Phil 420: *Metaphysics*
Spring 2008

[Handout 16]

D. H. Mellor: *On Raising the Chances of Effects*

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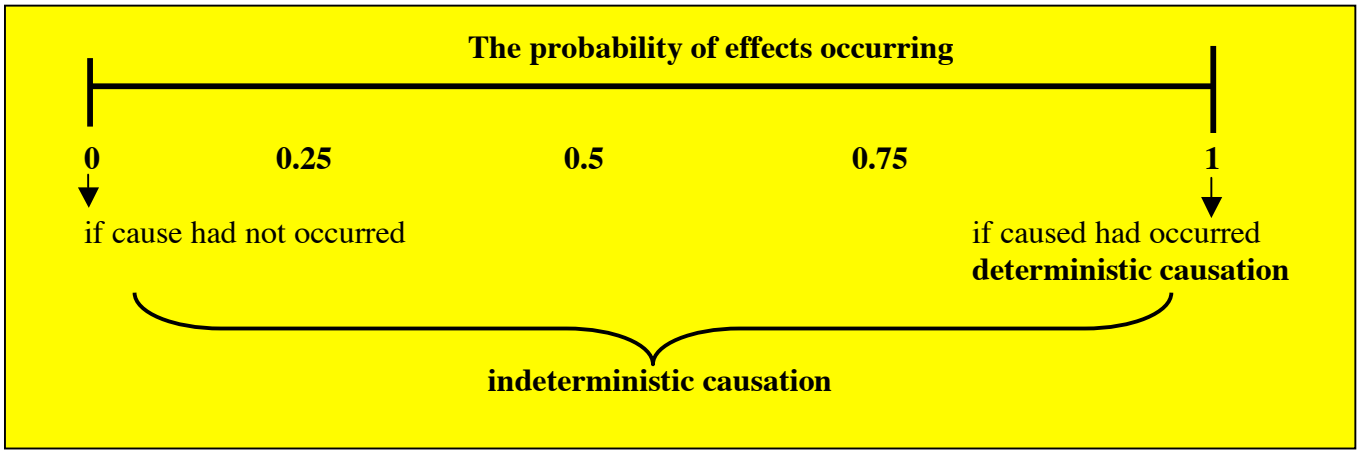
§ Summary of Mellor's Theory:

1. **Causation does not have to be deterministic.**
2. **Cause is related to the effect as means is related to the end.**
3. **Causes must raise the chances of effects, just as means raises the utility of getting to the end.**
4. **'Chance' $=_{df}$ the propensity of an event to bring about another event.**
5. **An effect's chance with a cause must be greater than it would be in the circumstances without that cause.**

§ Opening Claims:

1. There is no doubt that effects need probabilities.
2. Deterministic caucuses – sufficient or necessary conditions – gives effects probability 1 with their causes and/or probability 0 without them.
3. Indeterministic causation has probabilities of effects built into its very foundations.



§ Differences between Salmon's and Mellor's Views

*** [Agreement]:**

'Chance' = objective physical probability or statistical probability

Chances, if there are any, are in the world, not just in our inductive logic: knowledge of them is part of our evidence, not just a measure of how good the evidence is.

Chances are indispensable ingredients in any world governed by statistical laws. Such a world need not, however, be indeterministic.

*** [Disagreement]:**

 # 1. What is 'chance': the frequentist view versus the propensity theorist view

Salmon: chance is frequency – e.g., frequency of smokers getting cancer, of radium atoms decaying in set times, of heads on coin tosses, etc.

Mellor: chance is propensity – chance is like a weak disposition of coin tosses to land heads, of smokers to get cancer, of radium atoms to decay…

Most of our knowledge of chances derive from knowledge of things having a kind of dispositional property – propensity. Propensities are not chances, but dispositions whose displays are chances; just as fragility is a disposition whose display is the fragile thing breaking.

The disposition is a property of a thing, whereas the display is a property of an event.

Q: What is the difference implications behind 'frequency' and 'propensity' interpretation of 'chances'?
___ Frequency implies the ability to perform experiments repeatedly and make a simple count of how often the given event occurred. Frequency would be the number of times the event occurring divided by the number of experiments performed. Barry Loewer: "According to the actual frequency account the probability of event type E occurring in situation S is the actual frequency of Es occurring on S throughout all history." ('Determinism and Chance', 2001)

___ Barry Loewer: "On propensity accounts chance is a measure of the strength of the tendency of one kind of situation to produce another kind of situation." ('Determinism and Chance', 2001)

 # 2. Whether chances must raise the chances of their effects:

Mellor's main claim: Causes must raise the chances of effects. (Chances of effects must be greater with their causes than (in the circumstances) they would be without them.

Salmon: No. There can be negative statistical probability between causes and their effects.

