(if both are true) explain why the belief that $S$ is a $B$ is justified, but does not always account for the fact that $S$ is a $B$. Sometimes it does and sometimes it does not, depending on its content.

Acceptance of a narrow notion of the deductive model of explanation might also make the view tempting. The narrow notion to which I refer regards deducibility from a true generalization as a sufficient condition for an explanation. As I showed, not all true generalizations explain (account for) their instances. 4

If, however, one wants to stick to this narrow notion of explanation, then Harman's thesis will become empty. All that it will then say (in the case of inferring 'All $A$'s are $B$'s) is that enumerative induction is a case of inference to a true generalization from which the evidence can be deduced. On this interpretation the thesis follows simply from the definition of enumerative induction and thus does not say anything new. In the case of inference to the next instance of observed regularity, it is difficult to know what this interpretation of the thesis would say, since no true generalization is used.

IV

I have tried to show that the view under consideration is mistaken and have suggested why it is tempting, but have not proposed a clear alternative view. I hope that I have made the problem more clear. Attention to at least the two sorts of explanation depicted and to types of products of, and evidence for, enumerative induction will, I believe, help one to avoid some of the pitfalls faced in the attempt to discover in what way the product of an enumerative induction must fit in with the context and existing knowledge.

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ENUMERATIVE INDUCTION AS INFERENCE TO THE BEST EXPLANATION

ROBERT ENNIS describes three inferences by enumerative induction and argues that I have not shown how such inferences may be treated as special cases of inference to the best explanation.* In these brief comments I shall sketch a version of my view that all inductive inference is inference to the best ex-

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* This was also a basic point of Israel Scheffler's in his "Explanation, Prediction, and Abstraction," *British Journal for the Philosophy of Science*, vii, 28 (February 1957): 295–309.

planation, I shall try to show how the view thus sketched would apply to Mr. Ennis's examples, and then I shall briefly touch on an issue raised by Mr. Ennis's final remarks.

I claim that in inductive inference one may directly infer by one step of inference only a conclusion of the form $A$ explains $B$.  

Some comments: (1) Conclusions may be reached by several steps of inference that combine induction and deduction. In particular one may use induction to infer $A$ explains $B$ and then use deduction to infer $A$. Or one may first infer $A$ explains $B$ and then infer $B$. (2) In ordinary usage, the word 'explanation' is ambiguous. We may say that $A$ explains $B$ is the explanation or say that $A$ is the explanation. According to me, inductive inference directly infers explanations in the first sense. Explanations in the second sense are indirectly inferred by deducing them from explanations in the first sense. (3) Sometimes one infers an explanation of something already accepted (as when one infers that a person says what he says because he believes it); but sometimes one infers that something already accepted explains something else (as when one infers that a person's present intention to do something will explain his later doing it). (4) It would be a mistake to say that induction always infers an explanation of one's evidence. Such a mistake could easily be encouraged by the ambiguity in 'explanation' noted in (2) above. I made this mistake in "The Inference to the Best Explanation."

(5) The explanation, i.e., the explanatory statement, must be the best of competing explanations and not the best of alternative explanations. We might be able to explain something by appeal to laws plus conditions as they were at several prior moments of time. Such alternative explanations need not conflict and may all be inferable. (6) Competing explanations in the relevant sense need not be competing explanations of the same thing. They may be competing claims about what a particular thing explains (e.g., when one must infer what another will do on the basis of his present character, desires, situation, etc., one must choose among competing claims about what his present character, desires, situation, etc. will result in, i.e., will explain). (7) The criteria of the "best" of competing explanations include not only explanatory power but also epistemic considerations; e.g., an inferable explanation must be probable on one's evidence.  I think that Ennis is on the right track

1 Occasionally one may infer a conclusion of the form One or another of $A_1$, ..., $A_n$, ..., explains $B$. See my "Detachment, Probability, and Maximum Likelihood," Noûs, 1, 4 (December 1967): 401–411, esp. fn. 11, p. 407.

2 I discuss criteria for the case in which one must infer an explanation of one's evidence in "Detachment, Probability, and Maximum Likelihood."
when he says that we want our conclusion to “fit in with existing knowledge.” The best explanation is the one that fits in best. It is inferable if it fits in sufficiently better than competing alternatives.

I say that enumerative induction can be seen as a special case of inference to the best explanation. In other words I claim that whenever enumerative induction warrants a conclusion, the same conclusion can be reached by inference to the best explanation plus deduction.

Enumerative induction argues from an observed correlation either to a generalization of that correlation or to correlation in the next instance. If the relevant generalization is a law of nature, it is relatively easy to see why the inference must be a special case of the inference to the best explanation, since the relevant law will explain the observed correlation. Roughly speaking, we must be able to infer that the law of nature, all A’s are B’s, explains why observed A’s have been found to be B’s. (If we have reason to suspect a different explanation, we cannot make the inference.) By deduction from that explanatory statement we can infer that all A’s are B’s and that the next A, if any, is a B. But things are less simple in the more ordinary case in which the relevant generalization is not a law of nature.

