

Determinism

Hard Determinism

Compatibilism  
Soft Determinism

Soft Compatibilism

Hard Incompatibilism

Objections to  
Two-Stage Models

Illusion

Impossibilism

Valerian Model

Narrow Incompatibilism

Soft Incompatibilism

Source Incompatibilism  
(Actual Sequence)

Leeway  
(Alternatives)

Two-Stage Model with Limited



## Objections to Two-Stage Models

The earliest objections were the concerns of some of the inventors of two-stage models themselves. Mostly they could not see how to reconcile the randomness of indeterminism with the determinism required for responsibility. They also tended to be metaphysical dualists, so they did not have a purely physical model for free will.

ARTHUR HOLLY COMPTON adhered to a view that human freedom might only be visible from the inside (subjectively), that from the outside a person would be seen (objectively) as deterministic. This was a variation on Bohr's dualist complementarity principle, which was popular among physicists at the time.

KARL POPPER, in his collaborations with the neurobiologist JOHN ECCLES, wanted the will to involve a metaphysical interaction between the mind (or soul) and the body. This was another form of dualism. Later (1977), Popper endorsed the idea of a two-stage model with quantum indeterminacy in the first stage, followed by a lawful determined selection process similar to Darwinian evolution.

HENRY MARGENAU wrestled with his mentor ERNST CASSIRER's views on determinism and indeterminism in physics. Cassirer also had strong Kantian dualism tendencies, but in the end he insisted that only determinism could provide the causality needed as a basis for science. Margenau nevertheless, and somewhat reluctantly, accepted indeterminism as the "first step" in an explanation of human freedom and possibly providing insight into ethical problems.

### The Strongest Motive Objection

However many alternative possibilities are generated in the first stage of the model, some philosophers have argued that the agent has no really free choice, since he must always select the best option, the one with the strongest reasons or motives.



The ancients argued that to do anything other than the strongest option was evidence of **weakness of will (akrasia)**. This is a form of **ethical restrictivism**, the idea that only moral choices can be considered free choices.

Apart from the obvious ability of the agent to be contrary and act in a surprising, even irrational way occasionally, we must say the agents can choose to be irresponsible, or even act deliberately against community values. As the 19th-century philosopher SHADSWORTH HODGSON said,

“A power to choose only the good is a contradiction in terms; and were such a power (*per impossibile*) to be attained, it would be at once the highest perfection of the character, and the *euthanasia* of Free-will.”<sup>1</sup>

## Daniel Dennett’s Objections

In 1978, DANIEL DENNETT proposed a two-stage model that would “give the libertarians what they want.” But he had serious reservations about his “Valerian” model, most important that he could find no place in it for quantum indeterminism.

Dennett’s model for decision making started with elements from HENRI POINCARÉ random combinations model (via JACQUES HADAMARD and the poet Paul Valéry, at the 1936 Synthèse conference in Paris exploring creativity). Dennett mentioned the amplification of a quantum event in the brain, which was first suggested by ARTHUR HOLLY COMPTON in 1931. Dennett had also read KARL POPPER, who had criticized Compton’s “massive switch amplifier.” He knew Popper’s analogy of free will with natural selection as a two-stage process. Dennett’s decision-making model was a variation of computer scientist HERBERT SIMON’s “generate and test” two-stage model for computer problem solving. Dennett made an excellent case for his model as something that libertarians should want. Sadly, no libertarian saw the power in Dennett’s two-stage model.<sup>2</sup>

Because Dennett saw clearly what was good about the model for Libertarians, he also could see what they might not accept.

1 Hodgson (1891) p. 180.

2 See Chapter 27 for what might have been if Kane accepted Dennett’s model



Dennett knew that some libertarians insisted on indeterministic quantum events in the brain, but he could not understand the place for a quantum event, how exactly and when and where a quantum event in the brain could be amplified to help with decision making and not harm our control and responsibility for our actions.

As a determinist, Dennett said that a model with pseudo-random number generation in the first stage would be all that is needed. He found no value in adding true quantum randomness. I discuss my exchanges with Dennett in Chapter 25.

## Robert Kane's Objections

ROBERT KANE independently developed the two-stage model before Dennett published *Brainstorms*. He had read the same sources (Compton and Popper), but he thought that “something more” was needed.

Basically, Kane felt that at the completion of the first stage in the model, when all the random considerations have been generated, there is a finite time, however small, during which the model assumes that the willed decision, the choice between alternative possibilities, is determined.

