is true, the libertarian must reject the second horn of the second dilemma. That is, she must say that if a state of affairs O' nomologically grounds the obtaining of the Transition between S at t' and S's performing A at t, it is up to S at t' whether O' obtains.

Of course, it is up to S at t' whether O' obtains if and only if the Transition obtains between S at t' and the obtaining of O' at t. And now we must ask: is this

[33] Let us recall that if O' nomologically grounds the obtaining of the Transition, O' does not obtain prior to or at t'. Instead, O' obtains simultaneously with the Transition. But let us recall that if it is up to S at t' whether O' obtains, S at t' bears the Transition relation to O'. So, if O' obtains simultaneously with the Transition that obtains across t' and t, and if it is up to S at t' whether O' obtains, S at t' bears the Transition relation to some O' that obtains simultaneously with her bearing the Transition to it. Is this possible? Did I not say that the Transition relation is diachronic? First of all, if this is not possible, then it is all the easier for the anti-libertarian to reach her conclusion; in assuming it is possible, I am giving the libertarian a dialectical advantage. Second, I think the libertarian would be right to question the bald assertion that it is not possible for it to be up to an agent whether there obtains a state of affairs that obtains simultaneously with the Transition. To assume that one need not argue for this impossibility seems uncharitable.

obtaining of the Transition between S at t' and the obtaining of O' at t nomologically grounded in the obtaining of some state of affairs O''? Given the grounding thesis, it follows that it is. But now the second dilemma arises again: is it up to S at t' whether O'' obtains, or not? Let us assume that it is not, and let us stipulate that:

'$P_{O''}$' designates the proposition that O'' obtains.

And:

'$P_{TSO'}$' designates the proposition that the Transition relation obtains between S at t' and the obtaining of O'

We can then reason that:

14.	$G_W\,(O'', T_{SO'})$	Assumption
15.	$\Box\,((P_{O''}\ \&\ L^W) \rightarrow P_{TSO'})$	14, definition of nomological grounding
16.	$\Box\,(P_{TSO'} \rightarrow P_{O'})$	Definition of the Transition
17.	$\Box\,((P_{O''}\ \&\ L^W) \rightarrow P_{O'})$	15, 16
18.	$\Box\,N_{s,t'}(P_{O''})_W$	Assumption, second horn, second dilemma
19.	$\Box\,N_{s,t'}(P_{O''}\ \&\ L^W)_W$	18, law addition principle
20.	$\Box\,N_{s,t'}(P_{O'})_W$	17, 19, Transfer

But (20) is identical to (11), and, again, if the consequence argument is valid and (11) is true, it is not up to S at t' whether she performs A at t.

With this, it should be clear that this line of reasoning can go on to infinity. But is this infinite regress *vicious*? In order to respond to this concern, it is worthwhile to take a step back and consider what, in general, distinguishes a regress that is vicious from one that is not. In the case of a non-vicious regress, each subsequent iteration is ontologically *posterior to* the first. The first element is ontologically (though not necessarily temporally) prior to the other elements in the infinite series. We might say that the first element "brings the infinite series with it." In the case of a vicious regress, however, the first element is *ontologically posterior* to (or *ontologically dependent* on) the second element in the infinite series, the second element is ontologically posterior to the third element, the third element posterior to the fourth, and so on. One might say that the obtaining of the second element is a *precondition* for the obtaining of the first, the obtaining of the third element is a precondition for the obtaining of the second, the obtaining of the fourth is a precondition for the third, *ad infinitum*. It is logically impossible for the first element to "bring the series with it," because the first element does not exist until an infinite series is complete. And this, of course, never happens.

With this notion of ontological priority in place, it is possible to offer a relatively straightforward characterization of the Transition regress. First, let us assume that an agent S freely performs an act A at time t. In this case, the Transition obtains between S at t' and S's performing A at t. But:

T1 The obtaining of the Transition between S at t' and S's performing A at t is ontologically posterior to the obtaining of some state of affairs O'. (Grounding thesis).

T2 O' obtains only if the Transition obtains between S at t' and the obtaining of O' (Transfer).

T3 The obtaining of the Transition between S at t' and the obtaining of O' is ontologically posterior to the obtaining of some state of affairs O'' (Grounding thesis).

T4 O'' obtains only if the Transition obtains between S at t' and the obtaining of O'' (Transfer).

