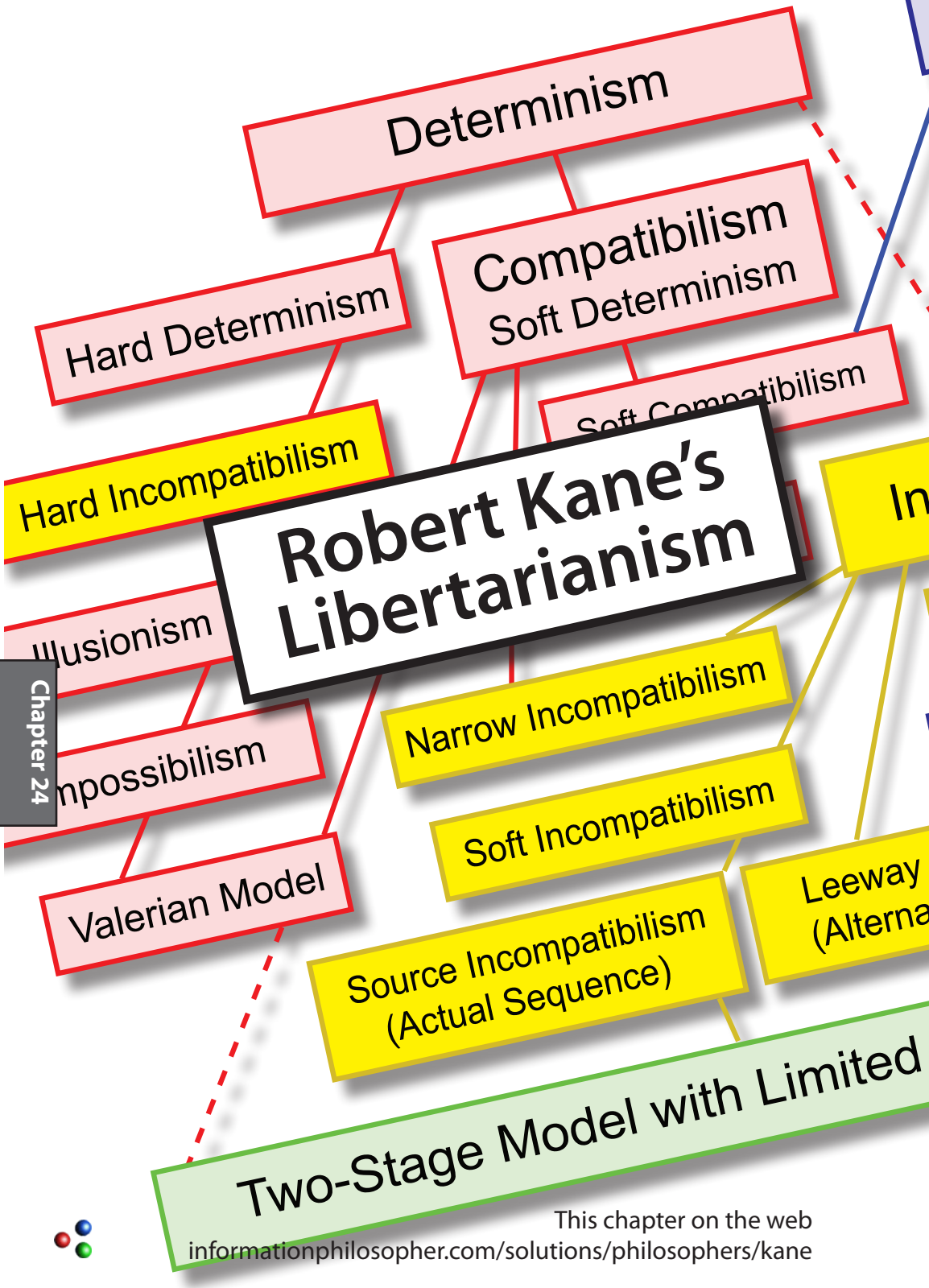


This chapter on the web
informationphilosopher.com/solutions/philosophers/kane

Robert Kane's Libertarianism

Robert Kane is the acknowledged dean of the **libertarian** philosophers actively writing on the free will problem. In the first half of the twentieth century, many Anglo-American philosophers had largely dismissed libertarian free will as a "pseudo-problem."

In addition, when Kane began work in the 1960's, most philosophers and scientists thought free will was compatible with determinism, or perhaps impossible because of determinism.

Kane developed the Aristotelian view that even if most of our actions are **determined** entirely by our character, these actions can be free if we at times in the past freely created our own character (and if we remain free to change it) with what he calls "Self-Forming Actions" (SFAs).

Kane's model for free will is designed to provide an agent with what he calls Ultimate Responsibility (UR), based on his idea of the Self-Forming Action.

Kane's importance in the history of the free will problem is fourfold. First, his **event-causal** free will model has in recent years been the libertarian model most often discussed, and the one against which other models are compared. Second, his prolific writing has produced several important books on free will and ethics. His editing has given us a free will anthology and the massive *Oxford Handbook of Free Will*. Thirdly, he has mentored many of the current participants in the free will debates.

But for me, the fourth reason that Kane is critically important is because he is one of the very few thinkers to find a place for **quantum indeterminacy** in a free-will model. Most all other thinkers can see no way that quantum events can make a coherent and intelligible contribution to human freedom. Kane continues to look for ways that quantum randomness contributes. Today he does not look to individual quantum events affecting individual decisions, but the general quantum and thermal noise in the brain as providing the needed indeterminacy at all times.

I want to look closely in this chapter at Kane's work over the years, to see how his idea of Self-Forming Action (SFAs) and Ultimate Responsibility (UR) has evolved and how I believe that SFAs can now be integrated into my two-stage model of free will.

Kane has always maintained that two-stage models of the kind proposed by Karl Popper and Daniel Dennett were an important "part of the puzzle" of free will. For me, two-stage models are the central element. In my view, Kane's Self-Forming Actions add another"free" element to human decisions, and I will try below to show how I understand the way in which they are involved in the formation of one's character.

As we shall see, Kane regards my **two-stage Cogito model** of free will as "determined," because once the last of the **alternative possibilities** is generated, the agent's choice is, and Kane and I agree on this, **adequately determined**, by the agent's character and values, beliefs and desires, etc. See Chapter 13 for details on my **Cogito model,** especially Figure 13-6.