This is the most common objection to the two-stage model. But as we saw in Figure 13-6, the choice is not **pre-determined** from the time before deliberations began moments earlier. When viewed as an overall process, the self-determination of the two-stage model allows the agent to make a choice that is free from any deterministic chain of causation presumed to go back to the beginning of time.

Kane agrees that the decisions made in the two-stage model are not **pre-determined**. But his Self-Forming Actions require that the decision also not be determined by the agent's desires and beliefs, motives and feelings. These are just among the many causes that contribute to a decision. Kane says we should regard the agent's motives and desires as causes, but not determining causes, of the final decision.



And Kane has always wanted some decisions to remain undetermined up to and including the moment of choice. These must only be *determined by the choice*, Kane has said, and this is the case for his Self-forming Actions (SFAs), as we shall see.

Kane notes, as do Mele, Clarke, and other objectors, that the agent does not have complete control over the random considerations that get generated. Of course, complete control over randomness is an impossibility, but the agent can decide to stop generating new possibilities. Moreover, at any point that evaluation finds none satisfactory, the agent can go back and generate more.

But, says Kane, after the last new random option is generated, and during that time, however small, before the decision is made, Kane is concerned that the choice not be already determined by the agent's character, reasons, motives, and deliberations. When it is "adequately" determined, I say we should regard this as an act of de-liberated **self-determination**.

In my **Cogito** model, the decision could be reliably (though not perfectly) predicted by a super-psychiatrist who knew everything about the agent and was aware of all the **alternative possibilities** that were generated at any moment. This is because the second ("will") stage evaluation and decision process is indeed **adequately determined** by the deliberations and evaluations.

I agree with Kane that the second stage is determined, in this limited sense, but emphasize that it is in no way **pre-determined**.

And Kane agrees that, before the first stage of my two stage model, the decision is not determined. He agrees that it is at that time undetermined.

Kane says that he now endorses the two-stage model for practical deliberations, but still feels that "something more" is needed for prudential and moral decisions. Furthermore, he finds now that the two-stage model describes the deliberative processes that lead to the two or more conflicting choices that are involved in his Self-Forming Actions.

It is those cases where the two-stage model does not lead to self-determination narrowed down to a single choice that puts the agent in those situations that Kane describes as "torn" decisions.



Kane finds that in these cases, the agent's decision may not be determined by anything other than the agent's final choice, which can be rational (made for properly evaluated reasons), but nevertheless might (indeterministically) have been otherwise and yet be equally rational and voluntary.

He originally called this "dual (or plural) rational control." Today he calls it plural voluntary control.

I think that Kane's idea is an acceptable extension of my **Cogito** model, in that it does provide additional **libertarian** freedom. Let's see how it works.

Not all the second-stage decisions are **adequately determined**. Many times we do not have enough **information** to decide between the available options. To contrast them with self-determinations, I describe these cases as **undetermined liberties**. It is a subset of these undetermined liberties that Kane describes as his Self-Forming Actions.

In moral and prudential "torn" decisions, it is the agent's efforts that are the primary cause of the final choice of a Self-Forming Action. Indeterminism plays a secondary role in tipping the choice away from the options that fail, but the main cause of the option that succeeds is the efforts of the agent.

Kane thus deftly sidesteps the charge of critics who claim that an agent cannot be responsible for any decision involving indeterminism. In Kane's model, the agent can properly claim ultimate responsibility (UR), for good reasons, however the "torn" decision is made.

### Richard Double's Objections to Kane's "Dual (or plural) rational control."

Kane's position has not been without its critics. RICHARD DOUBLE is one such critic. He finds many of Kane's views attractive, but has nonetheless developed objections that are mostly directed at Kane's efforts to establish **moral responsibility** for decisions that are **indeterministic**. Double develops challenges to three of Kane's requirements: the ability to have chosen otherwise, agent control, and rationality.



Double noted that Dennett's Valerian models introduce indeterminism in the early stages of deliberation, before the decision itself. He therefore calls Kane's views "Non-Valerian." These allow indeterminism in the decision process itself, which means that chance might be regarded as the direct cause of actions. Double argues (and this is the standard **randomness objection**) that Kane's approach jeopardizes agent control.

Double also develops his own theory, which he calls "Delay Libertarianism." The main idea is to recognize that free will is a process that takes place over a period of time, which is correct, of course. This gives Double the opportunity to locate the indeterminism in a delay between deliberations and resultant decisions.