How to settle the dispute on #2:

___ Mellor will argue that the connotations of causation will support his theory of positive causal probability raising.

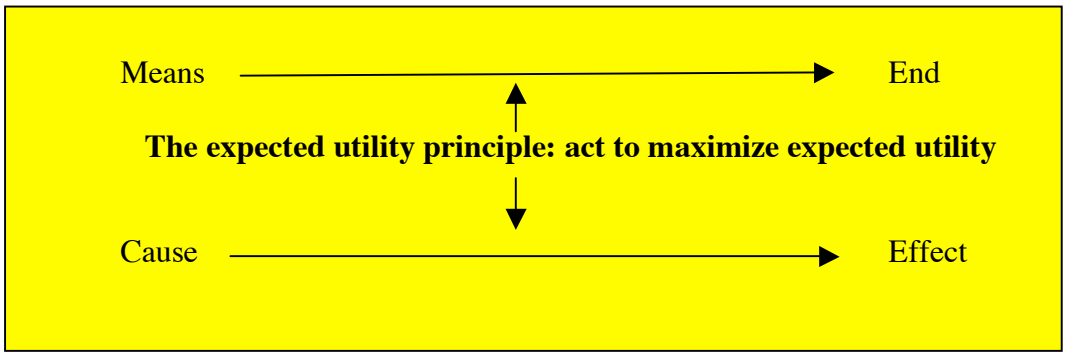
§ The Connotations of 'Causation'

When we use the word 'causation', we usually think that the word has the following connotations (implied ideas):

(1) *Temporal:* Causes precede their effects.
(2) *Evidential:* Causes and effects are evidence for each other.
(3) *Explanatory:* Causes explain their effects.
(4) *Means-end*: If an effect is an end, its causes are means to it.

Mellor's Thesis:
1. **These connotations of 'causation' do not entail determinism.**
2. **These connotations can all be applied to indeterministic causation.**

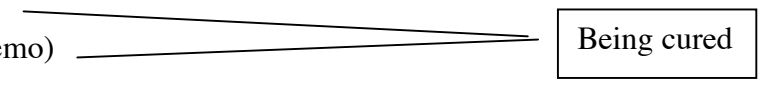
§ Mellor's Proposed Theory of Causation
___ The theory of causation should be based on its means-end connotation. Causation is best conceived of as the feature of the world that gives ends means.



The basic idea is that ***C*** will be a means to ***E*** only when expected utility prescribes it, i.e., when ***C***'s expected utility exceeds that of ~***C***.

Suppose ***C***'s utility = p and ~***C***'s utility = p'
We should have $p > p'$
___ the chance of the end would be greater in the circumstance if ***C*** were brought about than if it were not.

e.g.
___ Under the condition that one has cancer, and one's desired end is to be cured, the decision is between going through chemotherapy or not:



JeeLoo's suggestion: Compare this to Lewis' counterfactual analysis
Lewis: ~***C*** ➔ ~***E***
Mellor: ~***C*** ➔ *more likely* ~ ***E***

Mellor's Claim:
___ An effect's chance with a cause must be greater than it would be in the circumstances without that cause.

* Clarifications:

1. In deriving this condition, I do not assume that all or even any effects *are* ends.
2. All it says is that while ***C*** is related to ***E*** as cause to effect, *if* ***E*** were an end, ***C*** would *ipso facto* be a means to it.
3. The means-end connotation does not require a causal world to be full of ends and means.
4. Some probabilities may be too bad to worth running any risk of for any end, however valuable the end is. So even when the expected utility of ***C*** is higher than ~***C***, it might not worth taking the option.

§ Causal Circumstances and Causal Dispositions
___ Causation needs dispositions to make true the subjunctive implied by the condition that causes raise their effects' chances.

Causal circumstances are dispositions of objects and fields.

Causal dispositions are properties in the objects that make the object prone to behave in a certain way. Some dispositions are deterministic; some are not.

e.g. deterministic disposition: solubility = *a* has some property *S* such that if and only if *a* were put in water while being *S* would its chance of dissolving be 1.
e.g. indeterministic disposition: one's genetic make-up; one's metabolic properties (leading one to get sick or not is not deterministic)

To identify causes and effects is to give a dispositional specification which come properties of the objects or fields must beet; and to identify the causal relation is to find the properties which meet that specification.

e.g. Until we identify the properties of cigarette smoke which make those who inhale it more likely to get cancer, the tobacco industry can still continue to dispute the causal connection between smoking and cancer.

§ Causal Efficacy

1. The efficacy of the cause is measured by how much it raises the chance of its effect.

2. If causes raise their effects' chances, then causal loops, simultaneous causation or backward causation, are all impossible.
3. Causal efficacy comes by degrees. But a means must raise its end's chances by more than some minimum amount. The amount will no doubt vary from case to case, and even then be hard to specify.
4. The most effective causes are those that provide the most useful means (i.e., raises the chances of its effects by 1), the best evidence and the best explanation for their effects.
5. Because determinism gives causation all its connotations in their highest degree, deterministic causation is still the best.

Q: What are the advantages of Mellor's theory?

JeeLoo:

1. He seems to be offering a forward-looking causal analysis, rather than a backward-looking analysis based on what had actually happened (post factum).
2. This theory combines event causation with agent causation – it gives us a way to analyze what actions to take in our decision process. It seems to have more application to our lives.