Kane now agrees that decisions in my model are not **predetermined** by the laws of nature or the fixed past before deliberations begin. So, looking at the overall decision process, which involves some time between the starting circumstances and the final action resulting from a decision, Kane and I agree that my two-stage model is as free from the many forms of determinism as any model of libertarian free will needs to be.

And I argue that my two-stage decisions are as good a candidate for assigning responsibility as Kane's Ultimate Responsibility (UR), which he traces back in time to the remote past when one of his free Self-Forming Actions added to an agent's character.

To be sure, many of our decisions that are not adequately determined by character and value, by motives and reasons, may well be decided indeterministically. These are related to decisions that the ancients described as the "liberty of indifference" (*liberum arbitrium indifferentiae*). But Kane's SFAs are not "arbitrary" in the sense that there are no good reasons to choose. Unlike the liberty of indifference, there are equally good and important reasons on both (or all) sides. I call them **undetermined liberties**.

In a Self-Forming Action, an agent chooses between two (or more) equally justifiable actions, each with excellent reasons, so that the agent can take responsibility for either choice.

In this kind of choice, Kane has cleverly defeated the common objection made against indeterministic libertarian free will, that if chance is involved, the agent has no control and thus cannot be responsible for the action. I agree that Kane's agent can claim ultimate responsibility either way in an SFA, and the reduction in control is more than offset by the gain in freedom, as we shall see.

In his book *Libertarian Accounts of Free Will*, Randolph Clarke criticized Kane's ultimacy as

> "wholly negative: it is just 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." [1]

Clarke says that Kane's model provides no more control than the compatibilist view, that is to say, no control at all. This is wrong. The agent has control over which actions are considered in an SFA.

Kane's Libertarian Free Will Model

Perhaps Kane's most original contribution to the free-will debates are his examples of decisions that are indeterministic, but for which the agent can properly claim moral responsibility.

Chance as the *direct* cause of an action compromises agent control and therefore any responsibility. But in the case of what Kane calls a "torn decision," the agent may have excellent reasons for choosing "either way." In such a case, the agent can choose indeterministically, yet properly take responsibility for either option. Kane calls this "dual (or plural) rational control."

In the normal case of self-determination in the two-stage model, the second ("will") stage arrives at the best choice based on the complex set of the agent's character and values, reasons and motives, feelings and desires.

1 Clarke (2003) p. 220.

But there are times when the two-stage model does not narrow down the alternatives to a single choice. In such cases, and especially where the decisions are "torn" and involve moral or prudential considerations, Kane says that in these cases the agent must exert an effort to make a decision, indeed must make dual or plural efforts in defense of each option.

The role of indeterminacy is to reduce the likelihood of some options, making them fail, but for the option that does succeed, it is not the indeterminism that deserves credit as the cause of success, but the efforts of the agent.

This type of torn decision is made in the Self-Forming Actions (SFAs) that form the basis for an agent's "ultimate responsibility" (UR). By ultimate responsibility Kane means that the sources or origins of our actions lie "in us" rather than in something else (such as decrees of fate, foreordained acts of God, or antecedent causes and laws of nature) which are outside us and beyond our control.

Aristotle and Epicurus said that decisions "in us" or that "depend on us" are a **tertium quid**, or third thing, that is neither chance nor necessity.

Kane at first argued that having **alternative possibilities** for action (he calls them AP) is not enough to establish free will. It is ultimate responsibility (UR), he says, that is required for free will. Ultimate responsibility requires that some of our actions are self-forming actions (SFAs). In turn, our self-forming actions require plural rational control in our decisions. And it is the plural rational control that requires alternative possibilities (AP).

Much of Kane's work has been to establish the role of quantum indeterminacy in making at least some of our actions undetermined. Let's look at Kane's major works over the past four decades to understand the development of his free will model.

Free Will and Values

In his 1985 book *Free Will and Values*, Kane considered the **two-stage models** of Karl Popper (as described by Popper in

his 1965 Arthur Holly Compton memorial lecture, "Of Clouds and Clocks"), and Daniel Dennett (as presented in Dennett's 1978 book *Brainstorms,* especially the chapter, "On Giving Libertarians What They Say They Want").

To produce quantum indeterminacy, Kane initially proposed an ambitious amplifier model for a quantum randomizer in the brain - a spinning wheel of fortune with probability bubbles corresponding to **alternative possibilities**, in the massive switch amplifier (MSA) tradition of Compton.

Kane imagines a specific mechanism for incorporating the indeterminacy. This work is squarely in the tradition of several other brain mechanisms proposed to underlie freedom of the will (these all are described in detail on the I-Phi website).[2]

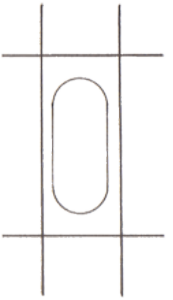
- James Clerk Maxwell's "Singularities" (1856)
- Arthur Stanley Eddington's "Free Electrons" (1928)
- Arthur Holly Compton's Photocell Amplifier (1931)
- John Eccles' "Critically Poised Neurons" (1953)
- A. O. Gomes' Quantum Composer (1964)

Kane says:

> "What I would like to do then, is to show how an MSA [massive switch amplifier] model, using Eccles' notion of critically poised neurons as a working hypothesis, might be adapted to the theory of practical, moral and prudential decision making.
>
> "Keeping these points in mind, let us now suppose that there are neurons in the brain "critically poised" in Eccles' sense, whose probability of firing within a small interval of time is .5. (We shall tamper with this simplifying assumption in a moment.) For every n such neurons, there are 2^n possible ordered combinations of firings and non-firings, which may be represented by sequences, such as (101...), (01101...), where the "1" 's indicate firings, the "0" 's non-firings, and the dots indicate that the sequences are continued with "0" 's up to n figures. A reasonably small number of such neurons, say a dozen, would yield ordered combinations, in the thousands, enough for the

2 informationphilosopher.com/freedom/mechanisms.html

purposes of the theory. As indicated in 8.4, the exact number of possible alternatives or partitionings does not matter so long as it is large; it would likely depend on the exigencies of neurological programming rather than the demands of the theory.



"For practical choice, these ordered combinations of firings and non-firings of critically poised neurons would correspond to places on a spinning wheel, most of which would give rise to chance selected considerations, opening doors to consciousness of possibly relevant memories, triggering associations of ideas and/or images, focussing attention in various ways, etc. Some combinations of firings and non-firings might draw a blank. But the wheel would keep spinning until it hit something worth considering, so long as the practical reasoner or creative thinker were in a receptive, yet reflective, state of mind. Then the relevance of the consideration to deliberation would have to be assessed and the consideration either accepted or rejected." [3]

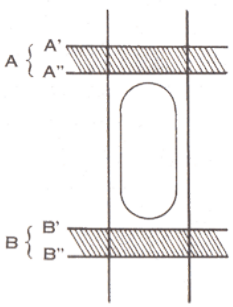
Kane introduces his mechanism as a probability bubble.

