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Rolling Back the Rollback Argument

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RESUMEN

Por medido del argumento del reinicio [Rollback Argument], este artículo argumenta que las probabilidades metafísicamente robustas son incompatibles con un género de control que pueda asegurar que las acciones libres no son un asunto del azar. Nuestra principal objeción a esas teorías (típicamente del tipo agencia-causación) que atribuyen a los agentes un género de control que elimina el papel del azar por lo que respecta a las acciones libres y adscriben probabilidades las opciones de decisiones, consiste en que las probabilidades metafísicamente robustas deberían postularse solamente si tienen un papel explicativo metafísico, pero que las probabilidades pueden explicar algo sólo si el azar desempeña algún papel. En primer lugar, reconstruimos el argumento del reinicio. En segundo lugar, criticamos los modos estándar de reconciliar el control no azaroso con las propiedades metafísicamente robustas. Finalmente, respondemos a las inquietudes relacionadas con el experimento de pensamiento del argumento del reinicio.

PALABRAS CLAVE: *agente-causación, control, acción libre, probabilidades, argumento del reinicio.*

ABSTRACT

By means of the Rollback Argument, this paper argues that metaphysically robust probabilities are incompatible with a kind of control which can ensure that free actions are not a matter of chance. Our main objection to those (typically agent-causal) theories which both attribute a kind of control to agents that eliminates the role of chance concerning free actions *and* ascribe probabilities to options of decisions is that metaphysically robust probabilities should be posited only if they can have a metaphysical explanatory role but probabilities can explain anything only if chance has a role. First, we reconstruct the Rollback Argument. Second, we criticize the standard ways of reconciling non-chancy control with metaphysically robust probabilities. Finally, we respond to those worries that are related to the thought experiment of the Rollback Argument.

KEYWORDS: *Agent-Causation, Control, Free Action, Probabilities, Rollback Argument*

INTRODUCTION

The main challenge for all libertarian theories is to answer the following question: if choices and actions (which we collectively call ‘ac-

tions') are not determined, then how come that they are not a matter of chance. Most libertarians claim that the challenge can be addressed through positing event-causal or agent-causal activities that provide sufficient control over actions. Peter van Inwagen's well-known Rollback Argument (1998, 2000) attempts to show that neither event-causal nor agent-causal theories provided a plausible solution to the problem of chanciness. Even though the present paper relies heavily on the Rollback Argument, its main aim is somewhat different. Instead of showing that libertarian solutions are insufficient, it argues that any type of control which can ensure that free actions are not a matter of chance is incompatible with metaphysically robust ground-floor probabilities.

Our paper consists of three parts. In Section I, we will reconstruct the main premises of the Rollback Argument. In Section II, we will investigate three versions of a standard response which argues that any kind of control which provides non-chancy freedom and metaphysically robust probabilities are compatible. In section III, we are going to defend the Rollback Argument against those objections according to which the argument is either nonsensical or trivial. We will attempt to show that these responses are not satisfactory and the libertarian should deny metaphysically robust probabilities with regard to free actions altogether if she still sticks to the idea that a high degree of control which can ensure that free actions are not a matter of chance is a condition of free action.

I. REPLAYING THE ROLLBACK ARGUMENT

Let us see van Inwagen's original formulation:

Let us suppose undetermined free acts occur. Suppose, for example, that in some difficult situation Alice was faced with a choice between lying and telling the truth and that she freely chose to tell the truth [...]. Now suppose that immediately after Alice told the truth, God caused the universe to revert to precisely its state one minute before Alice told the truth (let us call the first moment the universe was in this state ' t_1 ' and the second moment the universe was in this state ' t_2 '), and then let things "go forward again." [...]

Now let us suppose that God *a thousand times* caused the universe to revert to exactly the state it was in at t_1 (and let us suppose that we are somehow suitably placed, metaphysically speaking, to observe the whole sequence of "replays"). [...] As the number of "replays" increases, we observers shall –

almost certainly – observe the ratio of the outcome “truth” to the outcome “lie” settling down to, converging on, some value. [...] Let us imagine the simplest case: we observe that Alice tells the truth in about half the replays and lies in about half the replays. [...] If we have watched seven hundred and twenty-six replays, we shall be faced with the inescapable impression that what happens in the seven-hundred-and-twenty-seventh replay will be due simply to chance. Is there any reason we should resist this impression? [...]