T5 The obtaining of the Transition between S at t' and the obtaining of O'' is ontologically posterior to the obtaining of some state of affairs O''' (Grounding thesis).

T6 O''' obtains only if the Transition obtains between S at t' and the obtaining of O''' (Transfer).

And so on, *ad infinitum*.

Neither the Transfer principle nor the grounding thesis generates the regress by itself. But insofar as one can move back and forth between them, so to speak, a vicious regress ensues.

At this point, it should be clear that the libertarian must reject either the grounding thesis or the Transfer principle. And, of course, if she abandons the Transfer principle, she must abandon the consequence argument as well.

10 Objection

Before I bring my formulation of the *Mind* argument to a close, I should revisit my assumption that:

(W)$\forall S \forall t$(It is not up to S at t whether p)) = df. $\forall S \forall t$(There is nothing that S at t can do such that, if S were to do it, p would be false)).

A libertarian proponent of the consequence might question (W), and contend, instead that:

(M)$\forall S \forall t$(It is not up to S at t whether p)) = df. $\forall S \forall t$(There is nothing that S at t can do such that, if S were to do it, p might be false)).

She might then point out that if (M) is true, the first iteration of my regress argument is unsound, given that (11) is false.[34]

But what can S at t' do such that, if she were to do it, $P_{O'}$ might be false? The libertarian may point out that (i) *ex hypothesi*, the obtaining, in W, of O' nomologically grounds the obtaining, in W, of the Transition between S at t' and S's

[34] A fan of the consequence argument might go on to suggest that if (M) is true, the consequence argument is sound though my regress argument is not. As Finch and Warfield argue in their (1998), if an agent's lacking power over the truth value of a proposition is construed in terms of a might-conditional rather that a would-conditional, the consequence argument, but not the *Mind* argument, is sound.

performing A at t and (ii) in W, t is the determiner of S's performing A. But, then, it is (still) nomologically possible at t' that O' does not obtain. Moreover, "It is nomologically possible that O' does not obtain" may be construed as "O' might not obtain," and, of course, this is another way of saying that $P_{O'}$ might be false. Here, the libertarian may add that, *ex hyothesi*, S exists at t', and, hence, is doing *something* when t' obtains. At the very least, she is instantiating properties and bearing relations. In this sense, then, S at t' in W can do something such that, if she were to do it $P_{O'}$ might be false.

The problem with this response is that it has the odd result that anyone who does anything at t' does something such that, if she were to do it, $P_{O'}$ might be false. But then S has no more power over the truth value of P_O than does anyone else in W. Now let us remind ourselves that $(P_{O'} \ \& \ L^W)$ entails p_{At}, and that, *ex hypothesi*, $(P_{O'} \ \& \ L^W)$. Given Transfer, it follows that if it is up to S at t' whether p_{At}, it is up to S at t' whether $(P_{O'} \ \& \ L^W)$. But, by way of the law addition principle, it follows that if it is up to S at t' whether S performs A at t, it is up to S at t' whether $P_{O'}$. So, if the consequence argument is sound, it is up to S at t' whether S performs A at t if and only if it is up to S at t' whether $P_{O'}$. But, according to the hypothesis under consideration, it is up to S at t' whether $P_{O'}$ if and only if it is up to everyone who exists at t' whether $P_{O'}$. In this case, it is up to S at t' whether S performs A at t if and only if it is up to everyone who exists at t' whether S performs A at t. There are many agents such that it is up to them, at t', whether S performs A at t, and S is just one of the many.

While this conclusion is not logically inconsistent, many of us will find it obviously false. And, hence, we will conclude that if the consequence argument is sound, so is the regress argument.

11 Conclusion

With the argument for the grounding regress in place, my formulation of the *Mind* argument is complete. The libertarian may, of course, let go of the consequence argument for the incompatibilist component of her position. But doing so will be helpful only if she can find a replacement argument that is both plausibly sound and immune to the regress I raise here. If the libertarian retains her commitment to the consequence argument, it seems that she has only two dialectical options. First, she may contend that when an agent acts freely, there is no state of affairs that nomologically grounds her doing so. Second, she may contend that if it is up to some agent at some time whether she performs an action, it is just as much up to every other agent who exists at that time whether she performs it.

It should go without saying, then, that the libertarian is in a precarious position, dialectically speaking. While the libertarian might insist that one or another of her dialectical options is rationally defensible, she is, in fact, on the defensive. And so a new challenge (or a new variation on an old challenge) confronts the libertarian.

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