Double notes that the deliberations "set the stage" for whatever decision will be made - if any decision is made. But he does not obviously show how delayed indeterminism can resolve the randomness objection.

Double recognizes that the act of the will might be simply to avoid a decision, and send the problem back for more deliberations, which could involve generating more alternative possibilities, as in our Cogito Model.

But in the end, says Double, delay libertarianism also fails, for the same reason - Kane's dual rational control condition.

Dual rational control is Kane's claim that the agent can do otherwise (indeterministically) with the alternative (dual) action just as rational and demonstrating just as much control as the original action. Double rejects this view, and winds up rejecting all libertarianism in his book *The Non-Reality of Free Will*.<sup>3</sup>

## Alfred Mele's Doubts about His Own "Modest Libertarianism."

Mele's "Modest Libertarianism" is essentially the same as Dennett's "Valerian" model. But it has been attacked, by Mele.

"Now, even if garden-variety compatibilists can be led to see that the problem of luck is surmountable by a libertarian, how

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3 Double (1991)





are theorists of other kinds likely to respond to the libertarian position that I have been sketching? There are, of course, philosophers who contend that moral responsibility and freedom are illusions and that we lack these properties whether our universe is deterministic or indeterministic — for example, Richard Double and Galen Strawson.

“Modest libertarians can also anticipate trouble from traditional libertarians, who want more than the modest indeterminism that I have described can offer. Clarke, who has done as much as anyone to develop an agent-causal libertarian view, criticizes event-causal libertarianism on the grounds that it adds no “positive” power of control to compatibilist control but simply places compatibilist control in an indeterministic setting. Of course, given that combining compatibilist control with indeterminism in a certain psychological sphere was my explicit strategy in constructing a modest libertarian position, I do not see this as an objection. In any case, traditional libertarians need to show that what they want is coherent.”<sup>4</sup>

Mele is probably right that his model will not satisfy Libertarians wanting more, whether “agent-causal” libertarians like TIMOTHY O’CONNOR or “event-causal” libertarians like ROBERT KANE who wants indeterminism in the decisions.

## Randolph Clarke’s Objections to Dennett, Mele, Ekstrom, and Kane.

In his book *Libertarian Accounts of Free Will*, Clarke defines new technical terms for Double’s “Valerian” and “Non-Valerian.”

He calls Dennett’s model “deliberative,” since randomness internal to the mind is limited to the deliberations. And he calls Kane’s model “centered,” by which he means that Kane’s (quantum) randomness is in the center of the decision itself.

Clarke accepts the Kane and Ekstrom views that if the agent’s decision simply results from indeterministic events in the

4 Mele (2005) p. 9





deliberation phase that that could not be what he calls “directly free.” Clarke thus calls this deliberative freedom “indirect.”

“Indirectly free” is a reasonable description for our Cogito model, which limits indeterminism to the “free” deliberation stage and has a limited but “adequate” determinism in the “will” stage.

Although Clarke says that a “centered event-causal libertarian view provides a conceptually adequate account of free will,” he doubts that it can provide for moral responsibility. He says that

“An event-causal libertarian view secures ultimate control, which no compatibilist account provides. But the secured ultimacy is wholly negative: it is just (on a centered view) a matter of the absence of any determining cause of a directly free action. The active control that is exercised on such a view is just the same as that exercised on an event-causal compatibilist account.”<sup>5</sup>

It is a bit puzzling to see how the active control of a libertarian decision based on quantum randomness is “just the same as that exercised” on a compatibilist account, unless it means, as Double argued, no control at all. So it may be worth quoting Clarke at some length.

“Dennett requires only that the coming to mind of certain beliefs be undetermined; Mele maintains that (in combination with the satisfaction of compatibilist requirements) this would suffice, as would the undetermined coming to mind of certain desires.

“[A] regress would result if Dennett or Mele required that the undetermined comings-to-mind, attendings, or makings of judgments that figure in their accounts had to either be or result from free actions.

“Thus, given the basic features of these views, [they] must allow that an action can be free even if it is causally determined and none of its causes, direct or indirect, is a free action by that agent. Setting aside the authors currently under discussion, it appears that all libertarians disallow such a thing. What might be the basis for this virtual unanimity?

<sup>5</sup> Clarke (2003) p. 220.