Now, obviously, what holds for the seven-hundred-and-twenty-seventh replay holds for all of them, including the one that wasn't strictly a *replay*, the initial sequence of events. But this result concerning the “initial replay”, the “play”, so to speak, should hold whether or not God bothers to produce any replays. And if He does not – well, that's just the actual situation. Therefore, an undetermined action is simply a matter of chance: if it was undetermined in the one, actual case whether Alice lied or told the truth, it was a mere matter of chance whether she lied or told the truth [van Inwagen (2000), pp. 15-16, italics in the original text].

Although the thought-experiment is suggestive, it is not perfectly clear *why* we should be faced with the ‘inescapable impression’ that the outcomes of the replays (and of the original situation) are due to chance. To make the connection between chanciness and the outcomes of the replays clearer, we will use Seth Shabo's ‘Varied Outcome Thesis’. According to Shabo, this thesis is the starting point of the argumentation, which he formulated in the following way:

[...] I shall understand the Varied Outcome Thesis to state that with a *sufficiently large group of replays*, we *should expect* to see a *random-seeming sequence of outcomes*, with the outcome distribution *tending to converge on a definite ratio*. [Shabo (2014), p. 165, italics are not in the original text - L. B. & J. T.]

So, the complex thesis which provides the basis of the Rollback Argument consists of three claims: (a) *due to the metaphysical features* of the actual world, what follows from replaying an indeterministic event *E* is that (b) the expected result of the replays is a *random-seeming sequence* of the particular outcomes and (c) it can be expected that the outcome distribution tend to the *ratio* of *ground-floor probabilities*.¹

At this point we need to make some clarifications about (a). Firstly, replaying indeterministic actions makes a sequence in which the particular events have the same metaphysical and causal structure until the outcomes are decided. That is, the apparent randomness of the sequence is

not due to different causal histories of the events in question. So, it cannot be the case, for example, that the seemingly random sequence of outcomes is the result of intentional manipulation.

Secondly, although the observer of the replays *should expect* the outcomes to follow each other in a seemingly random way while they tend to a certain value, it is not because she possesses restricted epistemic access to the relevant facts. (The whole thought-experiment is based on the idea that the observer accesses all of them.) On the contrary, the observer should expect that the sequence will be seemingly random and tend to a certain ratio, given that this follows from the *metaphysical features* of the original event. It means that probabilities are metaphysically robust in the Rollback Argument.²

If metaphysically robust ground-floor probabilities can metaphysically *explain* why we should expect this or that distribution, it is a relevant question how they can explain it. There is a simple and standard answer to this issue. In our view, the answer is suggested even by the original formulation of the Rollback Argument. The gist of the answer is that ground-floor probabilities are able to explain the distribution partly because there is no precise determining factor of the particular outcomes. In other words, metaphysically robust probabilities can metaphysically *explain* the distribution of a seemingly-random event-sequence *partly* because both the particular pattern of the event-sequence and the outcomes of the particular events are, in fact, *a matter of chance*. We call this answer the Standard Interpretation of Metaphysically Robust Probabilities (SIMRP).

Bearing in mind the above, the Rollback Argument may be reconstructed with the help of the Varied Outcome Thesis in the following way:

- (1) With regard to indeterministic seemingly free actions, the Varied Outcome Thesis is true. (It is illustrated by the thought-experiment of the Rollback Argument.)
- (2) With regard to indeterministic seemingly free actions, SIMRP explains the Varied Outcome Thesis. (The above-mentioned inescapable impression suggests this claim.)
- (3) If SIMRP explains that the Varied Outcome Thesis is true with regard to an indeterministic event, the indeterministic event in question is a matter of chance.

Therefore,

- (C) Indeterministic seemingly free actions are a matter of chance.

