

# Indeterminist Free Will

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The aim of the paper is to prove the consistency of libertarianism. We examine the example of Jane, who deliberates at length over whether to vacation in Colorado (C) or Hawaii (H), weighing the costs and benefits, consulting travel brochures, etc. Underlying phenomenological deliberation is an indeterministic neural process in which non-actual motor neural states  $n(C)$  and  $n(H)$  corresponding to alternatives C and H remain physically possible up until the moment of decision. The neurophysiological probabilities  $pr(n(C))$  and  $pr(n(H))$  evolve continuously according to the different weights Jane's judgement attaches to C and H at different times during the deliberation. The overall process is indeterministic, since Jane's exact judgemental weighting would vary slightly were the process to be repeated from the same initial conditions. The weighting is however rational, and entirely under Jane's control. This controlled, rational, indeterministic process shows that libertarianism is a consistent philosophical thesis.

*One of the many reasons, I believe, why philosophy falls short of a satisfying solution to the problem of freedom is that we still cannot refer to an unflawed statement of libertarianism.*  
Wiggins (1973; 33)

Wiggins' statement, made thirty years ago, remains true today. We still lack a coherent, consistent indeterminist account of how human beings deliberate, employ practical reason, make decisions, and act. But we are getting closer. Our aim in this paper is to show that a viable description of indeterminist free will is within reach. Most of the ingredients in such an account are to be found in already-published writings, in particular Dennett (1978), (2003; Ch 4), van Inwagen (1983), Ginet (1990), Kane (1996), Nozick (1981), O'Connor (2000), Searle (2001). What is left is to put them together into a finished whole.

## 1. *The replay argument.*

We begin by defending indeterminism in action against the charge that it leads to chance, and hence negates freedom. The defense lies in locating more

precisely the position of indeterminism in the process of decision-making. This will lead in turn to an overall model of indeterministic free choice and free action.

In a paper entitled "Free will remains a mystery" (2000/2002), Peter van Inwagen reverses his earlier position in (1983) and provides arguments strengthening what has come to be known as the *Mind* argument against indeterminist free will. Van Inwagen had summarily rejected the *Mind* argument in (1983; 128-29), but returns to it in (2000/2002) and somewhat surprisingly comes to the conclusion that a new version of it, the "Replay argument", is valid after all. He presents it using the example of Alice, who in a difficult situation is faced with a choice between lying and truth-telling (2002; 169). Alice seriously considers the alternatives and freely chooses to tell the truth, although she also contemplated lying, and would have done so had she chosen. Assume the libertarian hypothesis, that Alice's telling the truth was *undetermined* in the sense that immediately prior to her decision, the world contained no set of antecedent conditions which causally necessitated her action. For libertarians, Alice's act can be free only if, prior to acting, Alice is able to tell the truth *and* able to lie. This "two-sided" ability requires, and implies, indeterminism. But according to van Inwagen, if we reflect more closely on the indeterminism requirement we see that, so far from guaranteeing Alice's freedom, it in fact annuls it.

Suppose that God causes the universe to revert to its initial state shortly before Alice's truth-telling, and then allows things to go forward again. Will Alice tell the truth or lie? On the assumption that on the first occasion it was undetermined which she would do, on this occasion it will again be undetermined, and the most that can be said is that Alice *might* lie and that she *might* tell the truth. If God were to order 1000 "replays" of Alice's decision, each time re-creating exactly the same initial conditions, we could expect no more than a series of successive truth-tellings and lies on Alice's part, assuming her decision to be undetermined. Imagine that we observe (say) 493 truth-tellings and 507 lies out of 1000 trials. Will we not become convinced, as we watch this series unfold, that what will happen on the *next* replay is purely a matter of chance? Will each of the two possible decisions in each case not have an objective "ground floor" probability of about 0.5? But in that case, van Inwagen asks,

how can we say that Alice's telling the truth was a free act? If she was faced with telling the truth and lying, and it was a mere matter of chance which of these things she did, how can we say that – and this is essential to the act's being free—she was *able* to tell the truth and *able* to lie? How could anyone be able to determine the outcome of a process if it is a matter of objective, ground-floor chance? (2002; 171)

To sum up, chance undermines free will. If replays of Alice's decision indicate a probability of about 0.5 either way, whether she lies or tells the

truth in any given instance would appear to be purely a matter of chance. But in that case Alice lacks the power that one would expect of a free agent, the power to control or determine what she does. Truly, the acts of a free and responsible agent cannot be chance events.