“When an agent acts with direct freedom — freedom that is not derived from the freedom of any earlier action— she is able to do other than what she, in fact, does. Incompatibilists (libertarians included) maintain that, if events prior to one’s birth (indirectly) causally determine all of one’s actions, then one is never able to do other than perform the actions that one actually performs, for one is never able to prevent either those earlier events or the obtaining of the laws of nature.”<sup>6</sup>

Clarke claims, as does Kane, that prior events thought up freely by the agent during deliberations will “determine” the agent’s decision. This is roughly what the Cogito Model claims. After indeterminism in the “free” deliberation stage, we need “adequate” determinism in the “will” stage to insure that our actions are consistent with our character and values (including Kane’s SFAs, which are a subset of our undetermined liberties), with our habits and (Ekstrom’s) preferences, and with our current feelings and desires.

Clarke oddly attempts to equate events prior to our births with events that we indeterministically invent during our deliberations, claiming that they are equally deterministic.

Clarke thus says that a “deliberative” two-stage model, like my Cogito model, does not provide his “direct freedom.”

“If this is correct, then a time-indexed version of the same claim is correct, too. If events that have occurred by time  $t$  causally determine some subsequent action, then the agent is not able at  $t$  to do other than perform that action, for one is not able at  $t$  to prevent either events that have occurred by  $t$  or the obtaining of the laws of nature. An incompatibilist will judge, then, that, on Dennett’s and Mele’s views, it is allowed that once the agent has made an evaluative judgment, she is not able to do other than make the decision that she will, in fact, make...

“If direct freedom requires that, until an action is performed, the agent be able to do otherwise, then these views do not secure the direct freedom of such decisions.”<sup>7</sup>

The inadequacy that Clarke sees is that in the moment of choice things are becoming determined.

6 Clarke (2003) p. 62.

7 *ibid.* p. 63.



“in acting freely, agents make a difference, by exercises of active control, to how things go. The difference is made, on this common conception, in the performance of a directly free action itself, not in the occurrence of some event prior to the action, even if that prior event is an agent-involving occurrence causation of the action by which importantly connects the agent, as a person, to her action. On a libertarian understanding of this difference-making, some things that happen had a chance of not happening, and some things that do not happen had a chance of happening, and in performing directly free actions, agents make the difference. If an agent is, in the very performance of a free action, to make a difference in this libertarian way, then that action itself must not be causally determined by its immediate antecedents. In order to secure this libertarian variety of difference-making, an account must locate openness and freedom-level active control in the same event — the free action itself — rather separate these two as do deliberative libertarian views.

“On the views of Dennett, Ekstrom, and Mele, agents might be said to make a difference between what happens but might not have and what does not happen but might have, but such a difference is made in the occurrence of something nonactive or unfree prior to the action that is said to be free, not in the performance of the allegedly free action itself. Failure to secure for directly free actions this libertarian variety of difference-making constitutes a fundamental inadequacy of deliberative libertarian accounts of free action.<sup>8</sup>

Clarke is simply wrong in making the instant of the decision that he calls “*t*” one that still requires indeterminism, unless the agent must choose among multiple remaining options. These are my “**undetermined liberties**,” a superset of Kane’s SFAs, when the two-stage model has not narrowed options to one .

To see that the **Cogito** model allows the agent to make a real difference, we need only extend Clarke’s instant “*t*” to include the process of decision from the start of free deliberations to the moment of willed choice, as in Figure 13-4. In many cases, this will be just the blink of an eye.

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8 Clarke (2003) pp. 63-4



The agent will then be justified saying “I could have done otherwise,” “This action was up to me,” and “I am the originator of my actions and the author of my life.”

Clarke goes on to consider the “centered” event-causal view, and initially claims that it provides an adequate account of free will, but his “adequate” is damning with faint praise.

“If merely **narrow incompatibilism** is correct, then an unadorned, centered event-causal libertarian view provides a conceptually adequate account of free will. Such a view provides adequately for fully rational free action and for the rational explanation — simple, as well as contrastive — of free action. The indeterminism required by such a view does not diminish the active control that is exercised when one acts. Given incompatibilism of this variety, a libertarian account of this type secures both the openness of alternatives and the exercise of active control that are required for free will.”<sup>9</sup>

Robert Kane has shown that “torn” decisions made indeterministically are under the voluntary control of the agent, because it is the agent’s effort that is the main cause of such decisions. Kane says the agent has developed good reasons for going “either way,” which is why such decisions should be considered Self-Forming Actions (SFAs) conferring ultimate responsibility (UR).