According to the proponents of the Rollback Argument, this kind of chanciness is fatal to free actions. Libertarian responses fall into three main categories. Many (mostly event-causal libertarians) claim that this is not a problem if the *very moment* of a free decision is a matter of chance in the same sense as the outcome of throwing a die is, provided that this chancy event is well-placed in the decision-process [see Kane (1996), Balaguer (2004), Franklin (2018), and the event-causal approach of Mele (2017)]. To put it in a different way, event-causal libertarians would consider a decision for telling the truth as a free decision even if the event of finally deciding for telling the truth was identical with an event of a miniature neural ‘dice’ coming into halt – provided that the neural ‘dice’ is rolled by the proper mental states (desires, beliefs, characteristic traits, etc.) in an appropriate causal way. Hence, event-causal libertarians resist that the conclusion would be fatal to free actions because the chancy nature of free decisions can be harmless.

A few (mostly non-causal libertarians), deny the first premise and claim that there are no metaphysically robust probabilities of free actions; therefore, there are no proper grounds for expecting that a sequence of free decisions would tend to a definite ratio in a seemingly-random way [see Ginet (2007), Lowe (2008), Pink (2016), and see also Buchak (2013) which suggests this strategy to all libertarians].

However, some, mostly agent-causal libertarians [O’Connor (2000), Clarke (2003), Griffith (2005)], claim that even though there are metaphysically robust ground-floor probabilities of free actions and one is able to expect that a replay-sequence of free decisions would tend to a definite ratio in a seemingly-random way, it does not follow from these facts that free actions are a matter of chance in any sense. In the case of free actions, free agents *directly determine* or *settle* whether event *E* or *F* occurs; that is, they have two-way direct control,³ or, – using Shabo’s term – *dual control* [Shabo (2011), p. 107] over the outcomes of directly free actions. To put it in a different way, agent-causal libertarians would not regard a decision for telling the truth as a free decision if the event of finally deciding for telling the truth were identical with the event of a miniature neural ‘dice’ coming to a halt (regardless of the causal history of how this neural ‘dice’ was rolled) – except if the agent herself stops the motion of the neural ‘dice’ in one way or another by exercising a two-way power. Thus, chance and luck do not have any relevant role in producing free action; nonetheless, free actions have metaphysically robust ground-floor probabilities. In short, these philosophers reject the

second premise because they deny that SIMRP and the role of chance explain the fact that one can rationally expect a seemingly-random replay-sequence with a distribution which tends to the ratio of ground-floor probabilities.

In our paper, we attempt to show that dual control and attributing metaphysically robust ground-floor probabilities to free actions are incompatible with each other. In other words, we argue that one cannot defend libertarianism by rejecting the second premise.⁴ This result has a great importance. If one does not believe that libertarianism without ground-floor probabilities has a bright future [Furlong (2017), Schlosser (2017)], then she should reject those forms of libertarianism that propose robust metaphysical control over free actions in the light of our paper.

II. WHY DUAL CONTROL AND METAPHYSICALLY ROBUST GROUND-FLOOR PROBABILITIES ARE INCOMPATIBLE WITH EACH OTHER

Those who deny premise (2) do it in different forms but their main argument is normally along the following lines: even if it can be expected on the basis of the ground-floor probabilities that the replaying of free actions results in sequences which are irregular and tend to a certain ratio, free actions themselves are not chancy or random in the same sense as throwing a die is. Although metaphysically robust ground-floor probabilities explain the possibility of rational expectation about the outcome-distribution of replay-sequences, the free agent still exercises dual control over which alternative choice occurs on *particular* occasions. For instance, Timothy O'Connor put it in the following way:

To say that I have an objective probability of 0.8 to cause the intention to join my students at the local pub ensures nothing about what I will in fact do. I can resist this rather strong inclination just as well as act upon it. The probability simply measures relative likelihood and serves to predict a distribution of outcomes were I to be similarly inclined in similar circumstances many times over (which, of course, I never am in actual practice). [...] Again, that problem concerns not prior influence but the ability directly to settle what occurs on the occasion of a causally undetermined outcome. The agent causationist's solution is to posit a basic capacity of just that sort [...] [O'Connor (2011), pp. 326-327]

O'Connor agrees that one is able to predict the distribution on the basis of ground-floor probabilities if the indeterministic free action in question

was repeated over and over again. Since O'Connor embraces the view that the probabilities are not only epistemologically relevant but metaphysically influential as well, it seems to be the case that ground-floor probabilities metaphysically *explain* the distribution of the outcomes, provided the agents will be in similar circumstances many times over. He only disputes that the possibility of rationally expecting a distribution which tends to the ground-floor probabilities endangers the possibility of controlled free actions. According to O'Connor, there is a 'division of labor' between ground-floor probabilities and exercise of dual control. The former explains the *distribution* of outcomes through the *whole replay-sequence*, the latter controls and explains the outcomes of *particular events*.