A persuasive argument perhaps, but not a conclusive one. The weakness of the replay argument, as will be seen, is that it puts the indeterminism of decision-making in the wrong place.

## 2. *Indeterministic events and indeterministic processes.*

In van Inwagen's analysis, the indeterministic element attaches to Alice's act of choice, her decision whether to lie or tell the truth. This places the whole burden of indeterminism on a single event. There is however a different model of deliberation, a model also based on indeterminism but one which predicates the indeterminism not of discrete *events*—acts of choice—but of a continuous *process*. If decision-making is analyzed in this way, as an overall indeterministic process rather than an undertaking which culminates in a single undetermined event, it becomes apparent how actions resulting from such a process can be both undetermined and free.

To illustrate the model of decision-making we have in mind, we replace van Inwagen's Alice by Robert Kane's more temporally-extended example of Jane. Jane is deliberating whether to spend her vacation in Hawaii or Colorado (1996; 107-8). She takes her time, consults travel books and brochures, contemplates her bank account, and eventually comes to the conclusion that all things considered, Hawaii is the best option. At the end, she seals her decision by buying an air ticket to Honolulu. A useful way of analyzing this deliberative process (Aristotle's *bouleusis*) is to divide Jane's decision-making into three stages (McCall (1999)):

- (i) *Choice-set formation* (in Jane's case identifying Hawaii and Colorado as her two options),
- (ii) *Evaluation* (weighing the reasons pro and con Hawaii against the reasons pro and con Colorado),
- (iii) *Choice* (Aristotle's *prohairesis*).

A necessary requirement of indeterministic decision-making is that each option in the choice-set remain open, i.e. choosable, through the entire deliberation, right up to the moment of choice. As has been frequently pointed out by both determinists (Dennett (1984; 101-122)) and non-determinists (Taylor (1964; 76)), the ability to deliberate between options A and B does not imply that A and B must each be physically possible or realizable. I may, for example, deliberate in my office about whether to walk home or take the bus, although unknown to me the buses are no longer running. A necessary condition of practical deliberation, however, is that the deliberator (1) *believe* that

the options are open, and (2) be capable of initiating, by a movement of her body, the implementation of each one of them. We may imagine for example that Jane, in the final throes of her choice between Hawaii and Colorado, has placed on the table two cheques made out to two different airlines. All she has to do is sign one of them, put it in an envelope and mail it. (If the airline goes bankrupt overnight, Jane's option is nevertheless open in the sense that by signing the cheque she can *begin* its implementation, although unforeseen circumstances may later intervene to prevent its realization.)

It may not seem that replacing undetermined events by undetermined processes changes much. Could God not replay Jane's decisions as He did Alice's? In the next section it will be shown that unlike Alice-replays, Jane-replays do not sanction the inference that what Jane decides is a matter of chance.

### *3. Decisions based on reasons are not due to chance.*

Jane's deliberation was asserted in the previous section to be based on a continuous indeterministic process rather than a single undetermined act of choice. This implies that Jane's two options—Hawaii and Colorado—are open and available to her throughout the entire course of her deliberation. While weighing the pros and cons, she may several times swing from preferring one to preferring the other. But her swings are not arbitrary or incomprehensible. Jane is a rational person, and each time she seems to favour one side or the other, it is because she has a reason to do so.