Having accepted such decisions with randomness “centered” in the decision, Clarke thinks random **alternative possibilities** are no longer needed. He then eliminates indeterminism in the prior “deliberative” stage, which is a great mistake

“It is thus unnecessary to restrict indeterminism, as deliberative accounts do, to locations earlier in the processes leading to free actions. Indeed, so restricting indeterminism undermines the adequacy of an event-causal view. Any adequate libertarian account must locate the openness of alternatives and freedom-level active control in the same event — in a directly free action itself. For this reason, an adequate event-causal view must require that a directly free action be nondeterministically caused by its immediate causal antecedents.

“If, on the other hand, broad incompatibilism is correct, then no event-causal account is adequate. An event-causal libertarian

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9 Clarke (2003) p. 103.



view secures ultimate control, which no compatibilist account provides. But the secured ultimacy is wholly negative: it is just (on a centered view) a matter of the absence of any determining cause of a directly free action. The active control that is exercised on such a view is just the same as that exercised on an event-causal compatibilist account.”<sup>10</sup>

“This sort of libertarian view fails to secure the agent’s exercise of any further positive powers to causally influence which of the alternative courses of events that are open will become actual. For this reason, if moral responsibility is precluded by determinism, the freedom required for responsibility is not secured by any event-causal libertarian account.”<sup>11</sup>

So for Clarke, all libertarian accounts fail if broad incompatibilism is true, i.e., if determinism is incompatible with moral responsibility. And his conclusion is that Kane’s ultimate responsibility (UR) is empty, the absence of any determining cause for a free action. This, he says, offers no more control than compatibilism offers (viz., no control?).

## The Luck Objections of Thomas Nagel, Bernard Williams, and Alfred Mele

In my view, luck is only a problem for **moral responsibility**. Some critics have mistakenly made it an objection to libertarian free will.

Since the world contains irreducible chance, it is a simple fact that many unintended consequences of our actions are out of our **control**.

Unfortunately, much of what happens in the real world contains a good deal of luck. Luck gives rise to many of the moral dilemmas that lead to moral skepticism.

Whether determinist, compatibilist, semicompatibilist, or libertarian, it seems unreasonable to hold persons responsible for

10 Clarke (2003) p. 105.

11 Clarke (2003) pp. 219-20.



the unintended and unforeseeable consequences of their actions, good or bad. In many moral and legal systems, it is the person's intentions that matter first and foremost.

Nevertheless, we are often held responsible for actions that were intended as good, but that had bad consequences. Similarly, we occasionally are praised for actions that were either neutral or possibly blameworthy, but which had good consequences.

Some thinkers are critical of any free will model that involves chance, because the apparent randomness of decisions would make such free will unintelligible. They say our actions would be a matter of luck.

This is the Luck Objection to free will, but it is properly only the problem of assigning moral responsibility when luck is involved.

Our three writers are concerned that if randomness is involved in a free decision, then perforce luck is involved, and this threatens moral responsibility.

## Thomas Nagel

In his 1979 essay "Moral Luck," Nagel is pessimistic about finding morally responsible agents in a world that views agents externally, reducing them to happenings, to sequences of events, following natural laws, whether deterministic or indeterministic. Free will and moral responsibility seem to be mere illusions.

"Moral judgment of a person is judgment not of what happens to him, but of him. It does not say merely that a certain event or state of affairs is fortunate or unfortunate or even terrible. It is not an evaluation of a state of the world, or of an individual as part of the world. We are not thinking just that it would be better if he were different, or did not exist, or had not done some of the things he has done. We are judging him, rather than his existence or characteristics. The effect of concentrating on the influence of what is not under his control is to make this responsible self seem to disappear, swallowed up by the order of mere events."<sup>12</sup>

This is truly the core of our scandal in philosophy. PETER F. STRAWSON said it arises when we treat human beings as objects

<sup>12</sup> Nagel (1979)



governed by natural laws. This is the Naturalism view discussed in Chapter 21 Nagel says that our “selves” are disappearing.

“We cannot simply take an external evaluative view of ourselves - of what we most essentially are and what we do. And this remains true even when we have seen that we are not responsible for our own existence, or our nature, or the choices we have to make, or the circumstances that give our acts the consequences they have. Those acts remain ours and we remain ourselves, despite the persuasiveness of the reasons that seem to argue us out of existence.”<sup>13</sup>

Nagel can see no account of moral agency, nor an idea of how humans can be in control of their actions. He is a victim of the scandal in philosophy. The two-stage free will model of information philosophy restores human beings as authors of their lives and as co-creators of our world.