However, this reasoning is wrong-headed. This kind of 'division of labor' between agents and ground-floor probabilities is not possible. For if the way of exercising Alice's ability of dual control explains whether saying the truth or saying a lie occurs in the first case, and this explains the particular outcome in the second and the third case as well and so on, then the way of exercising dual control *also explains* whether the *pattern* of the sequence is [1: T; 2: L; 3: T;...] or [1: L; 2: T; 3: L;...]. If somebody asked who or what is responsible for forming that particular pattern [1: T; 2: L; 3: T;...], we would answer that only the free agent is because she is the one who is responsible for how she exercises her ability of dual control. But if the free agent is responsible for which *particular pattern* is formed, obviously the free agent is responsible for the *distribution* of outcomes, given that distribution supervenes on the whole pattern. Also, insofar as the free agent controls the distribution through controlling the pattern, the distribution depends *only* on the free agent and not on ground-floor probabilities. However, if the distribution does not depend on the ground-floor probabilities, they have no metaphysical role anymore, and introducing them is empty.

So, our argument against O'Connor works in the following way:

- (i) If an agent S exercises dual control over whether the outcome of an indeterministic course of events C is event E or $\sim E$, S exercises dual control over the pattern of replaying C .
- (ii) If S exercises dual control over the pattern of a replay-sequence, S exercises dual control over the distribution of outcomes as well, because distribution supervenes on the replay-sequence's pattern.

- (iii) If \mathcal{S} exercises *dual control* over that the distribution of outcomes is, for instance, 50-50%, then the fact that the distribution is 50-50% is explained by that agent \mathcal{S} exercises dual control through the sequence.
- (C1) If \mathcal{S} exercises dual control over whether event E or $\sim E$ is the outcome of C , then the distribution of replaying C is explained by the exercise of dual control through the sequence, *a fortiori* the distribution is not explained by ground-floor probabilities even if the replay-sequence is long enough.

We can put the main point in a different way that explains the problem from an unusual angle. If one has a fair coin so both tails and heads have 50% probability, and the agent flips the coin two times, then we could explain why 50-50% distribution is more probable than the ‘all-heads’ distribution by outlining a matrix which contains all logically possible distributions.

	FIRST FLIP	SECOND FLIP
First possible pattern of the sequence	Heads	Heads
Second possible pattern of the sequence	Heads	Tails
Third possible pattern of the sequence	Tails	Heads
Fourth possible pattern of the sequence	Tails	Tails

Given that there is no metaphysically relevant feature of a fair coin that influences the results of the flips, there are three important facts. First, there is no possible particular pattern that would be more probable than any other one. Second, in the absence of any relevant metaphysical feature, it is *randomly* selected which possible particular pattern of the sequence will be actual. Third, because α) it is randomly selected which possible pattern will be actual, β) the distribution follows from the pat-

tern of the sequence, and γ) there are two sequences which realize 50-50% distribution and only one which realizes 'all-heads' distribution, the 50-50% distribution is more probable than the 'all-heads' distribution. This is why we should expect 50-50% distribution rather than the 'all-heads' distribution and why randomness is an indispensable part of the explanation of why 50-50% distribution should be expected rather than the 'all-heads' distribution. However if the *ultimate* explanation of 50-50% distribution is partly that the selection of the particular pattern *was a mere matter of chance*, then the explanation of the 50-50% distribution that explains it through the 50-50% ground-floor probabilities can *work* only because the particular pattern and the distribution were a mere matter of chance. If something had determined the particular pattern and the outcomes of each particular event, the ground-floor probabilities of the fair coin would have had no explanatory role.

