

NOTE ON INDUCTION

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Some logic textbooks say, as if it were the received wisdom, that inductive arguments are partly defined by the thinker's intentions.¹ The claim is that an inductive argument is one where the premises are *intended* to make the conclusion likely. This contrasts with a deductive argument, where the premises are intended to entail the conclusion. However, since entailing is one way of making more likely, a further way to distinguish induction is needed. The addition offered is that the premises are *not* intended to entail the conclusion. Taken together, the result is:

- (1) An argument is inductive if the premises are (a) intended to make the conclusion likely, but (b) not intended to entail the conclusion.

Perhaps a biconditional claim is preferable to (1), but (1) already suffers problems.

A minor point is that it is dubious whether (1) describes 'induction' in the traditional sense (as in Hume, for example). But more seriously, (1) counts some deductively valid arguments as *inductive*, viz., valid arguments where the thinker does *not intend* the premises to entail the conclusion (though intends to make the conclusion likely). For instance, suppose the thinker has no intent for 'All things are either not smurfs or blue' to entail 'Papa Smurf is blue'. But suppose there is intent for the former to make the latter likely. Then, (1) will count the argument as inductive. Yet such an argument is deductively valid, regardless of the thinker's intentions for the argument.

Note that the problem is not that the thinker has made a *mistake*. It is not that the thinker judges the argument to be

invalid when it is valid. Rather, the case may be one where the thinker wants to make the conclusion more likely, but is undecided whether the premises guarantee the conclusion. In that case, (1) determines that this valid argument is merely an inductive argument.

A definition which avoids this problem (and seems more in line with 'induction' in the traditional sense), would be something like:

(2) An argument is inductive iff the premises register some known case(s) of a phenomenon, and the conclusion says that some further case(s) will be like the known case(s).

This is not intended as a rigorous definition. But I hope this communicates the sort of thing I have in mind. As an illustration, suppose some premises record that eating glue made me sick today, that it made me sick yesterday, and the day before that, etc.. An inductive argument then results if we conclude that eating glue will make me sick tomorrow.

One concern is that under (2), 'deduction' and 'induction' no longer exhaust the types of argument (*contra* the logic textbooks). But that seems fair. Inference to the best explanation, for instance, should be distinguished from deduction and from the kind of reasoning that (2) describes.

However, logic textbooks often claim that analogical reasoning is a species of induction. An unexpected consequence of (2) is that this has it backwards: All inductive reasoning apparently is a species of analogical reasoning. For according to (2), an inductive argument has it that the known cases will be *like* the unknown cases. And reasoning on the basis of a simile is characteristic of analogical reasoning.

Even if this is right, however, it is not as if induction would have the same logical status as e.g., William Paley's (1802/2008) watch-analogy argument. My eating glue is a single type of phenomenon, and thus, what's true in one

instance (of that type) may well be likely in another instance. In contrast, it is unclear whether the design of a watch and the layout of the universe are the same type of phenomenon. So it is more tenuous to presume that what is true of one is likely true of the other. Consequently, even if induction is a type of analogical reasoning, there can be principled reasons why induction is more reliable than prototypical arguments by analogy.²

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Notes

¹ I do not wish pick on any textbooks by name. But the claim is common enough that you probably have some desk copies with this sort of idea.

² My thanks to Dan Parker for helpful conversation.

Reference

W. Paley, 'The Watch and the Watchmaker,' in Pojman & Rea (eds.), *Philosophy of Religion*, 5th ed., (Belmont, CA: Wadsworth, 2008), 54–6.