Philosophy 110W - 3: Introduction to Philosophy, Hamilton College, Fall 2007
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Lecture Notes, October 23

I. Hume's problem of induction

Scientific generalizations which do not limit themselves to past observations go beyond sense evidence.
All such scientific generalizations will thus be unjustified, p 244.
Physical laws like Newtonian gravitation, or the gas laws, go beyond experimental evidence.
They refer to causal connections between events.
But we have no sense impressions of the terms used.
We have experience of the events, but not their causes.
Effects are distinct from their causes.
We have no access to the causes.
Thus we can not establish the truth of laws of nature.
We do not know that the sun will rise tomorrow.

The problem is not that there might be a big explosion.
An explosion could be consistent with physical laws.
The problem is that the laws could suddenly shift, from what we think they are.
This is called Hume's problem of induction.

Our inability to know physical laws is generally known as the problem of induction.
How do we get knowledge of the unobserved?
Consider the example of the chicken and its feed.
Induction is how you know about unobserved phenomena, especially predictions about the future.
It is also how you know that the person next to you has a beating heart.
We act as if we know C10.
But, Hume's problem is that we do not seem to have any justification for that claim.

Hume's skeptical argument about induction:

S1. Our beliefs about future events and unobserved objects are matters of fact.
S2. Beliefs about matters of fact are based on experience.
S3. Experience tells us how things were, not how they will be; it tells us only about actually observed phenomena.
SC. So, our beliefs about the future and the unobserved are uncertain.

Consider a specific version of the problem of induction:

I1. I have seen one billiard ball strike another many times.
I2. Each time the ball which was struck has moved, motion was transferred.
IC. So, the struck ball will move this time.

Notice that the conclusion of this argument does not follow from the premises.
You can see that IC does not follow if you consider what would happen if the laws of physics shift.
Then the conclusion could be false, while the premises remain true.
An invalid argument is precisely one in which the premises can be true while the conclusion is false.

II. A failed attempt to solve the problem of induction

We need a further premise to make the conclusion follow from the premises.
Consider the principle of the uniformity of nature (PUN): The future will resemble the past.
Skyrms suggests this principle, pp 247-8.
If we add PUN as a third premise, then the IC will follow from the premises.
In fact, we would have a deductive argument, not an e-argument, as Skyrms says.
What could justify PUN?
We have no basis for believing in it.
As Hume says, all inductive inference instead presupposes it, p 244.
PUN can not justify itself.
Compare this problem with the problem of Cartesian circularity.

Just as Berkeley saw that the empiricist is cut off from the material world as it is in itself, Hume sees that we are isolated from the connections in nature, the causal laws.
All we can experience are conjunctions of events.
Some of these conjunctions are regular, but we can not know that the regularity will persist.
Still, we do believe that there are connections between events.
We exit through the door, not the window.
We do not really doubt that the sun will rise.
Hume's argument is that our confidence in the regularity of nature is mere unjustified habit.

III. A final question: particulars or laws?

Would an infinite mind know the laws?
Or, are laws of nature merely human constructs?
A possible solution: an infinite mind has the capacity to work only in particulars, and has no need for universals, like laws.
This solution seems consistent with Berkeley's position, but it need not presume his immaterialism.
The laws might be implicit in the particulars.
The question is whether there is something real about laws, in addition to the particular elements of matter and their interactions.

Now, we put aside the skeptical worries about induction to look at the actual process of science.
We are adopting a stance much like Chisholm recommends.
We can be particularists about science, starting with the methods that we know work.

IV. Characterizing science

Hempel starts with a very broad understanding of scientific explanation in working toward the D-N model of scientific explanation.
A scientific explanation is one that answers an explanation-seeking why-question.
He contrasts explanation-seeking why-questions with epistemic why-questions.
Epistemic why-questions solicit justifications for believing a statement.
Explanation-seeking why-questions solicit deductive-nomological, or D-N, responses.

'Nomological' means lawlike.
D-N explanations start with covering laws, and specific facts.
D-N explanations are deductive, in that a specific phenomenon, the explanandum, is derived, using just logic, from the laws and initial conditions.

The covering laws are general.
They say that every time certain circumstances are realized, certain specific phenomenal will occur.
So, if we want to know why this swan is white, we might appeal to the general law that all swans are white, and the specific fact that this is a swan.
Hempel discusses Dewey's explanation of the soap-bubble phenomenon.
There are general laws, about the relationship among temperature, volume and pressure.
And there are specific conditions, concerning the glass on the table.

Both the general laws and the specific conditions mentioned in the general laws must be present, in order to have a D-N explanation.
If we do not have specific conditions, we are left without application of the laws in any particular case.
If we do not have general laws, then we have an empty explanation.
For example, Hempel discusses the inference from 'the bubbles expanded then receded' to 'the bubbles expanded'.
This inference is deductive, without being explanatory.
For another example of a non-explanation, consider the explanation that opium puts one to sleep because it has the dormitive virtue.
The phrase 'dormitive virtue' comes from *Le Malade Imaginaire* by Molière, who was mocking doctors.
We need general laws about how opium interacts with our body in order to have a real explanation.
In fact, the best laws will be those of the highest level.