

In Defence of the Naive Inductivist:

as well as some of their Not-so-naive Brethren

Published in *Science & Education* **8**: 441-447, 1999

KONRAD TALMONT-KAMINSKI

Department of Philosophy, Monash University, Clayton Vic. 3168, Australia

ktk@silas.cc.monash.edu.au

ABSTRACT: Alan Chalmers, in *What is this thing called Science?*, presents inductivism as a naive view of science which has been disproved. However, the arguments he bases this conclusion on either depend upon a stilted view of inductivism or affect a very broad range of positions, including Chalmers' own. I argue that a broadly inductivist view of science, including its observational base, is precisely the approach required.

RUNNING HEAD: In Defence of the Naive Inductivist

INTRODUCTION*

Like many who have done introductory philosophy of science courses in Australia during the last couple of decades, I was introduced to philosophy of science through Alan Chalmers' book *What is this Thing called Science?* However, it had been many

years since I had last looked into it when, earlier this year, I decided to go back and reread it. Imagine my surprise when, instead of reading straight through it cover-to-cover, I found myself constantly stopping to question what had come to appear to me as quite controversial claims. In particular, its presentation of inductivism as an outworn creed.

Chalmers has two main objections to inductivism.

The first is that naive inductivism suffers from the problem of induction. While this is definitely the case, Hume's problem affects not just the naive inductivist but also most of the other positions Chalmers discusses, including Chalmers' own position, objectivism. So, in this regard, the naive inductivist is relatively no worse off than anyone else who wishes to argue that scientific prediction is rational.

The other objection Chalmers makes is that naive inductivism is unable to deal with the theory-ladenness of observations. The difficulties Chalmers raises, however, may be easily avoided while retaining essentially the same view of observations. Indeed, to understand the relationship between observations and observation sentences an inductivist account seems to be called for.

WOULD THE REAL INDUCTIVIST PLEASE STAND

In Chalmers' book the naive inductivist position has much the same role as the lazy, beer-swilling Norm of the 'Life. Be in it.' fame or as the wastrel Wally from the 'Don't be a Wally with water' ads. The naive inductivist is a straw man, meant to teach students what one should do via the use of counter-example.

As Chalmers, himself, explains:

[Its] purpose is pedagogical. By understanding [this] extreme, somewhat caricatured [position] and [its] faults the reader will be in a better position to understand the motivation behind modern theories.¹

Broadly speaking, it is possible to identify two main components within the naive inductivist corpus; the nature of empirical evidence and the relationship between observational statements and universal generalisations. Experience comes in the form of observations, which are atheoretical, and which can be easily used to arrive at observational statements. Inductive inference is then used to generalise from the observational statements to the universal laws.

Even such a basic sketch is enough to give the strong suspicion that ‘naive inductivist’ is simply a nom de guerre of the logical empiricists. And, indeed, many of Chalmers’ references are clearly aimed at logical empiricists. One should realise, however, that the names have been changed not to protect the guilty but to allow Chalmers certain freedoms that he could not afford with historical figures. Thus, in Chalmers’ hands the naive inductivist is not just a straw man but a particularly obliging kind of straw man. Whenever Chalmers finds that the didactic context requires a particular theoretical limb to be cut off, the straw man inductivist grows one right under the author’s democlesian sword.

Unfortunately, it is often ambiguous where Chalmers’ criticism of naive inductivism ends and criticism of the philosophically significant forms of inductivism begins. Chalmers’ problem is that he is trying to do two things at once. On the one hand he wishes to present the reader with a caricature which will help to undermine certain incorrect preconceptions the reader may have. But, on the other hand, Chalmers wishes to also argue against the far more sophisticated real cousins of the naive inductivist. Unfortunately, while a certain amount of cartoonish exaggeration is necessary for one task it is also completely inappropriate to the other.

Part of the difficulty is that Chalmers does not make clear what is a sophisticated inductivist. Wesley Salmon's simple, yet powerful, definition of induction might just be what is needed here.² Salmon defines inductive inference as rational but not truth-preserving inference - as opposed to deductive inference which is rational and truth-preserving. Inductivists, in this sense, are simply those who think that rational, non-truth-preserving inferences play a significant role in science.

Such a definition of inductivism makes it a very broad church. Not only will it include the naive inductivist but any position which holds that scientific prediction is rational; this includes Chalmers' own objectivism as well as, most probably, including Popper's deductivism.³

Of course, it may be argued that such a definition must be too broad. However, it has the advantage that it correctly identifies the set of philosophical positions which are affected by the problem of induction i.e. the problem of how to justify an inference form if not by saying that it is truth-preserving. This is significant as Chalmers identifies the problem of induction as one of the two main difficulties which plague naive inductivism.⁴ However, seeing that much more sophisticated positions have failed to yet come to terms with the problem, this short-coming of the naive inductivist should not be viewed too harshly. Certainly, if everyone else is also infected with the problem of induction, it can not be used to justify making naive inductivism a pariah.

WHAT'S SO NAIVE ABOUT NAIVE INDUCTIVISM?