Imagine for example that Jane concludes, after some thought, that on the whole she prefers ocean surfing to white-water rafting, and is just about to decide in favour of Hawaii when she comes across a particularly spectacular photo of the Grand Canyon in a travel book, together with a description of the complex geology of the region. Jane remembers having heard that one can ride along the rim of the canyon on horseback, and looking in her travel guide she finds several outfitting companies who conduct tours and visit cattle ranches in Colorado and Arizona. At this point she is about to change to Colorado, but when she looks at the financial side she discovers that even to rent a whole beach house in Maui is cheaper (and perhaps healthier) than two weeks of trail-riding and steak barbecues. So in the end she chooses Hawaii.

The point of all this is that every step in Jane's deliberation is rationally linked to earlier steps. If asked to justify these steps to a friend, Jane could do so. Why did she suddenly discover an interest in the geology of the Rockies? Because of a course she took years ago. Why did she finally choose beach life over trail-riding? Partly because of the thought of having to eat steak night after night. Etc. If God were to order a replay of Jane's decision, the result might be different: Jane might have judged that whatever the expense, the experience of photographing the Grand Canyon at sunrise would be worth it. But this outcome would not be due to *chance*. Whatever Jane chose, she

would do so for a reason, and something that happens for a reason does not happen by chance. Consequently changing from the rather simplistic decision-making of Alice, where everything hinges on a single undetermined act of choice, to the complex reasons-based deliberation of Jane, shows that indeterminism need not negate free will. On the contrary, it makes it possible. But not every kind of indeterminism will do. In particular, merely adding other discrete undetermined events to the early stages of Alice's deliberation will not change it into a reasons-based deliberation that, like Jane's, is immune to the replay objection.

Imagine if you like a second random event E at the start of Alice's deliberation with two possible outcomes N and M such that if N occurred, Alice would think of a good reason to lie, whereas if M occurred, Alice would think of a good reason to tell the truth. Such an event would be useless, and the result would be unlike what one would expect of a deliberation based on reasons. Either Alice's final choice would accord with the reason provided by E, in which case (since E was random) the replay argument would show that whether Alice lied or told the truth was due to chance. Or, alternatively, her final choice would not depend on the outcome of E, in which case it would be a random matter whether her decision was reasons-based. The same argument applies, no matter how many individual chance events are inserted into the decision-making process. If we are seeking for an indeterministic model in which Alice's decision is based on a reason, *no matter what that decision is*, (i.e. where Alice's decision is "two-way rational") then no number of discrete random events added to an otherwise deterministic deliberative process will help. What is needed is an *indeterministic process*, which is something else again.

#### 4. *The open-ness of options in deliberation.*

It was mentioned above, in section 2, that it suffices in deliberation that each option be *believed* to be open—that someone trying to decide whether to walk or take the bus should believe that the buses are still running—although the beliefs in question may turn out to be false. Despite this, the ability to engage in practical deliberation requires open-ness of options in the following sense.

Let the options in a deliberator's choice-set be A, B, C, ... , and let the initial state of the deliberator's brain be N. For deliberation to take place the options must be *open*, meaning that corresponding to A, B, C, ... there are distinct mutually exclusive motor neuronal states  $n(A)$ ,  $n(B)$ ,  $n(C)$ , ... of the brain or central nervous system, each of which is physically possible relative to N at all times during the deliberative process, but none of which is actual. If it becomes actual, the state  $n(A)$  causes a bodily movement which initiates the implementation of option A, and similarly for the states  $n(B)$ ,  $n(C)$ , etc.

This “minimal open-ness” of options is consistent with the possibility that the deliberator’s beliefs about the ultimate realizability of A, B, C, ... are all false: the buses may not be running, and the options of walking home, telephoning a cab etc. may all be unavailable. Nevertheless, deliberation is possible, as long as the group of neuronal states which initiates or sets in motion each of these options is physically accessible. In this minimal sense, then, every deliberation presupposes an open available set of possible but non-actual motor neuron states corresponding to the different options. Each of these remains continuously accessible or available to the brain at all times during deliberation.