The story is roughly the same if the dice is loaded and, let us say, the probability of heads is twice as the probability of tails. In this case, we should change the matrix accordingly. To represent the higher probability of heads, we should double the number of how many times the particular pattern can be found in the matrix by the number of heads in the particular pattern. After this, we can properly understand why we should expect 'all-heads' distribution to the same extent as we should expect '50-50%' distribution if we flip the coin *only two times*. This is because the number of particular patterns of 'all-head' is the same as the number of particular patterns of '50-50%' patterns. If we construct a (way too complicated) table by this method in which the number of flips is sufficiently high, we will see that the number of lines in which the rates of heads are roughly two-thirds will be very high in comparison to the other ones. The key, once again, is that we can expect this or that distribution to a certain extent only because it is a matter of chance which particular pattern will be realized. Were something that determined the particular pattern through directly determining the outcome of each coin-flipping, there would be no role of chance, and we could expect nothing on the basis of ground-floor probabilities. The explanatory role of metaphysically robust ground-floor probabilities is bound to the metaphysical role of chance. If there is no role of chance in bringing free decisions as libertarians who attribute the ability of dual control to free agents claim, there cannot be any explanatory role of ground-floor probabilities either. Insofar as the agent has the robust ability to settle which alternative action occurs,

only the way of exercising this ability has any explanatory role with regard to the particular events, patterns, and distribution.

However, insofar as the metaphysically robust ground-floor probabilities have no explanatory role even regarding the distribution of a sequence of free actions, there is no reason to introduce them in the case of free actions.

The above argumentation can be summarized in the following way:

- I) Ground-floor probabilities of a free action have explanatory role only if the particular pattern of replaying the free action in question is a matter of chance.
 - II) If dual control is a necessary condition of free action, no free action can be a matter of chance.
 - III) If no free action can be a matter of chance, the particular pattern of any replay-sequence of any free action cannot be a matter of chance.
 - IV) If ground-floor probabilities of free action do not have explanatory role, one should reject the existence of these probabilities with regard to free action.
- C2) One should reject the existence of ground-floor probabilities with regard to free action if dual control is a necessary condition of free action.

The agent-causal libertarian could pursue another strategy. Instead of claiming that there is a division of labour between exercising agential dual control and ground-floor probabilities, she can suggest that the ground-floor probabilities influence what the outcome will be in every single occasion through influencing how the agent will exercise her dual power. Thus, ground-floor probabilities determine and explain distribution *through* this influence over the way of exercising dual control in every particular occasion.

It is easy to see why this suggestion is foredoomed to failure if one takes an example in which the agent has to choose between two equally probable alternatives. Insofar as the probabilities are 50-50%, the free agent can exercise her ability of dual control in one way just as easily as the other way. If the first time she chooses *A* instead of *B*, she can do it just as easily in the second, the third, and the one-thousandth time. There is no reason to expect that the distribution will tend to a definite

ratio because each single case is independent of all the other ones, and you cannot expect anything in each case. If the agent freely chooses A one hundred times, you cannot expect that the next one will be B because it can equally be A or B in the same way as in the first case. Note, although you cannot expect anything about each particular case even if you consider the particular outcomes as a matter of chance, you have to face a more serious problem if you accept the outlined influence-approach. This is because excluding the role of chance regarding each particular case by introducing (a somewhat influenced) non-chancy exercise of dual control makes it inconceivable that the formation of the particular pattern-sequence is a matter of chance. Thus, if you cannot expect anything in each case, and you cannot expect anything – due to the lack of role of chance – on the basis of that the number of fitting patterns is significantly higher than the number of patterns which do not tend to 50-50% distribution, it seems that you cannot expect anything about the distribution. However, if one cannot expect anything with regard to the distribution on the basis of ground-floor probabilities, they do not explain anything and their introduction to the metaphysical landscape of free actions is empty.