Consider the examples Ennis provides. From the fact that doctors have been found to be right in the past when they have been observed to predict measles, we infer that they are generally right in such predictions, and we also infer that the next time a doctor predicts measles, he will be right. Again, from an observed regularity between pulling back on the control stick of a flying plane and the lowering of the air speed and from the premise that the stick has been pulled back, we infer the lowering of the air speed. These are inferences by enumerative induction. Can they be seen as special cases of the inference to the best explanation?

Such examples raise two apparent difficulties. First we seem to be able to make the inference without knowing the relevant explanations. We don’t know how doctors can tell when measles is present, and we don’t know why pulling back the control stick lowers the air speed. Second, from the relevant generalizations, “Doctors are generally right when they predict measles” or “Pulling back on the control stick generally lowers the air speed,” we cannot deduce that anything will happen in the next instance. Therefore we cannot treat these examples exactly as we treat cases in which the relevant generalization is a law of nature.

I suggest that in such cases enumerative induction is warranted
only if one may infer the following conclusions: "That $A$ is normally followed by $B$ explains why $A$ has been observed to accompany $B$. That $A$ is normally followed by $B$ will explain $A$'s being followed by $B$ in the next instance." Competitors of the first conclusion are other explanations of the observed correlation. Competitors of the second conclusion are that some interfering factor will lead to $A$'s not being followed by $B$.

We infer that one explanation why doctors have been right about measles on particular occasions in the past is that doctors can normally tell when someone has measles. That doctors can normally tell does provide a slight though real explanation of their observed success that must not be confused with the pseudo explanation, "That doctors normally can tell when a person has measles explains why doctors are normally right when they predict measles." We infer that the doctor's normally being able to tell whether a person has measles will explain why he is right the next time he predicts measles. That explanatory statement is to be preferred to the supposition that, because of some interfering factor, he will be wrong next time despite his general ability. The explanation of the doctor's being right next time must be better than any available explanation of his not being right. It must be better in the sense that it fits in better with our current set of background assumptions.

In Ennis's other case we reason as follows: That pulling back the control stick normally lowers the air speed explains why the air speed lowered when the control stick was pulled back on particular occasions. (The latter is not to be explained, e.g., as the result of someone else's watching us and pushing the relevant buttons whenever we pulled back the control stick.) That pulling back the stick normally lowers the air speed will explain why pulling the stick back will be followed by lower air speed in the next instance. (The latter explanation is preferable to assuming, e.g., that a failure in the mechanism will explain why pulling the stick back will not be followed by lower air speed.)

Since these analyses do seem to bring out the criteria of warranted inductive inference for Ennis's examples, I conclude that the examples are properly treated as special cases of the inference to the best explanation.

Finally I want to comment briefly on Ennis's claim, with which I agree, that our conclusion must "fit in" with existing knowledge. It is illuminating to suppose that one of our ends in making inductive inferences is to understand as much as we can about the world. Another end appears to be dictated by a certain laziness or
conservatism. Such ends lead us to adopt the most coherent and complete explanatory account we can find that does least violence to what we antecedently accept. So we can accept a hypothesis whenever it easily fits into our total explanatory picture of the world and no competing hypothesis would do as well; and we can reject a hypothesis whenever its acceptance would lead to too much explanatory complication or too many loose ends.

(a) Sometimes we infer an explanation of our evidence, on the grounds that competing explanations of that evidence are too complicated, ad hoc, etc. (b) Sometimes we infer that something we now know about will lead to, and hence explain, something else, on the grounds that to assume otherwise leads to too much explanatory complication. (c) Sometimes we even give up something previously accepted, on the same grounds: reduction of explanatory complication in our total picture of the world. The latter sort of inference, (c), provides difficulties for most accounts of inductive inference. We can account for it if we assume, as I think we must, that inference to the best explanation is ultimately inference to the best total explanatory picture of the world.

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BOOK REVIEWS

A DEFENSE OF RULE UTILITARIANISM AGAINST DAVID LYONS WHO INSISTS ON TIEING IT TO ACT UTILITARIANISM, PLUS A BRAND NEW WAY OF CHECKING OUT GENERAL UTILITARIAN PROPERTIES

D AVID LYONS, in his recent outstanding book, *Forms and Limits of Utilitarianism,* denies, in a most brilliant fashion, that rule utilitarianism (RU) represents any significant advance over act utilitarianism (AU). Indeed, as Lyons sees the matter, the rule utilitarian (RUian) is no better off than his act-utilitarian predecessor.

Why does Lyons come down so hard on the RUians? Is it because he thinks they are faced with an insoluble problem: the Problem of Competing Descriptions (PCD)? No. In fact what Lyons does is to solve this problem for them. He shows RUians how to resolve PCD, and then goes on to demonstrate that their views are finally worthless anyway.

What is PCD, and how does Lyons deal with it?

PCD looms before us if we consider Jones, the only six-toed existentialist philosopher, who last Tuesday told a lie for the first time