The other kind of difficulty Chalmers raises against naive inductivism is a group of interrelated theory-ladenness problems.

First of all, it should be recognised that a sophisticated inductivist has no need to make any response to these problems. As I have already argued, inductivism should be seen as a view about what inference forms are rational. Since theory-ladenness only casts doubt on the truth of empirically determined premises, it does not affect inductivism in general. Even so, I will defend the naive inductivist view of observations. The reason is that it seems, for the most part, correct and because it leads to a development in the inductivist approach.

The two main naive inductivist claims Chalmers identifies are that ‘science starts with observation’ and that ‘observation yields a secure basis from which knowledge can be derived.’⁵ While he rejects both, I will argue that in very important ways they are both correct and that criticisms such as those of Chalmers only help to bring out these ways.⁶

Chalmers’ initial attack upon the naive inductivist view of observations comes in the form of an argument which shows that visual experiences are not determined by the images on the retina.⁷ As Chalmers shows, it is very likely that our theoretical conceptions actually affect what experiences we have. While the argument is illuminating in many ways it is, also, fundamentally misdirected. Chalmers suggests that a naive inductivist must argue that ‘two normal observers viewing the same object or scene from the same place will “see” the same thing.’⁸ The argument that theories can in part determine experience is aimed at this claim. However, the naive inductivist can, indeed should, allow the possibility of theory influencing observation.

The problem with Chalmers’ argument can be clearly seen in the ambiguity of the claim that:

When the naive inductivist, and many other empiricists, assume that there is something unique given to us in experience that can be interpreted in various ways, they are assuming, without argument and in spite of much

evidence to the contrary, some one-to-one correspondence between the images on our retinas and the subjective experiences that we have when seeing.⁹

The ambiguity the claim depends upon is what is meant by ‘something unique’. On the one hand, it can be understood as meaning that every person will have the same experience in the same situation. On the other hand, it can simply mean that every person is given some unambiguous experience to interpret. And, while the empiricist may wish to defend the second of these claims, i.e. that experience is a given, the claim of the subjective uniformity does not follow.

If Chalmers is claiming that a simplistic view of the relationship between what the eyes see and what the brain ‘sees’ is presupposed by the view that experience is a given then his claim is clearly false. However, if Chalmers is simply making the unproblematic claim that subjective uniformity of experience requires such a simplistic view then there is no reason why the empiricist should feel concerned. Subjective uniformity of experience is not a claim that a naive inductivist has to defend, after all.

But, it will no doubt be objected, the basic problem is that, once you allow possibly false theories to affect observations, these observations can not be seen as necessarily veridical.

However, what are these experiences supposed to be veridical of? In Chalmers’ attack it is implicit that the experiences are understood as experiences of the *external* world. In so far as they fail to inform us correctly about that external world they are then seen as false. Such an argument, however, depends upon an often false interpretation of experience. Experience is, after all, experience of the world *in toto* and not just of the external world. Our own theories about the world are part of that world and quite often do determine our experiences. Even though our experiences may not be an unerring guide to the state of the external world, there is no reason to think they err as guides to what is happening in the world *in toto*, including in our own befuddled heads.

If a false expectation partly determines our experience, that experience must be seen as, in part, informative of us having that false expectation and not as false, itself. It is the same principle as the one which recognises that faithful messengers ought not be punished for the bad news they bring. An error has been made, but it was an error of interpretation and not observation.

Chalmers' other objection with regard to observations is that our choice of which observations and experiments are deemed significant is guided by theory.¹⁰ He claims that, '[i]f interpreted anything like literally,' the naive inductivist requirement that observations be 'made by an unprejudiced and unbiased observer' is clearly 'absurd and untenable.'¹¹

However, must a naive inductivist think that theory does not guide our experiments?

Either way, the certainty of the observations which are actually made is not affected. All that is affected is which observations are made. One should ask why the naive inductivist would require an unprejudiced observer? Since experience seems to be deemed incorrigible¹² by naive inductivists it could not be that a prejudiced observer would lead to false observations being made. Rather, it would seem likely that the worry was that a biased observer might ignore significant observations. This worry is one that unfortunately we appear to have to accept. Even with the best intentions we may miss significant observations because we did not know what to look for.

Still, this point, by itself, only leads to a modification and not a rejection of naive inductivism. The naive inductivist has to allow that even the best experimenters may suffer from self-inflicted blindness. The level to which such theory-caused blind-spots affect actual epistemic practice has to be looked at. However, as I pointed out earlier, this does not affect the soundness of the observational base which is used. What

is more, it does not mean that the naive inductivist will continue to ignore the unnoticed problematic observations once their significance is made clear.

The final objection Chalmers makes to the naive inductivist view of experience is different from the other two. Unlike them, it deals with the relationship between observations and observation statements. In particular, it points out the theory-laden nature of any and all observation statements.

As Chalmers writes:

Observation statements are as fallible as the theories they presuppose and therefore do not constitute a completely secure basis on which to build scientific laws and theories.¹³

While I have no intention of arguing with Chalmers on the ubiquity of theory-ladenness in language I do wish to question its significance.