"One might think of this as a picture of an air bubble in a glass tube filled with a liquid, with the lines A and B marked on the outside of the glass as on an ordinary carpenter's level. But this description is merely an aid to the imagination. We are going to give the bubble some extraordinary properties. The bubble may represent either the desire to choose to act from duty (out of equal respect) or the effort made to realize this desire in choice. The respective desire and effort are conceptually related because the desire is defined as the disposition to make the effort; and the intensity of the desire is measured by the intensity of the effort. The lines A and B in the figure represent choice thresholds. If the bubble passes above the line A, the choice is made to act from duty; if it passes below B, the choice is made to act on self interested motives. When the bubble is between the lines, as in the figure, no choice has yet been made. A downward pull of gravity in the figure may be thought to represent the natural pull of one's self interested motives, which must be counteracted by an effort to resist temptation."

3 Kane (1985) p. 169

Kane's example of SFAs involves moral choices between a Kantian deontological duty and motives of self interest.

> "There is an ambiguity, essential to our problem, about what it means to say that the bubble "passes above" the line A, or "below" the line B. If the bubble passes above A, or below B, then the choice is made to act from duty, or from self interest, respectively.



> "To complicate matters further, we want to assume that the bubble or probability space does not have an exact position vis a vis the thresholds at any given time and that this inexactness of position is also due to the undetermined movement of the point particle in the regions. There are a number of ways to represent this in the diagram, but the simplest way is the following. Imagine, as in the following figure, that the choice thresholds A and B have indeterminate position so that they can be anywhere between (or on) the extremes A'-A" and B'-B" respectively:

> "The distances between any two possible threshold positions for A (or any two for B) are equal and each possible threshold position corresponds to a region in the bubble such that, if the point particle is in that region, the threshold is at the corresponding position. But adjacent regions in the bubble need not correspond to adjacent positions of the thresholds and higher or lower regions of the bubble need not correspond to higher and lower threshold positions respectively.

> "What all this means is that the intensity of the effort to overcome temptation at any given time, which is measure of the intensity of the desire to act from duty (represented by the position of the bubble vis a vis the thresholds and the position of the point particle within the bubble) is indeterminate. And, as a consequence, the outcome of the choice situation at a given time is undetermined and unpredictable as long as the bubble is not wholly above A' or wholly below B". [4]

4 Kane (1985) pp. 144-146.

To summarize his 1985 book, *Free Will and Values*, Kane described two-stage models as a "significant piece in the overall puzzle of a libertarian freedom." [5] But he thought them limited to practical decision making, and not suitable for moral decision making, which require his dual rational control and chance in the decision itself to provide "ultimate responsibility" (UR).

Given the random **alternative possibilities** in the first stage of the model, Kane thought that an agent would be **determined** in the second stage to choose the best available option.

But I have pointed out to Kane, and he agrees, that the agent would not be **pre-determined**, even from moments just before deliberations began. As John Locke noted, the will itself can be determined, it need not itself be free in the sense of random. It is the man that is free, not the will, said Locke. [6]

Kane's model is also "restrictive," a term coined by John Martin Fischer to describe Peter van Inwagen's claim that only a tiny fraction of our decisions and actions can properly be called free actions. For van Inwagen, it is those which have closely balanced alternatives (the ancient problem of the **liberty of indifference**).

Kane disagreed with van Inwagen on the frequency of free decisions. For Kane, they are not rare but quite common. They include not only the "torn" moral and prudential decisions but many everyday practical decisions.

In this early work, Kane was not completely satisfied with his solution. He explained that the main reason for failure is

> "locating the master switch and the mechanism of amplification...We do not know if something similar goes on in the brains of cortically developed creatures like ourselves, but I suspect it must if libertarian theories are to succeed." [7]

We shall see that in later work, Kane sees the source of indeterminism as the general noise that is ever-present in the brain, as in any information processing system.

5 *ibid*., p. 104.
6 Locke (1959) p. 323.
7 Kane (1985) p. 168.

Doing Otherwise in the Same Circumstances

Kane claims he needs **quantum indeterminacy** because the major criticism of all libertarian models is how they explain the power to choose or **do otherwise** in "exactly the same conditions." He calls this "dual rational (or voluntary) self-control." Given that A was the rational choice, how can one defend doing B under exactly the same circumstances?" [8] Kane himself was concerned that such a "dual power" could be seen as arbitrary, capricious, and irrational. Critics of Kane's theory, Randolph Clarke and Richard Double, for example, focus on this concern.

Apart from the fact that information-rich systems with a history are never in the exact same conditions, and ignoring the fact that random **alternative possibilities** are unlikely to repeat, an **adequately determined** will would indeed very likely make the same choice, for the same reasons, from the same set of alternative possibilities. It might even exercise its irrational prerogative! We humans are unpredictable, which makes us occasionally capricious and arbitrary. While this is possible, and amounts to a kind of freedom, Kane wants the freedom without the irrationality.

The Significance of Free Will

In his 1995 book *The Significance of Free Will,* Kane again invokes quantum events in the brain at the moment of decision:

> "We now turn to the second part of an answer to the question of how prior reasons or motives can explain the effort to resist temptation without also explaining the choice that terminates the effort. We must now look at this "effort of will" (to resist moral or prudential temptation) that intervenes between prior reasons or motives, on the one hand, and the resulting choice, on the other.
>
> "T24 (on FW): Let its suppose that the effort of will (to resist temptation) in moral and prudential choice situations of T22 and T23 is (an) indeterminate (event or process), thereby making the choice that terminates it undetermined.

8 Kane (1985) p. 59.

> "Consider a quantum analogue. Imagine an isolated particle, such as an electron, moving toward a thin atomic barrier. Whether or not the particle will penetrate the barrier is undetermined. There is a probability that it will penetrate, but not a certainty, because its position and momentum are not both determinate as it moves toward the barrier. Imagine that the choice (to overcome temptation) is like the penetration event. The choice one way or the other is undetermined because the process preceding it and potentially terminating in it (i.e., the effort of will to overcome temptation) is indeterminate." [9]

Kane's approach here was similar to Arthur Stanley Eddington's in 1928 - making an analogy between human freedom and "free" electrons. Kane did not think that was enough and then added chaos to amplify the microscopic quantum indeterminacy up to the macroscopic neurons.

