

## Time Lecture 2

1. We saw in the last lecture that there was a problem in accounting for our idea that we can affect the future and not the past. One way in which the difficulty can be made graphic is in terms of decision theory. We can represent the rational process of decision making as a choice between options relative to an uncertain state of nature. This is typically done using a decision matrix. A classic example is the game known as *Prisoner's Dilemma*. In this game, there are two prisoners who have been jointly involved in a crime. Each has a choice between ratting on the other and keeping quiet—neither knows in advance what the other will do. If they both rat, they will each get 3 years in prison. If they both keep quiet, they will each get 1 year in prison. However, if one of them keeps quiet and the other rats, the one who rats will get away free and the one who keeps quiet will get 10 years. We may represent the decision matrix as follows:

	B Rats	B Quiet
A Rats	A=3, B=3	A=0, B=10
A Quiet	A=10, B=0	A=1, B=1

We can see that for A, ratting is the best thing to do. For whether B rats or keeps quiet, A will always be better off if he rats. So he should surely rat. The reasoning involved here is called the *dominance principle* and it appears to be unassailable. The trouble is that dominance reasoning is just the reasoning used by the fatalist, e.g. Ayer's sailor (in "Fatalism" in his *The Concept of a Person*). Either he is going to drown or he isn't. In either case it looks like the sensible thing for him to do is to save money by not having swimming lessons. Clearly there is something wrong with this reasoning in this instance. We may therefore reformulate our problem as follows: why is it that dominance reasoning *always* applies to the past but not always to the future?

2. The most thorough and interesting investigation of this question may be found in Dummett's article "Bringing About the Past" in his *Truth and Other Enigmas*. Dummett imagines, as a putative case of backward causation, a tribe that has a coming-of-age ritual in which the young men have to go off for three days. The first day is spent travelling to some isolated place. The second day is spent undergoing a test of their bravery e.g. hunting tigers or something. The third day is spent returning to the village. The chief of the tribe wants the men to be brave, and so while they are away he does a dance, which he believes is connected to their behaving bravely.
3. The odd thing is that the chief continues to dance on the *third* day, i.e. *after* the test is over but *before* news of its results has reached him. It seems to us that he is quite irrational to do so. But he might reply that he has excellent empirical justification for dancing on the third day. Suppose that he and his ancestors have been performing this ritual for centuries, and that 99% of the time when they dance on the third day, the young men turn out to have been brave. On every one of the few occasions when they were prevented from dancing on the third day,

e.g. by a snake bite, the young men turned out not to have been brave. Dummett's question is then this. Should we *still* think that there is something wrong with the chief's behaviour? If so, then there must be some more deeply rooted conceptual belief or prejudice that makes it seem to us as if time is asymmetrical. Whatever this is would vindicate our application of dominance reasoning to the past, for that would explain why we say: the men have either been brave, or not, by the third day, and so the chief might as well not dance. This, of course, is whatever S Club 7 were thinking of when they penned their famous lyric "There's no use looking back & wondering/ How things could have been now or might have been" (from "Never had a Dream come True").

4. One reason for thinking "yes, there is something wrong with the chief" is this. Suppose that you were the chief. What you could do is give the young men, or their guides, radio transmitters with which they could communicate the results of the trial on the evening of the second day. Now, you could choose to dance on the third day if, and only if, it turned out that the men had *not* been brave. By repeating this procedure every year, you could generate as much empirical evidence as you liked *against* the idea that there was a correlation between the dancing on the third day and the previous bravery of the young men. So it seems that we should have to abandon the idea that the chief was bringing it about that the men had been brave the previous day.
5. Now it might happen that whenever you tried to dance under such circumstances, something prevented you. But in that case we should cease to say that the dancing was under your control—in which case, again, we should have to abandon the idea that you were doing something that brought about the earlier bravery of the men. What would be happening would be that you would be trying to dance in order to *discover* whether the men had been brave, much as one might try to start a car in order to discover whether the battery is flat. But this is not an instance of backward causation.
6. It sees that there is one, and only one, way in which the chief could maintain his belief in backward causation. This would be to reject the radio reports as authoritative. Evidence can often be overridden by other evidence, e.g. you might on Monday have evidence that it rained on Sunday (e.g. the grass was wet) and yet have overriding evidence later that day that it didn't (e.g. in a newspaper). The chief can maintain that he never has knowledge, independently of his intention to dance, whether the men have been brave. In that case, the radio reports will never give him grounds for denying that the men have been brave; rather he will interpret the situation as one that casts doubt on *their* (the radio reports') reliability. And it seems as if there is no irrationality in his maintaining this. Dummett therefore concludes that the following statements are incompatible (whether E occurs *before or after* A): (i) A increases the probability of E, (ii) It is in my power to perform A, (iii) I can know whether E occurs independent of my intention to perform A.

7. The difference between the past and the future consists in this. When A occurs before E, we sometimes resolve the inconsistency by dropping (iii). When A occurs after E we resolve the inconsistency by dropping (i) or (ii), but *never* (iii). It is (iii) therefore that explains the application of dominance reasoning, and (iii) that encapsulates the difference between past and future. Thus we seem to have vindicated the position held by Russell when he said that if we had had genuine “perceptual” foreknowledge (e.g. in a crystal ball), we should cease to think of time as in any way asymmetric. This account of the matter has relevance for the interpretation of certain quantum mechanical phenomena e.g. the two-slit experiment.