## Bernard Williams

“I entirely agree with [Nagel] that the involvement of morality with luck is not something that can simply be accepted without calling our moral conceptions into question. That was part of my original point; I have tried to state it more directly in the present version of this paper. A difference between Nagel and myself is that I am more sceptical about our moral conceptions than he is.

“Scepticism about the freedom of morality from luck cannot leave the concept of morality where it was, any more than it can remain undisturbed by scepticism about the very closely related image we have of there being a moral order, within which our actions have a significance which may not be accorded to them by mere social recognition. These forms of scepticism will leave us with a concept of morality.”<sup>14</sup>

Information philosophy has discovered an objective measure of **value** that is outside “mere social recognition.” However, it offers no hope at all for eliminating the moral dilemmas that Williams says appear when luck is involved.

13 Moral Luck, reprinted in Nagel (1979) p. 37-38

14 Williams (1981)





## Alfred Mele

Mele says there is a problem about luck for Libertarians.

“Agents’ control is the yardstick by which the bearing of luck on their freedom and moral responsibility is measured. When luck (good or bad) is problematic, that is because it seems significantly to impede agents’ control over themselves or to highlight important gaps or shortcomings in such control. It may seem that to the extent that it is causally open whether or not, for example, an agent intends in accordance with his considered judgment about what it is best to do, he lacks some control over what he intends, and it may be claimed that a positive deterministic connection between considered best judgment and intention would be more conducive to freedom and moral responsibility.

Robust free will, with an intelligible explanation of the meaning of “could have done otherwise,” is a prerequisite for responsibility.

Whether such free will exists is a scientific question. In particular, I try to show that science does not put any restrictions on human freedom, as most philosophers appear to believe. Whether a free action involves moral responsibility, however, is a question for the ethicists, not for science.

In any case, to the extent that luck is involved in an agent’s free actions, that can and often does present problems for **moral responsibility**. But I believe that we can separate those consequential problems from the problem of free will. See Chapter 20 on the separability of free will from moral responsibility.



## How the Cogito Model Meets the Objections

Since WILLIAM JAMES first suggested the two-stage model, a number of elements have been added to get to the current **Cogito** model. In the table at right, I try to identify the elements and give credit to those who saw the need for them.

Some philosophers and scientists may have thought of these details, but not made them explicit in their publications. Those fields are left blank.

All models use **chance** in the first stage. Some explicitly say the chance is quantum indeterminacy. Dennett alone denies this.

Doing otherwise means in exactly the same circumstances that obtain *before* the **alternative possibilities** are generated

Some models amplify a single quantum event to affect the decision. The idea of one quantum event per decision is called the Massive Switch Amplifier, or **MSA**.

**Adequate determinism** in the second stage is called various things, lawful, control etc. In the Cogito model it is explicitly only the statistical determinism consistent with quantum mechanics.

Three philosophers have written explicitly that random events in the first stage do not make the actions themselves random.

Second thoughts is the recognition that the decision process takes time, and, time permitting, the agent can go back and generate more alternative possibilities.

The analogy of free will to Darwin evolution was pointed out by James, the earliest thinker. It has appeared in a few later writers.

**Undetermined liberties** are cases where the agent in the second stage decides to choose an option at random, and is willing to take responsibility however and whatever is chosen.

Critics of EPICURUS said that his choices were all undetermined. ROBERT KANE'S SFAs were among the earliest examples of defending this view by selecting from options all of which have good reasons. Kane should note that this small number of options (dual or plural) is *as a group* as **adequately determined** as when there is only one option with good reasons. But his SFAs offer extra freedom.



	Quantum Chance	Can Do Otherwise	Adequate Determinism	Undetermined Liberties	MSA	Second thoughts	Actions not random	Darwin Analogy
JAMES		Yes	Yes					Yes
POINCARÉ		Yes						
COMPTON	Yes				Yes			
HADAMARD		Yes						
ADLER		Yes						
POPPER	Yes	Yes	Yes		Yes		Yes	Yes
MARGENAU	Yes	Yes	Yes					
DENNETT	No	No	Yes		Yes	Yes		Yes
KANE	Yes	Yes		SFAs	No	Yes	Yes	Yes
LONG/SEDLEY		Yes	Yes					
PENROSE	Yes	Yes	Yes					
ANNAS		Yes	Yes					
MELE	Yes	Yes	Yes					
KOSSLYN	Yes	Yes	Yes					
SEARLE	Yes	Yes	Yes				Yes	
HEISENBERG	Yes	Yes	Yes					
COGITO	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