> "But this quantum analogy is merely that — an analogy. Our efforts of will most likely correspond to complex processes in our brains that are macro processes involving many neuron firings and connections. Since we know that the effects of quantum level fluctuations are usually negligible at the macro level, how can these efforts be indeterminate? One way to begin thinking about this issue is to imagine that the neural processes occurring when the efforts are being made are chaotic processes, in the sense of what is nowadays called "chaos theory." In chaotic systems, very minute changes in initial conditions grow exponentially into large differences in final outcome, a phenomenon called "sensitivity to initial conditions."

> "But chaotic behavior, though unpredictable, is not necessarily indeterministic. In fact, chaos theory has shown that one can have determinism without predictability. Yet chaos theory may nonetheless be significant for discussions of human freedom, if quantum indeterminacy is also brought into the picture." [10]

Kane described the tension during "torn" decisions as stirring up deterministic chaos. He makes the deterministic chaos sensitive to quantum indeterminacy at the neuronal level (in a way resembling John Eccles' ideas about "critically poised neurons.").

9 Kane (1995) p. 128.
10 Kane (1995) p. 129.

"T25 (on FW): Imagine that the indeterminate efforts of will of T24 are complex chaotic processes in the brain, involving neural networks that are globally sensitive to quantum indeterminacies at the neuronal level. Persons experience these complex processes phenomenologically as "efforts of will" they are making to resist temptation in moral and prudential situations. The efforts are provoked by the competing motives and conflicts within the wills of the persons described in T22 and T23. These conflicts create tensions that are reflected in appropriate regions of the brain by movement further from thermodynamic equilibrium, which increases the sensitivity to micro indeterminacies at the neuronal level and magnifies the indeterminacies throughout the complex macro process which, taken as a whole, is the agent's effort of will.

"T26 (on FW): In effect, conflicts of will of the kinds described in T22 and 23 stir up chaos in the brain and make the agents' thought processes more sensitive to undetermined influences. The result is that, in soul-searching moments moral and prudential struggle, when agents are torn between conflicting visions of what they should become (that is, on the occasions of self-forming willings, or SFWs), the outcomes are influenced by, but not determined by, past motives and character. The uncertainty and inner tension that agents feel at such moments are reflected in the indeterminacy of their neural processes." [11]

A Contemporary Introduction to Free Will

In 2005, Kane wrote a perceptive analysis of a two-stage solution for free will like our **Cogito** mind model and the suggestions of Arthur Holly Compton, Karl Popper, Daniel Dennett, and Alfred Mele.

"The final libertarian theory I want to consider in this chapter takes a very different approach to explaining libertarian free choices. This view rejects both simple indeterminism and agent-causation. Instead it focuses on the process of deliberation. When we deliberate, for example, about where to vacation or which law firm to join, many different thoughts,

11 Kane (1995) p. 130.

> images, feelings, memories, imagined scenarios, and other considerations pass through our minds. Deliberation can be quite a complex process. When Mike thinks about Hawaii, he pictures himself surfing, walking on sunny beaches, eating in his favorite Hawaiian restaurants; and these various thoughts incline him to choose Hawaii. But he also thinks about skiing, sitting by a fireplace after a long day on the slopes, and visiting with friends he knows in Colorado; and he leans toward Colorado. Back and forth he goes, until after a period of time considerations on one side outweigh the others and he finally chooses one option. (Unless, of course he is one of those indecisive types who finds it hard to make up his mind.)" [12]

Note that in Kane's first stage he describes our free thoughts as 'coming to mind,' like William James' "present themselves."

> "In the course of such deliberations — which may sometimes take hours or days and may be interrupted by daily activities — new thoughts, memories or images can often come to mind that influence our deliberations. Mike may suddenly remember a lively nightclub he visited in Honolulu when he was last there — great music, great girls — and the idea of going back to this place gives him an added reason to favor Hawaii, a reason that hadn't previously entered his deliberation. Other images that flit through his mind may turn him against Hawaii. Imagining himself out on the beach all day, suddenly he remembers his doctor's warning about not getting too much sun if he wants to avoid skin cancer.
>
> "Now one could imagine that some of these various thoughts, memories, and imagined scenarios that come to mind during our deliberations are undetermined and arise by chance and that some of these 'chance selected considerations' might make a difference in how we decide. If this were to happen in Mike's case, the course of his deliberation, hence his choice, would be undetermined and unpredictable. A Laplacian demon could not know in advance which way Mike would go, even if the demon knew all the facts about the universe prior to Mike's deliberation, for these facts would not determine the outcome." [13]

12 Kane (2005) p. 64.
13 Kane (2005) p. 64.

In Kane's second stage, choices result from rational evaluations of the alternative possibilities that have come in part by chance

> "Yet Mike would still have control over his choice in a certain sense. He could not control all the thoughts and imagined scenarios that come to mind by chance. But he would be in control of how he reacted to those thoughts and imaginings once they did occur. And his choice of Hawaii in the end would be perfectly rational, not arbitrary, if the weight of all the considerations that did come to mind (some of them by chance) weighed in favor of Hawaii. In this way, choices could thus be controlled and rational even though indeterminism was involved in the deliberations leading up to them." [14]

Kane calls this "causal indeterminism" or "event-causal libertarianism." It is, like my **Cogito**, a two-stage model, first "free" thoughts, then "willed" actions. But, like Daniel Dennett and Alfred Mele, Kane did not at that time endorse this view.

> "A view of this kind is called causal indeterminism or event–causal libertarianism, for it allows that our thoughts, images, memories, beliefs, desires, and other reasons may be causes of our choices or actions without necessarily determining choices and actions; and yet this view does not postulate any extra kind of agent-causation either. Two philosophers who have suggested causal indeterminist views of this kind (without endorsing them), Daniel Dennett and Alfred Mele, argue that a view of this kind would give libertarians at least some of the important things they demand about free will. Such a view, for example, provides for an "open future," such as we think we have when we exercise free will. We would not have to think that our choices and the future direction of our lives had somehow been decided long before we were born. Nor would it be possible for behavioral engineers to completely control our behavior as in Walden Two or for Laplacian demons to know what we were going to do, if chance considerations might enter our deliberations." [15]

It is unfortunate that Kane did not accept Dennett's 1978 ideas for "giving libertarians what they want." [16] He might have reconciled many libertarians and compatibilists.