The logical empiricists and the naive inductivists seem to share the belief that the incorrigibility of observations extends all the way to observation statements and that the linguistic rot only begins thereafter. As I have already shown, Chalmers offers no effective arguments to doubt the incorrigibility of observations. So, at least they seem safe from being infested by theories. The fact that observation statements succumb should not be seen as necessarily fatal. Perhaps, it is only a slight change in the diagnosis of the extent of the illness - where previously only some parts of language were seen to be corrupted now all are. The question turns on what actually is the relationship between observations and observation statements.

If the naive inductivists are thought to be claiming that the relationship is direct - i.e. not channeled by theory - they are clearly wrong. However, they only need to claim that observation statements are justified. And, after all, some sort of justification for our observation statements must exist if science is to be seen as a rational enterprise.

Perhaps, then Chalmers is only saying that a justification which includes theory is not acceptable to an inductivist. Such a claim, however, runs completely counter to what I see as the fundamental inductivist tenor.

Clearly, any justification which relies upon theory will be as fallible as that theory. What is more, in so far as they involve categorisation that goes beyond prior experience, justifications of observation statements are ampliative. Finally, because they deal with observations and not propositions, such justifications must be non-demonstrative. The point is that the procedures used for justifying observation statements look very similar to the inductive inferences which take us from those observation statements to general laws. Being fallible, ampliative, non-demonstrative and yet rational are exactly the properties that Salmon thinks define inductive inferences.¹⁴

The general picture I would argue for, then, is that induction is not just used to relate general laws to observation statements but, likewise observation statements with the observations which justify them. Once such a broad view of inference is accepted, the quite valid worries about the nature of our justification for observation statements will be seen as an aspect of the problem of induction.¹⁵

At the start of this section I claimed that I would show that both the assertion that ‘science starts with observation’ and that ‘observation yields a secure basis from which knowledge can be derived’ can be sustained despite Chalmers’ criticism. A post-Chalmers inductivist can hold on to significant versions of these claims. The basic point of my argument has been that, although the link between observations and observation statements is definitely theory-laden and fallible, the actual observations, themselves, are incorrigible. This means that observations do provide a secure basis. However, it is not a basis upon which one can build theory like a pyramid. Rather, it is a basic

epistemic core which every theory must hold on to. The direction in which such theory will grow is undetermined by the observations.

Also, because observations are acorrigible, science can be seen as starting from them. It does not start empty-handed, however. At every point in the story, theoretical tools shape scientific progress, filling in the vacuum in the determination of the theory that observations leave unplugged.

CONCLUSIONS

Ultimately, naive inductivism is an unsatisfactory view of science. However, Chalmers' criticism of it does not affect inductivism in general. What is more, there is an inductivist view of experience which retains much of what is attractive about naive inductivism without suffering from its weaknesses.

From what I have said it might sound like Alan Chalmers' book would be the very last text I would chose to teach philosophy of science. However, the opposite is the case. The reason is that philosophy seems to me to be about dialogue, about argument. How better to introduce the students to the idea that philosophy is not about rote learning opinions but about developing arguments then by creating a dialogue between the set text and the lecturer?

BIBLIOGRAPHY

Chalmers, A.F.: 1982, *What is This Thing Called Science?* (second edition), University of Queensland Press, St. Lucia.

Salmon, W.C.: 1966, *The Foundations of Scientific Inference*, University of Pittsburgh Press, Pittsburgh.

* My thanks to John Bigelow, John Collier and John Clendinnen for comments, criticisms, and the reassurance that being an inductivist does not entail being naive. Also, many thanks to Alan Chalmers for his encouragement and comments on a draft of this paper. All quotes from *What is this Thing called Science?* are from the 2nd (1982) QUP edition.

¹ Chalmers, p. xviii.

² Salmon, Wesley, *Foundations of Scientific Inference*, pp. 8ff.

³ Salmon has argued that Popper is an inductivist on a number of occasions, including in *The Foundations of Scientific Inference*, “The Justification of Inductive Rules of Inference” and “Rational Prediction”.

⁴ Chalmers, pp. 13ff.

⁵ Chalmers, p. 22.

⁶ Much of the content of this section runs along similar lines to ‘Acorrigible Experience’, a paper to be presented by John Collier and myself at the 1997 AAP.

⁷ Ken Sievers, in the paper he presented at the conference, gave a functionalist account of observation which avoids this issue. My approach is to accept the possibility of theory determining observations and to then argue that this does not cause a problem for the naive inductivist.

⁸ Chalmers, p. 23.

⁹ Chalmers, p.27.

¹⁰ Chalmers, pp. 32ff.

¹¹ Op. Cit.

¹² By ‘acorrigibility’ I simply mean to refer to those cases where something is incorrigible due to it not being the sort of thing that can be true or false. Thus chairs are acorrigible while stubborn philosophers are not.

¹³ Chalmers, p. 30.

¹⁴ Salmon, Op. cit.

¹⁵ The objection will doubtless be made that inferences only relate propositions with other propositions. John Collier and I specifically argued against this narrow view of inference in the paper we presented at the 1997 AAP.