

Inference to the best explanation

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PHLB20 Lecture Notes 4

In the previous lecture notes we encountered 'inference to the best explanation' (IBE) as the style of argument Hawthorne and Stanley advanced on behalf of their 'Action-knowledge principle'. Now we will take a closer look at IBE.

1 Inference

Obviously we don't go through life with a fixed set of beliefs. We learn things, form new beliefs.

We can make a rough divide of the ways we learn things into 'by perception' and 'by reasoning'. In perception, completely new beliefs come onto the stage; in reasoning, old beliefs are used as the basis for forming new beliefs.

We can say that an 'inference' is a sort of 'elemental' piece of reasoning. If an 'argument' is a long chain of reasoning, then an inference is one of the steps in the chain. Here's an example:

1. Jones is driving around in that Ford and bragging about how he just bought it;
2. So Jones owns a Ford;
3. So *either* Jones owns a Ford *or* Brown is in Barcelona.

Let's ask why the person came to believe each of these lines. Line (1) comes from perception. Lines (2) and (3), by contrast, come from reasoning: line (1) is used as the basis for moving to line (2); line (2) is used as the basis for moving to line (3). In each case, the 'move' to the next line is the inference.

There is an important difference between the inference to (2) and the inference to (3):

- We know that **if** line (2) is true, line (3) has to be true. Because $A \vee B$ says *less* than A , there is no way for A to be true when $A \vee B$ isn't.

An inference that can't go from true to false is what we call 'valid'.

Note that in philosophy, 'valid' is always used in that special technical way. Your grader may likely blow a fuse if your paper uses it to mean 'plausible'.

- By contrast, it can happen that line (1) is true but line (2) is not. If Jones is lying about the Ford which he in fact hotwired from the Dollarama lot, then line (1) would be true but line (2) would be false. Line (2) says *more* than line (1).

An inference that (while normally a good idea) can go from true to false is what we call 'ampliative' (because it 'amplifies' your beliefs in the sense that the result says more than the input).

Valid inference tends not to be very helpful in learning about the world. Whenever people engage in scientific reasoning to develop new theories, their reasoning is ampliative.

2 How does ampliative inference work?

For a long time the answer was: by 'enumerative induction' (EI). Here is an example of EI:

Lo and behold: a black raven!

Lo and behold: another black raven!

Lo and behold: yet another black raven!

Lo and behold: still another black raven!

...

So (by enumerative induction): all ravens are black.

This is obviously ampliative because a pink raven might be just about to swoop in.

In 1964 Gilbert Harman wrote a hugely important paper arguing that this is not typically the kind of ampliative inference we engage in. Rather, Harman claims, most or all ampliative inference goes by inference to the best explanation.

Here is an example of IBE:

Lo and behold: a black raven!

Lo and behold: another black raven!

Lo and behold: yet another black raven!

Lo and behold: still another black raven!

...

Why have I have seen all these black ravens and no non-black ravens?

Maybe because of a conspiracy to keep the non-black ones away from me.

Maybe because of a random population die-off of the non-black ones in my area.

Maybe because part of the DNA that makes for a raven codes for being black.

That last explanation is a lot better than the other two!

So (by IBE): part of the DNA that makes for a raven codes for being black.

So (because there's no reason to take seriously that something was done to overcome this DNA influence from time to time): all ravens are black.

3 Looking more closely at IBE

As we saw in the previous handout, IBE involves the following stages:

1. Lay out some *data*;
2. Ask *why this data?*;
3. Canvas a range of *alternative answers*—the explanations of the data;
4. Regard one as *superior* to the remainder;
5. And on this basis, *endorse it*.

Obviously there are several ways in which the same data can lead different people to different paths by IBE:

- Two people might lay out a different range of alternative explanations in stage (3), due to differences in creativity or sophistication or knowledge or intelligence or interests or ...
- Two people who have canvased the same alternatives in (3) might differ in stage (4), in their sense of which explanation is superior to the rest, due to differences in world-view or understanding or taste or acculturation or group allegiance or previous experience or ...
- Finally, even if two people agree that *this* explanation is superior to *all those*, one of them still might think that even the best isn't good enough.

If our ampliative reasoning goes by IBE then there is surely no such thing as a general calculus for finding out about the world which everyone will regard as legitimate.

Is there a general calculus which everyone *should* regard as legitimate?

- If it doesn't go with *my* tastes in explanations, then I should regard most of my beliefs as wrong. But that is probably incoherent.
- But it doesn't go with *my* tastes in explanations either—not if I am to be adequately respectful of the tastes of others.

So the answer would appear to be no.

4 Harman on behalf of IBE

Harman makes a range of arguments that our ampliative reasoning goes by IBE:

1. Cases of what are supposedly EI are really cases of IBE. Examine the supposed EI above: that could be unpacked to look like the IBE above.

Now contrast that EI with another one:

Lo and behold: a black pair of shoes coming up the block today!

Lo and behold: another black pair of shoes coming up the block today!

...

So (by enumerative induction): all pairs of shoes coming up the block today are black.

That is very unconvincing. There is no reason to suppose that just because I have seen only black shoes coming up the block so far today that this trend will continue.

What makes the difference?

Answer: there is no decent way to explain the trend so far which suggests that it is anything more than a coincidence.

So whenever an EI is any good, that is because there is really an IBE running in the background.

2. Suppose I reason as follows:

That person is hollering and clutching their thumb; therefore they feel pain.

This is surely an ampliative inference. They might be faking it. Or they might be a hollow puppet programmed to behave like a human.

Is my conclusion a case of EI?

If so, there would have to be a series of observations like: 'lo and behold: this person is hollering and clutching their thumb and in pain; lo and behold: this other person is ...'.

But I don't make those observations on anyone but myself. So EI provides no basis for generalizing beyond myself to other people.

So my reasoning must be backed up by an IBE: the best explanation of their hollering and clutching their thumb is that they are like me on the inside, and they don't typically go about behaving that way unless they too have pain.

3. There is a complicated argument involving Harman's 'no false lemmas' theory of knowledge that I think is probably best set aside.