This is part, though not all, of what is meant in saying that deliberation is a continuous indeterministic process. The indeterminism of free choice lies not only in the unpredictability of decisions, but more importantly in the ability of the deliberating intentional system to maintain at least two open options during the deliberative process. A deterministic system cannot do this: the maximum number of alternatives it can keep open is one.

5. *The weighing of options: a controlled indeterministic process.*

When Jane deliberates, she weighs the various reasons for and against Hawaii with the various reasons for and against Colorado. If she is methodical, she may make a list:

Hawaii	For:	Relaxing beach life
	Against:	Costly air fares
Colorado	For:	Breathtaking scenery
	Against:	Saddle sores and steaks

Every deliberation process contains a similar phase, named “Evaluation” in section 2, which involves the weighing of reasons pro and con the options.

But what sort of weighing is this? Is it like weighing sugar? Is the weighing process deterministic or indeterministic? Is it partially or wholly under the control of the weigher? If so, by what method could the weigher, i.e. the deliberator, influence the outcome of the weighing process? How is it possible for such a process to be both controlled and indeterministic?

To make sense of the idea of controlled, indeterministic weighing is not easy. But it must be possible to do so, because we all engage in this sort of weighing every time we plan a vacation, evaluate a dossier, or visit a supermarket. The example of Jane provides a good case study, and we shall continue to use her as our model.

When Jane deliberates, she not only *weighs* the reasons for and against Hawaii and Colorado, she *weights* them. Reasons like “relaxing beach life” and “breathtaking scenery” do not come with ready-made weights, which Jane balances one against another as one might balance a package of sugar on a

scale. On the contrary, before she compares the weight or degree of importance of one reason with that of another, Jane must *assign* a weight or degree of importance to each reason. Robert Nozick, in his discussion of deliberation and choice in *Philosophical Explanations*, makes this point:

The reasons [considered in deliberation] do not come with previously given precisely specified weights; the decision process is not one of discovering such precise weights but of assigning them. (1981; 294)

Unfortunately, Nozick postpones the time of assigning weights to reasons in deliberation to the moment of decision itself. In his words, “the weights of reasons are inchoate until the decision. ... A decision establishes inequalities in weight, even if not precise weights.” But in so doing, Nozick removes the possibility that Jane’s decision should, even in part, be dependent on, or be explained by, previously assigned weights. In his account, these weights are established only *after* the decision, and therefore cannot be part of the sequence of events which led up to it. As is made clear in O’Connor (2000; 30-32), Nozick’s *post hoc* method of assigning weights to reasons cannot shed light on how Jane is able to exercise a degree of control over her decision *before* the decision is made.

The key question is, how is Jane able to regulate the weights assigned to the various factors of *beach house comfort*, *breathtaking views*, *stubborn trail horses*, etc., all of which enter into and compete with one another in the evaluation process? What tilts the balance? The answer lies in Jane’s character: she is a rational deliberator, someone who uses her judgement. We may imagine an interior dialogue going on in Jane’s head: “Why attach so much importance to a beach house? It’s comfortable and informal, granted. But surely very expensive? Yes, but what am I saving my money for anyway? Isn’t this my only vacation in two years?” This is not the dialogue of a deliberator pulled this way and that by conflicting desires, aversions and emotions. It is more like the internal dialogue of a judge, who in writing up an opinion pauses over each step, conscious of the danger of being over-ruled on appeal.