Now it can be explained more easily why it does not help in the case of unequal ground-floor probabilities if the proponent of dual control and non-chancy freedom suggests that ground-floor probabilities influence the distribution through influencing how the agent exercises dual control. Let us suppose that the probabilities of alternative free actions are 51% and 49%. Before the first event, let us suppose for the sake of the argumentation, you can expect that the agent does A . Since the outcome of each case is independent of all the other ones, you can expect the same in the second, the third, and the one-thousandth time. This kind of expectation cannot be overridden by the knowledge that each case and the particular pattern are a matter of chance because the outcome of each event depends on in which way the agent exercises her non-chancy ability of dual control; thus, it has no relevance that the number of fitting patterns is relatively high in the well-constructed matrix of possible patterns. Therefore, one should arrive at the conclusion that either an 'all- A ' distribution can be expected or nothing at all. Since the unequal probabilities do not eliminate the agent's non-chancy and powerful control over the outcome of directly free actions, it seems to be more reasonable to expect nothing and eliminating ground-floor probabilities.

The argument's brief version goes as follows:

- (I) Each event of a replay-sequence that is produced by rolling back a free action countless times is independent of any other event of the sequence and has the same main metaphysical structure.
- (II) If dual control is a necessary condition of free action, neither a particular free action nor a pattern of a replay-sequence of free actions can be a matter of chance.
- (III) If each event of a replay-sequence is independent of any other event of the sequence and each one has the same main metaphysical structure, one has to expect either the same outcome or nothing with regard to each particular event.
- (IV) If one has to expect either the same outcome or nothing with regard to each particular event of a replay-sequence and neither the pattern nor any event of the sequence is a matter of chance, the ground-floor probabilities of outcomes have no explanatory role.
- (V) If ground-floor probabilities of a free action do not have explanatory role, one should reject the existence of these probabilities with regard to free action.
- (C3) If dual control is a necessary condition of free action, one should reject the existence of ground-floor probabilities with regard to free action.

The proponent of ground-floor probabilities can adopt a further, rather desperate, strategy. She can reject that the outcomes of a replay-sequence of free actions are independent of each other. For instance, she can claim that O'Connor's view about the 'division of labor' between dual control and ground-floor probabilities is right partly because the explanatory power of ground-floor probabilities is based on that they nomologically *determine* the distribution of the replay-sequence, provided that the sequence is long enough. Insofar as the first part of the replay-sequence and the ground-floor probabilities do not fit each other, a natural law enforces that the outcomes of the later events occur in a way that the distribution fits the values of ground-floor probabilities. For example, if Alice decides to tell the truth the first 500 times, the mysterious natural law ensures that Alice lies in the next 500 cases.

Even though this theoretical option is, in principle, open, we do not expect that its absurd metaphysics is appealing to anyone. It is hard to accept a kind of natural law which does anything only if something goes wrong. If there are natural laws in a robust non-Humean metaphysical sense, it is reasonable to suppose that they are not monitoring the reality to check whether they have a job to do but govern natural processes continuously without having a brake.

The moral of all of this is the following. If our arguments are right, one cannot plausibly claim at once that dual control is a condition of free actions and they have metaphysically ground-floor probabilities.

Before we turn to other defensive strategies, it is worth stressing the difference between our argumentation and another one that attacks libertarianism on the basis of the problem of probabilities. Derk Pereboom [Pereboom (2014), pp. 65-69] claims that truth of agent-causal libertarianism combined with attributing ground-floor probabilities to free actions is highly improbable. This is because the proponent of this approach should claim that the distribution of the results of exercising agent-causal power and the value of those ground-floor probabilities which are based purely on the microphysical states and laws coincide with each other every time. But, according to Pereboom, this coincidence is highly improbable, given that it is highly improbable that a power would be exercised in a way as if it was governed by laws that in fact govern other powers and entities.

Note that our argumentation is different in two regards. Firstly, our argument poses a challenge for libertarians even if there are no metaphysically robust ground-floor probabilities in the microphysical world. Secondly, it does not argue that the coincidence of how someone exercises dual control and what ground-floor probabilities are is *highly unlikely* but we claim that such a coincidence is *impossible* because if there is dual control, one is not able to attribute metaphysically robust ground-floor probabilities to possible outcomes. Hence, we think that our argumentation is stronger than Pereboom's argument. For instance, O'Connor has a good chance of explaining why the expected distribution that is based on the agent's microphysical states and the relevant laws coincide with how the agent exercises her agent-causal power. He could claim that this 'coincidence' is due to those microphysical states of the agent which are constitutional elements of her agent-causal power. And even more importantly, these microphysical states influence the distribution of the whole replay-sequence but exercising agent-causal power determines the

outcome of the actual case. However, our argumentation shows that this kind of division of labour, which could provide an answer to Pereboom's worry, is implausible for purely metaphysical reasons.