14 Kane (2005) pp. 64-5.
15 Kane (2005) p. 65.
16 See Chapter 27, What If - Kane had accepted Dennett's ideas?

Instead, Kane focused on the "something more" - **indeterminism** in the decision itself - so that our actions are not determined by our prior deliberations and **alternative possibilities**, however much these are our own creations, and our own reasons.

> "Yet, as Dennett and Mele also admit, a causal indeterminist view of this deliberative kind does not give us everything libertarians have wanted from free will. For Mike does not have complete control over what chance images and other thoughts enter his mind or influence his deliberation. They simply come as they please. Mike *does* have some control *after* the chance considerations have occurred." [17]

The evaluation of **alternative possibilities** is of course only **adequately determined**, but this is real **control**, and Kane was still concerned that control in the second stage implied an unacceptable determinism.

> "But then there is no more chance involved. What happens from then on, how he reacts, is *determined* by desires and beliefs he already has. So it appears that he does not have control in the libertarian sense of what happens after the chance considerations occur as well. Libertarians require more than this for full responsibility and free will. What they would need for free will is for the agent to be able to control which of the chance events occur rather than merely reacting to them in a determined way once they have occurred.

> "Yet, as Mele points out, while this causal indeterminist view does not give us all the control and responsibility that libertarians have wanted, it does give us many of the things they crave about free will (an open future, a break in the causal order, etc.). And it is clearly a possible view. Perhaps it could be further developed to give us more; or perhaps this is as much as libertarians can hope for." [18]

Kane seems to want his freedom both ways. He wants the agent to "control which of the chance events occur" and he also wants chance to be involved at the later decision stage to prevent its be-

17 Kane (2005) p. 65.
18 Kane (2005) p. 65.

ing controlled by the agent or "determined by desires and beliefs he already has."

In my two-stage **Cogito** model, the main place for chance is in the first stage, where **alternative possibilities** are generated. And control is only needed in the second stage, where decisions and choices are **adequately determined** by the agent's character and values, beliefs and desires.

Kane gets his "something more" by adding indeterminism to "torn" decisions, to produce what he calls "dual (or plural) rational control" over our actions, allowing us to choose different options, while still taking responsibility for the indeterministic choice.

> "When we wonder about whether agents have freedom of will (rather than merely freedom of action), what interests us is not merely whether they could have done otherwise, even if the doing otherwise is undetermined, but whether they could have done otherwise voluntarily (or willingly), intentionally, and rationally. Or, more generally, we are interested in whether they could have acted in more than one way voluntarily, intentionally, and rationally, rather than only in one way voluntarily, and so on, and in other ways merely by accident or mistake, unintentionally or irrationally. [19]

Kane appreciates that our thoughts "come to us" unbidden, we cannot control them, at least sometimes. We do have control, in the second stage, which insures that our actions "come from us." Our willed actions "depend on us," as Aristotle required.

Kane offers an illustrated version of the **standard argument** against free will. He describes the usual determinism and randomness objections (the two horns of the Libertarian Dilemma) as the ascent and descent of what he calls "Incompatibilism Mountain." [20]

The ascent problem is to show free will is incompatible with determinism. The descent problem is to show that free will is compatible with indeterminism. In earlier works Kane described ascent as "the compatibility question" and descent as "the intelligibility problem."

19 Kane (2005) p. 128.

20 See the discussion of Incompatibilist Mountain in Chapter 4, p. 44.

This is similar to what I do in a critical analysis of the **standard argument** against free will, in my **two-stage model** for free will, and in the two-fold **requirements** for free will.

Free will is incompatible with strict causal determinism, but it actually requires an **adequate determinism** for **moral responsibility**. And free will is compatible with an **indeterminism** that generates **alternative possibilities** without making chance the direct cause of actions. Finally, I agree that indeterminism can play a positive role in Kane's "torn" decisions.

Four Views on Free Will

In a recent work (*Four Views on Free Will*, 2007), Kane defends his libertarian free-will model and again suggests that his Self-Forming Actions might involve a tension and uncertainty in our minds that stirs up a deterministic "chaos" which is sensitive to micro-indeterminacies at the neuronal level.

> "All free acts do not have to be undetermined on the libertarian view, but only those acts by which we made ourselves into the kinds of persons we are, namely the "will-setting" or "self-forming actions" (SFAs) that are required for ultimate responsibility." [21]

> "Now I believe these undetermined self-forming actions or SFAs occur at those difficult times of life when we are torn between competing visions of what we should do or become. Perhaps we are torn between doing the moral thing or acting from ambition, or between powerful present desires and long-term goals, or we are faced with difficult tasks for which we have aversions."

Note that SFAs are similar in some respects to cases of the classical "**liberty of indifference**," where the choice can go either way. I call these **undetermined liberties**.

> "In all such cases, we are faced with competing motivations and have to make an effort to overcome temptation to do something else we also strongly want. There is tension and uncertainty

21 Kane (2007) p. 26.

> in our minds about what to do at such times, I suggest, that is reflected in appropriate regions of our brains by movement away from thermodynamic equilibrium — in short, a kind of 'stirring up of chaos' in the brain that makes it sensitive to micro-indeterminacies at the neuronal level. The uncertainty and inner tension we feel at such soul-searching moments of self-formation is thus reflected in the indeterminacy of our neural processes themselves. What we experience internally as uncertainty about what to do on such occasions would then correspond physically to the opening of a window of opportunity that temporarily screens off complete determination by influences of the past." [22]

> "When we do decide under such conditions of uncertainty, the outcome would not be determined because of the preceding indeterminacy — and yet the outcome can be willed (and hence rational and voluntary) either way owing to the fact that in such self-formation, the agents' prior wills are divided by conflicting motives." [23]

> "Now let us add a further piece to the puzzle. Just as indeterminism need not undermine rationality and voluntariness of choices, so indeterminism in and of itself need not undermine control and responsibility. Suppose you are trying to think through a difficult problem, say a mathematical problem, and there is some indeterminacy in your neural processes complicating the task — a kind of chaotic background." [24]

Henri Poincaré said chance led to **alternative possibilities** for the solutions of mathematical problems..