Contrary to what Hume says, reason is not in the judge’s case the slave of the passions, but is the exquisite tool with which he shapes his decision. Sometimes, perhaps most times, when judges sit down to write their decisions, they know from the start which way the decision will go. But other times they genuinely don’t know: they use their active reason to discover the steps and links which lead them to a decision, somewhat like a logician setting out to prove a difficult lemma before he knows whether the lemma is true.<sup>1</sup> So it is, we claim, with Jane. Before she deliberates, she doesn’t know

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<sup>1</sup> We owe this glimpse into a judge’s life to Peter Heerey. Hodgson (1991; 136-141) contains interesting material on the role of judgement and weighing in legal reasoning. Another example of a controlled, indeterministic, reasons-based process is Andrew Wiles’ 20-year effort to prove Fermat’s Last Theorem (Singh 1997). At no point until the

whether it will be Hawaii or Colorado. She employs her reason to find out, using her judgement to adjudicate between the competing claims, the clash of pros and cons. At all times, the process is strictly under her control.

We are now able to square the circle, to see how deliberative processes in which the deliberator uses her power of judgement can be (i) *indeterministic*, (ii) *reasons-based*, and (iii) *controlled*. They are (i) indeterministic because the eventual outcome is not fixed by the initial conditions. If God were to replay Jane's deliberation 1000 times, the result might be 452 Hawaii-decisions and 548 Colorado-decisions. But (ii) in no case are these chance decisions: each one is based on reasons and the path that leads to it is rational and justifiable. Finally (iii) the entire process is controlled by Jane, who uses her judgement to weigh and weight the different reasons. Since the weighing and weighting are judgemental, nothing guarantees that identical weights will be attached to, say, "beach house living" on two separate occasions, if God were to order a replay. It is, typically, the free exercise of Jane's power of judgement which makes reasons-based deliberation indeterministic, not the occurrence of random or unpredictable events. Jane's decision-making is controlled, undetermined, and "two-way rational", meaning that whatever her decision is, it will be based on reasons.

It is now possible to attach a more definite meaning to the notion of an indeterministic *process*, as distinct from an indeterministic event. An indeterministic event E, e.g. an event occasioned by the flip of a coin or the roll of a die, is characterised by the sudden chance occurrence of one of a set of two or more possible events or outcomes, relative to given initial conditions. At the time of E, the probabilities of the outcomes all jump instantaneously and discontinuously from some positive value between 1 and 0 to a value which is either 1 or 0, depending on whether the outcome is realized. In an indeterministic process on the other hand there are also possible outcomes, but instead of jumping the probabilities of the outcomes evolve smoothly and continuously throughout the process until the last moment (the "decision"), when they change smoothly into 1 or 0. An indeterministic process of the kind we have referred to as "reasons based" may exhibit dramatic probability-swings, but these swings will be perfectly "rational" or understandable because associated with weighted reasons. The weighting is provided in a controlled way, by the deliberator's judgement.

#### 6. *The consistency of libertarianism.*

Wiggins' challenge, set thirty years ago, was to give a consistent description of libertarian freedom. This we believe we have done. Libertarianism is a consistent idea if there exists at least one species of human behaviour which

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end was it definite that he would succeed or definite that he would fail, and throughout the 20 years the process remained supremely rational and controlled by Wiles.



is free, rational, controlled by the agent, and indeterministic. Rather than attempt to cover many different kinds of rational activity we have focussed on only one, namely action consequent upon a rational, controlled deliberative process in which the agent is faced with at least two possible courses of action and freely decides on one of them. There may be other exemplifications of libertarian free will, but to establish consistency does not require them.

The main features of the indeterministic deliberative process which demonstrates consistency are as follows.

- (1) An agent X is faced with deciding between options A, B, C, ... .
- (2) There are, in X's estimation, reasons for and reasons against each option.
- (3) X uses her power of rational judgement to weight these reasons and to weigh one option against another.
- (4) The process of weighing and weighting is controlled by X's judgement, is on-going throughout the deliberation, and is justifiable to a third party.
- (5) Each option remains open (choosable) up to the moment of decision.
- (6) The deliberation ends with X's reasoned choice of one of the options.

Conclusion: Rational, indeterministic, controlled deliberative processes prove that the concept of libertarian free will is internally consistent.

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