III. LEGITIMACY OF THE ROLLBACK ARGUMENT AND DENYING METAPHYSICALLY ROBUST PROBABILITIES

There is another, easier way to resist the conclusion of the Rollback Argument besides denying the premises. For instance, according to Christopher Evan Franklin, the argument is not even worthy of a detailed response, given that it is either nonsense or completely trivial. Franklin's first argument calls into question the legitimacy of the thought-experiment itself:

The problem with this thought experiment is that it is metaphysically impossible. It asks us to imagine that God continually rolls back time just before Alice makes a decision, lets things proceed, and that, given the presence of indeterminism, we get *different* outcomes. But if God did this, Alice would always make the same decision, since it is metaphysically impossible for one and the same world to have different futures [Franklin (2012), p. 407].

We think that the most effective answer to this type of counter-argument is to point out that the rollbacks are substitutable rhetoric tools in the argument, thus they have no decisive role. The argument may easily be reformulated in a way that God does not actually roll back time. For instance, God waits until Alice chooses, after which he deletes Alice's memories that came into being after the choice was made. Moreover, he rearranges the particles into the position they occupied before the moment of Alice's choice. After this, he lets the course of events go on their (indeterministic) way once again. Let us think about this; from the viewpoint of observing the distribution of throwing a die, it is indifferent whether God rolls back time or repeats the throws in the 'traditional' way. It is easy to see that, with the help of divine tricks, this kind of 'traditional' series of repeats, which has nothing to do with rolling back time, is possible.

According to Franklin's other objection, the thought-experiment of the Rollback Argument has a trivial moral, which cannot justify the claim that free actions are a matter of chance just because the Varied Outcome Thesis holds true of them:

Enter the proponent of the Rollback Argument, who presents just such a scenario [in which the Varied Outcome Thesis is obviously true] and tells us that precisely because there is variability from monitor to monitor [or: from replay to replay] we ought to doubt Alice's freedom. It is hard to see why this ought to cause any libertarian who understands what indeterminism is, any pause for concern. To claim that a free action must be undetermined just is to claim that when an agent acts freely there are possible worlds that share the same past and laws of nature as the actual world in which the agent does not perform this action [Franklin (2012), p. 408].

Nevertheless, this counterargument is wrong. This is because the Rollback Argument claims not only that outcomes are different from replay to replay but it also claims that one can rationally expect even if she knows all relevant metaphysical aspects of the particular free action that the replay-sequence in question will be irregular and its distribution will tend to the values of ground-floor probabilities. That is, *pace* Franklin, the 'inescapable impression' according to which the particular events are a matter of chance arises not only from the fact that the outcomes are different from each other. Rather, it occurs because the possibility of rational expectations about distribution cannot be explained without the chanciness of particular events.

Perhaps the main reason why Franklin does not see the point is that he thinks there may only be indeterministic sequences that fit the Varied Outcomes Thesis. In other words, he seems to assume that in the case of distributions the irregularity and the tending to a certain value are *inevitable* if the original event is an indeterministic one. However, this is not true. Lara Buchak presents a great counterexample:

Without the assumption that [Alice lies has ground-floor probabilities], there is nothing at all in the setup of the rollback scenario itself to guarantee [that the replay-sequence must tend to a certain value]. There is nothing at all to rule out, for example, the following series of choices: the first time God reruns the situation, Alice lies; the next 9 times, she tells the truth; the next 90 times, she lies; the next 900 times, she tells the truth; and so forth. In this example, the proportion of lies never converges (it will alternate between roughly 1/11 and 10/11, after each 10n trials) [Buchak (2013), p. 24].