> "It would be like trying to concentrate and solve a problem, say a mathematical problem, with background noise or distraction. Whether you are going to succeed in solving the problem is uncertain and undetermined because of the distracting neural noise. Yet, if you concentrate and solve the problem nonetheless, we have reason to say you did it and are responsible for it, even though it was undetermined whether you would succeed. The indeterministic noise would have been an obstacle that you overcame by your effort." [25]

22 *ibid.*
23 Kane (2007) p. 26.
24 *ibid.* p. 27.
25 *ibid.*

Kane says that the indeterminism arising from a tension-creating conflict in the will

> "would be reflected in appropriate regions of the brain by movement away from thermodynamic equilibrium. The result would be a stirring up of chaos in the neural networks involved. Chaos in physical systems is a phenomenon in which very small changes in initial conditions are magnified so that they lead to large and unpredictable changes in the subsequent behavior of a system." [26]

> "Now determinists are quick to point out that chaos, or chaotic behavior, in physical systems, though unpredictable, is usually deterministic and does not itself imply genuine indeterminism in nature. But some scientists have suggested that a combination of chaos and quantum physics might provide the genuine indeterminism one needs. If the processing of the brain does 'make chaos in order to make sense of the world' (as one recent research paper puts it), then the resulting chaos might magnify quantum indeterminacies in the firings of individual neurons so that they would have large-scale indeterministic effects on the activity of neural networks in the brain as a whole. If chaotic behavior were thus enhanced in these neural networks by tension-creating conflict in the will, the result would be some significant indeterminism in the cognitive processing of each of the competing neural networks." [27]

> "'indeterminism' is a technical term that merely rules out deterministic causation, though not causation altogether. Indeterminism is consistent with nondeterministic or probabilistic causation, where the outcome is not inevitable. It is therefore a mistake (in fact, one of the most common in debates about free will) to assume that 'undetermined' means 'uncaused' or 'merely a matter of chance.'" [28]

I agree with Kane that something that is probabilistically caused is still caused, but it is not a mistake to say that is a 'matter of chance." It is an **undetermined liberty**.

26 *ibid.*
27 Kane (2007) p. 28.
28 *ibid.* p. 31.

Kane wants to reconcile the role of chance in his Self-Forming Actions, by emphasizing the fact is that it is not mere chance that gets credit for the final choice between **alternative possibilities**.

> "If indeterminism is involved in a process so that its outcome is undetermined, one might argue that the outcome must merely happen and therefore cannot be somebody's choice. But there is no reason to assume such a claim is true. A choice is the formation of an intention or purpose to do something. It resolves uncertainty and indecision in the mind about what to do. Nothing in such a description implies that there could not be some indeterminism in the deliberation and neural processes of an agent preceding choice corresponding to the agent's prior uncertainty about what to do. Recall from the preceding arguments that the presence of indeterminism does not mean the outcome happened merely by chance and not by the agent's effort. Self-forming choices are undetermined, but not uncaused. They are caused by the agent's efforts." [29]

> "In a similar fashion, the idea is not to think of the indeterminism involved in free choices as a cause acting on its own, but as an ingredient in a larger goal-directed or teleological process or activity." [30]

> "What we need when we perform purposive activities, mental or physical, is rather macro-control of processes involving many neurons — complex processes that may succeed in achieving their goals despite the interfering effects of some recalcitrant neurons. We don't micro-manage our actions by controlling each individual neuron or muscle that might be involved. We don't know enough about neurology or physiology to do that; and it would be counterproductive to try. But that does not prevent us from macro-managing our purposive activities (whether they be mental activities such as practical reasoning, or physical activities, such as arm-swingings) and being responsible when those purposive activities attain their goals.

> "In summary, I think the key to understanding the role of chance in free will is not to think of chance as a causal factor by

29 Kane (2007) p. 33..
30 *ibid*. p. 35.

> itself, but rather to think of chance as an interfering ingredient in larger goal-directed processes. Viewing chance in this way is related to a peculiarly modern scientific way of understanding human agency that also his its roots in the ancient view of Aristotle. Agents, according to this modern conception with ancient roots, are to be conceived as information-responsive complex dynamical systems." [31]

Here Kane insightfully suggests that information theory may help understanding the problem of will. He proposes that indeterminism is a limited ingredient in the teleological process of will. But it should not be seen as the main "cause" of a decision. That causal credit goes to the agent's efforts on behalf of each of the possible choices.

> "We should concede that indeterminism, wherever it occurs, does diminish control over what we are trying to do and is a hindrance or obstacle to the realization of our purposes." [32]

But all the options are hindered by the introduction of indeterminism, so the agent's efforts to make them all succeed will be affected slightly differently by indeterminism. Some will fail, partly as a result of chance, but the one that succeeds should not be credited to mere chance, but rather to the effort of the agent.

Kane addresses the implications of adding chance "centered" in the decision itself, which threatens to make chance the direct cause of our actions.

> "Let me conclude with one final objection to the account of free will presented here, which is perhaps the most telling and has not yet been discussed. Even if one granted that persons, such as the businesswoman, could make genuine self-forming choices that were undetermined, isn't there something to the charge that such choices would be arbitrary? A residual arbitrariness seems to remain in all self-forming choices since the agents cannot in principle have sufficient or conclusive prior reasons for making one option and one set of reasons prevail over the other.

31 *ibid*. p. 40.
32 Kane (2007) p. 39.

> "There is some truth to this objection also, but again I think it is a truth that tells us something important about free will.
>
> "Suppose we were to say to such persons: 'But look, you didn't have sufficient or conclusive prior reasons for choosing as you did since you also had viable reasons for choosing the other way.' They might reply. 'True enough. But I did have good reasons for choosing as I did, which I'm willing to stand by and take responsibility for. If these reasons were not sufficient or conclusive reasons, that's because, like the heroine of the novel, I was not a fully formed person before I chose (and still am not, for that matter). Like the author of the novel, I am in the process of writing an unfinished story and forming an unfinished character who, in my case, is myself.' " [33]

The Cogito Model

Robert Kane independently developed a two-stage model before Daniel Dennett published his 1978 book *Brainstorms*. He had read the same sources (Compton and Popper), but he thought that "something more" was needed.

Kane had always felt that at the completion of the first stage in my **Cogito** 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.

Kane feels that the two-stage model is adequate for practical everyday decisions, and that it may play a role in moral and prudential choices by providing the considerations for different choices. Where the two-stage deliberative process does not result in a single choice, we can say that the options that remain were *as a group* **self-determined**, namely, consistent with the agent's character and values, reasons and motives, desires and feelings.

Kane says that libertarian free will requires that the decision not be completely determined by the agents desires and beliefs, which are among the causal factors, but not determining factors. In the case of his SFAs, decisions remain undetermined up to the moment of choice. It is *determined by the choice*, says Kane.

33 Kane (2007) pp. 41-42.

Just as Kane accepts the loss of some control in SFAs, the agent does not have complete control over the random considerations that get generated in my two-stage model. Of course, the agent can decide when to stop generating new possibilities. And if evaluation finds none satisfactory, can go back and generate more. Kane agrees with the importance of these "second thoughts." But after the last new random option is generated, and during that time, however small, before the decision is made, Kane is right that the choice at that point is already **adequately determined** by the agent's character, reasons, motives, etc. - unless, of course more than one option remains.

In my **Cogito** model, I admit that 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. This is because the second ("will") stage evaluation and decision process is indeed **adequately determined**.

I therefore agree with Kane that the second stage is normally "determined," in the sense of **adequately determined**, but note that it is in no way **pre-determined** before deliberations began.

Kane agrees with me that, before the first stage of the two-stage model, the decision has not yet been determined. It is at that time undetermined. So our decisions are not **pre-determined** back to the Big Bang.

Kane agrees that my two-stage **Cogito** model, with indeterminism in the first stage, is libertarian free.

But in Kane's Self-Forming Actions, indeterminism remains up to and including the moment of choice.

Kane's Self-Forming Actions

Kane has found a way to avoid any "determinism" at all in these cases, not even the **determination** by character and values, reasons and motives, feelings and desires, that compatibilists properly think is needed for **moral responsibility**. For Kane, reasons and motives are only partial causes of the decisions.

These are Kane's Self-Forming Actions (SFAs). He says the agent's decision may not be "determined" by anything other than the agent's choice, which can be rational (made for properly evaluated reasons), but nevertheless might have been **otherwise** and yet be equally rational and voluntary.

As we have seen, Kane calls this "dual (or plural) control." I now see that this is an acceptable extension of my **Cogito** model, one that adds still more libertarian freedom. Let's see how it works.

To find a way around the "determinism" of my second stage, without invoking metaphysical agent-causality, Kane adds event-causal randomness in the decision itself. Randolph Clarke calls such randomness "centered" in the decision,[34] as opposed to chance located earlier in the "deliberative" stage (my "free" stage).

There are times when the deliberation and evaluation process of the two-stage process may not narrow down to a single self-determined option. In such cases, the agent has developed reasons for more than one option. None of these options should be seen as random, in the sense that *as a group* they have been **adequately determined** by the deliberations of the second stage.

For everyday practical decisions, the agent may essentially "flip a coin" to make the decision between equally attractive options, and take responsibility for the outcome.

However, in difficult moral or prudential decisions, the agent may be seriously conflicted about the remaining options. This conflict requires extra effort on the part of the agent to make the decision, which Kane says may generate noise in the brain's neural circuitry. This noise may make the specific decision indeterminate, although it selects from among options that are all defended by reasons.

Although the actual decision is indeterminate, and chance has played a role in the decision, Kane rejects the view that chance is the "cause" of the decision. The role of chance has increased the probability that the agent's efforts for some of the options will fail, but for the option that succeeds, says Kane, it is the agent's effort that deserves the major credit. Effort is the cause of the choice.

34 See page 211.

I agree with Kane that it is inappropriate to make chance the "cause" of the decision.

My two-stage Cogito model accepts decisions that are made at random, when the reason (the non-reason?) is that the agent has no good reasons to prefer one option over others, and thus "deliberately" chooses at random.

I call these **undetermined liberties**, to distinguish them from the de-liberated **self-determination** of my second stage.

Figure 24-1. Kane's Self-Forming Actions are Undetermined Liberties.

As I see it, the second stage has left the agent with a group of options that are equally attractive. The final choice seems to me arbitrary, any one of them will have adequate reasons for agent responsibility. This, in my view, is related to the ancient *liberum arbitrium* and the **liberty of indifference**.

But for many years, Kane has vigorously denied that his Self-Forming Actions are arbitrary and the random result of chance. To make chance a contributing cause devalues the effort of the agent that deserves the credit for the decision. Negative words like random and chance mislead many thinkers. Kane accepts indeterminism (his noise results from quantum indeterminacy), but rejects random chance.

I agree with Kane that it is inappropriate to say that chance is the cause of the action. I have been mistaken to say so in the past.

But I must go farther to defend the positive role for chance in the universe as a critical part of the **cosmic creation process**. I trace negative attitudes about chance to the ancient idea that chance explains nothing so cannot be a cause (the Greek word for cause, ἀιτία, means explanation) or even stronger, that chance is unintelligible and perhaps atheistic.

Kane's critics, and perhaps even Kane to some degree, share what William James called "antipathy to chance."

> "The stronghold of the deterministic sentiment is the antipathy to the idea of chance. As soon as we begin to talk indeterminism to our friends, we find a number of them shaking their heads. This notion of alternative possibilities, they say, this admission that any one of several things may come to pass, is, after all, only a roundabout name for chance; and chance is something the notion of which no sane mind can for an instant tolerate in the world…many persons talk as if the minutest dose of disconnectedness of one part with another, the smallest modicum of independence, the faintest tremor of ambiguity about the future, for example, would ruin everything, and turn this goodly universe into a sort of insane sand-heap or nulliverse, no universe at all.
>
> "In every outwardly verifiable and practical respect, a world in which the alternatives that now actually distract your choice were decided by pure chance would be by me absolutely undistinguished from the world in which I now live. I am, therefore, entirely willing to call it, so far as your choices go, a world of chance for me.
>
> "Determinism denies the ambiguity of future volitions, because it affirms that nothing future can be ambiguous. Indeterminate future volitions do mean chance. Let us not fear to shout it from the house-tops if need be; for we now know that the idea of chance is, at bottom, exactly the same thing as the idea of gift,--the one simply being a disparaging, and the other a eulogistic, name for anything on which we have no effective claim.
>
> "We have seen what determinism means: we have seen that indeterminism is rightly described as meaning chance; and we have seen that chance, the very name of which we are urged to shrink from as from a metaphysical pestilence, means only the negative fact that no part of the world, however big, can claim to control absolutely the destinies of the whole." [35]

More than perhaps any other philosopher, Kane has accepted the reality and importance of quantum indeterminism. In my

35 James (1956) pp. 153-159.

view, he should not shy away from recognizing indeterminism as pure chance just because the current philosophical community has a strong bias against randomness and chance.