And if, as Buchak's counterexample shows, indeterministic events are feasible which do not fit the Varied Outcomes Thesis, denying premise (1) instead of (2) seems to be an obvious option to refute van Inwagen's Rollback

Argument. Anybody who chooses this option claims that the Rollback Argument is not sound because even if free actions are rolled back over and over, one cannot expect that this will result in an irregular sequence which tends to a certain ratio determined by ground-floor probabilities.

The neatest form of this strategy is to claim that replaying free action does not give a reason to expect that the distribution will tend to a certain ratio because free actions do not have *metaphysically robust ground-floor probabilities at all* [Ginet (2007), p. 250, Buchak (2013), p. 25]. Insofar as free actions do not have ground-floor probabilities, it is impossible to tell the values to which the outcomes of choices are going to tend in advance. Therefore, and this is the second possible response to the Rollback Argument, in the case of indeterministic choices which have no ground-floor probabilities, neither point (a) nor (c) of the Varied Outcomes Thesis is met; therefore, the Thesis itself also fails.

Although this response to the Rollback Argument is suggested by Carl Ginet (2007) and Buchak as well, we have provided a detailed argumentation above as to why it is the *only* promising strategy to deny the Rollback Argument *if* one believes that dual control and a complete lack of chanciness is a necessary condition of free action.

It is a different question, which falls outside the scope of this paper, whether libertarianism is a plausible option without attributing ground-floor probabilities to free actions.⁵ If one does not believe that this kind of libertarianism is plausible, she may consider the Rollback Argument as a particularly strong argument against those forms of libertarianism that typically are not event-causal ones and argue for the existence of metaphysically robust control over free actions.

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NOTES

¹ Shabo and many other philosophers in the free will literature use the term ‘converge’ but it is not perfectly accurate because the notion of convergence is usually bound to infinite sequences.

² In the above sense, for instance, Humean probabilities are not metaphysically robust. This is because Humean metaphysical approaches deny that any event of type *T* would have any metaphysical features which could ground probabilistic properties independently of any other actual events of type *T*. The whole set up of the Rollback Argument is anti-Humean in this regard because it points toward the conclusion that Alice’s decision would be a matter of chance even if no other free decisions occurred at all (and even if no other events occurred at all). Therefore, if one endorses a Humean theory of probability, she does not have to worry about the Rollback Argument (under our proposed interpretation). However, it is doubtful whether Humean libertarianism can be reasonably defended (we do not know any proponent of such a theory). More importantly, it seems to be sure that libertarian agent-causation (which involves an irreducible substance) and dual control (which implies an ontologically irreducible power to set the outcome of an event) are incompatible with Humean ontological frameworks that reduce modal ontological categories to non-modal ones. Thus, Humean theories of probabilities cannot help out the proponents of agent-causation and dual control. We would like to thank an anonymous reviewer for pointing out that it would be useful to make the relation between our interpretation of the Rollback Argument and Humean approaches of probability clear.

³ We do not prefer this term because it is used in many different ways in the literature. Moreover, many times it is considered as identical with agent-causal control. Note, direct determination of the outcome of a particular event that is not determined by past events can be causal and non-causal either.

⁴ Note, this is a relevant difference between our and van Inwagen’s argumentative strategy. Van Inwagen adds the Promising Argument [van Inwagen (2000, 2011)] to the Rollback Argument in order to show that the conclusion of the Rollback Argument poses a serious challenge to all types of libertarian theories [or, at least, most types of libertarian theories – see van Inwagen (2011), pp. 480-481]. In contrast, we do not argue that event-causal libertarianism cannot solve the problem of chanciness and luck. That is, we do not defend the claim according to which the conclusion of the Rollback Argument is fatal to libertarian theories. Even if each sentence of this paper is true, it may be the case that

attributing metaphysically robust probabilities to free actions and the specific notion of chance that is implied by these probabilities do not exclude responsibility-relevant free will.

⁵ It is worth to mention that recently a paper extensively argued that non-probabilistic libertarianism is the most plausible approach in the light of current legal practices of determining culpability [Pundik (2019)].

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UNA INTRODUCCIÓN A LA ÉTICA EXPERIMENTAL

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