Kane's Businesswoman Example

Kane's best-known case of an SFA is the businesswoman on the way to an important meeting when she witnesses an attack on a victim in an alley. She has to decide whether to stop and aid the victim (deontological moral choice) or continue on to her meeting (self-interest).

But now consider what my Cogito model offers her. Rather than stop with these two options, she could go back and generate more **alternative possibilities** in the first stage of my model.

She might get out her cell phone and call 911 for an ambulance to help the victim (giving more real assistance than she would be able provide herself).

Or a random event might occur. Another passerby might appear that she can ask to aid the victim.

I don't mean to dismiss Kane's example, which he restricts to the "torn" moral decisions he claims are the only truly free SFAs. But my variation on his example nicely puts the emphasis on the origination and **creativity** in my model of free will.

Kane's SFAs as Adequately Determined

Kane has long held that his last-possible-second indeterministic decisions at the moment of choice provide the long-held libertarian dream of some sort of absolute freedom at that moment.

Kane is not thinking metaphysically, of course, but before that "libertarian free" moment there is an element of "self-determination" by motives and reasons, by character and values, that Kane recognizes always come just before examples of dual (or plural) rational control..

In my two-stage model, the agent may generate a great many **alternative possibilities**, as we saw in my extended version of Kane's businesswoman. Evaluation of those possibilities normally

reduces the possibilities to the one chosen, but it may only narrow them down to two or more equally attractive options, which gives us **undetermined liberties** like Kane's cases.

The possibilities in a Kane "torn decision" have *as a group* been "**adequately determined**" by the second stage of my model, though not as much as if they had been reduced to only one.

Kane in Barcelona

Kane and I were invited in October 2010 to an "Experts Meeting" in Barcelona, Spain at the Social Trends Institute (STI). The question debated was "Is Science Compatible with Our Desire for Freedom?" The meeting was organized by Antoine Suarez of The Center for Quantum Philosophy in Geneva.

Also invited was Alfred Mele, who directs the *Big Questions in Free Will* project at Florida State University, and Martin Heisenberg, the neurogeneticist and son of Werner Heisenberg, the founder of quantum mechanics.

There were animated exchanges between all of us. The proceedings were videotaped and are available on the STI website.[36] I edited the discussion between Mele, Kane, myself, and remarks by Heisenberg.[37]

In Kane's presentation, he said of the current situation,

> "As Bob Doyle also notes in his conference paper, my own first efforts at dealing with this problem in the 1970's was to formulate a two-stage model very much like the one he nicely presents in his paper. I thought from the beginning that a two-stage model must be a part of the solution to the free will problem. But I also believed that it could not be the complete solution. Hence I did not publish anything about it in the 1970's and was surprised to see that Daniel Dennett had come up with a similar idea in a 1978 paper. He also believed a two-stage model was not all that libertarians wanted, but thought it at least provided some of what they wanted, as did Al Mele who also later formulated such a view. I believe Dennett and Mele were correct in thinking the two-stage model could not be all of what libertar-

36 www.socialtrendsinstitute.org/Activities/Bioethics/Is-Science-Compatible-with-Our-Desire-for-Freedom/Free-Will-debate-on-YouTube.axd

37 youtube.com/watch?v=iwDZUXr6dIc

> ians wanted; and hence, while I made the two-stage model part of my own theory in my first book on free will in 1985, it was only a part of the theory and I also tried to go beyond it.
>
> "I am even more convinced today through the work of Martin Heisenberg as well as these others just mentioned and at this conference that not only is the two-stage model an important part of any adequate theory of free will, but that it is also an important, indeed a crucial, step in the evolution of human free will. The ability to randomize in lower organisms affords them flexibility and creativity as it does for humans. But I believe, as I did in the 70's, that a number of other steps are needed to get from this first crucial evolutionary step to the full evolution of free will in human beings, and that the two-stage model must be folded into a larger picture." [38]

Since William James in the 1880's, more than a dozen philosophers and scientists, including Heisenberg and myself have called for indeterminism in the first stage of our model. Since the 1980's, Robert Kane has called for indeterminism when second-stage deliberations do not result in a single act of **self-determination**. These are two places in what Kane calls a "larger picture" of free will where indeterminism can break the causal chain of determinism without reducing agent control or responsibility for decisions and actions.

Kane at Harvard

I had the privilege in 2009 of hosting Kane at the Harvard Faculty Club and recording an 82-minute video on his life's work.

Entitled *Free Will: Some New Perspectives on an Ancient Problem*, the Information Philosopher published it as a DVD, and Kane recently agreed to make it available on YouTube,[39] in the hope that it will be widely seen by philosophy students.

The above-mentioned YouTube videos can be found without typing in complex URLs, by searching in my YouTube channel called "infophilosopher."

38 Presentation at STI "Experts Meeting," October 30, 2010
39 youtube.com/watch?v=A61X-5b847U

Kane's Oxford Handbook of Free Will

In addition to his own work to find some pathway through what he calls the "free will labyrinth" to an intelligible account of freedom, Kane has assembled in his massive sourcebook *The Oxford Handbook of Free Will* perhaps the best survey of modern positions on free will, from theology and fatalism to metaphysical libertarian perspectives.

The Handbook, now in its second (2011) edition, has contributions from over two dozen contemporary philosophers with strong ideas about free will. Sadly, most continue to be inconclusive debates and attempts to logically refute one another's positions. Daniel Dennett calls this "philosophical judo."

The articles reflect the fact that Peter F. Strawson changed the subject of the discussions from free will to **moral responsibility**, Harry Frankfurt changed the debate from free will to the existence of **alternative possibilities**, and Peter van Inwagen changed the problem from showing **indeterminism** to be true to showing **incompatibilism** to be true.

They ask convoluted questions like "Is Incompatibilism Intuitive?" and describe freedom as Nondeterministic Incompatibilism.

Many of the writers tend to conflate free will and **moral responsibility**. They describe free will as the "control condition" of **moral responsibility**. Free will is indeed a prerequisite for responsibility. But whether an action is moral is a question for ethicists, not for psychologists and neuroscientists who study the nature of the mind and its capacity for free actions.

While no reflection on the editorial quality, that there is little new, and that it is sometimes dismissive of freedom as unintelligible, makes the Oxford Handbook an accurate reflection of the current state of the free will problem.

Kane insightfully remarks "One may legitimately wonder why worries about determinism persist at all in the twenty-first century, when the physical sciences - once the stronghold of determinist thinking - seem to have turned away from determinism." [40] Amen.

40 Kane (2011) p. 5.