Fact, Fiction, and Forecast

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60-61w Hume : thèse et critiques

Hume's answer to the question how predicates are related to past experience is refreshingly non-cosmic. When an event of one's kind frequently follows upon an event of another kind in experience, a habit is formed that leads the mind, when confronted with a new event of the first kind, to pass to the idea of an event of the second kind. The idea of necessary connection arises from the felt impulse of the mind in making this transition.

[…] The heaviest criticism has taken the righteous position that Hume's account at best pertains only to the source of predictions, not their legitimacy; that he sets forth the circumstances under which we make given predictions—and in this sense explains why we make them—but leaves untouched the question of our license for making them.

Commentaire : la réalisation des prédictions le fait ! C'est l'habitude, toujours elle, qui vient nourrir la justification de l'habitude de prédire.

62-65 Induction : apologizes to Hume

A better understanding of our problem [justifying induction] can be gained by looking for a moment at what is involved in justifying non-inductive inferences. How do we justify a *de*duction? Plainly, by showing that it conforms to the general rules of deductive inferences. […] Analogously, the basic task in justifying an inductive inference is to show that it conforms to the general rules of *in*duction. […] how is the validity of rules to be determined? […] I think the answer lies much nearer the surface. Principles of deductive inference are justified by their conformity with accepted deductive practice. […]

This looks flagrantly circular. […] The point is that rules and particular inferences alike are justified by being brought into agreement with each other. […]

A result of such analysis is that we can stop plaguing ourselves with certain spurious questions about induction. We no longer demand an explanation for guarantees that we do not have, or seek keys to knowledge that we cannot obtain. It dawns upon us that the traditional smug insistence upon a hard-and-fast line between justifying induction and describing ordinary inductive practice distorts the problem. And we owe belated apologies to Hume. For in dealing with the question how normally accepted inductive judgements are made, he was in fact dealing with the question of inductive validity. The validity of a prediction consisted for him in its arising from habit, and thus in its exemplifying some past regularity. His answer was incomplete and perhaps not entirely correct; but it was not beside the point. The problem of induction is not a problem of demonstration but a problem of defining the difference between valid and invalid predictions.

This clears the air but leaves a lot to be done.

67-68 La confirmation ne peut être la déduction à l'envers

Some pioneer work on the problem of defining confirmation or valid induction has been done by Professor Hempel. Let me remind you briefly of a few of his results. Just as deductive logic is concerned primarily with a relation between statements—namely the consequence relation—that is independent of their truth or falsity, so inductive logic as Hempel conceives it is concerned primarily with a comparable relation of confirmation between statements. Thus the problem is to define the relation that obtains between any statement S_1 and another S_2 if and only if S_1 may properly be said to confirm S_2 in any degree.

With the question so stated, the first step seems obvious. Dos not induction proceed in just the opposite direction from deduction? Surely some of the evidence-statements that inductively support a general hypothesis are consequences of it. Since the consequence relation is already well defined by deductive logic, will we not be on firm ground in saying that confirmation embraces the converse relation? The laws of deduction in reverse will then be among the laws of induction.

Let's see where this leads us. We naturally assume further that whatever confirms a given statement confirms also whatever follows from that statement. But if we combine this assumption with our proposed principle, we get the embarrassing result that every statement confirms any other. Surprising as it may be that such innocent beginnings lead to such an intolerable conclusion, the proof is very easy. Start with anay statement S_1 and any statement whatsoever—call it S_2. But the confirmed conjunction $S_1 \cdot S_2$ of course has S_2 as a consequence. Thus every statement confirms all statements.

70 Paradoxe des corbeaux

the infamous paradox of the ravens. The statement that a given object, say this piece of paper, is neither black nor a raven confirms the hypothesis that all non-black things are non-ravens. But this hypothesis is logically equivalent to the hypothesis that all ravens are black. Hence we arrive at the unexpected conclusion that the statement that a given object is neither black nor a raven confirms the hypothesis that all ravens are black.

82/120-121 *Quelles* régularités passées pour prédire ?

The real inadequacy of Hume's account lay not in his descriptive approach but in the imprecision of his description. Regularities of experience, according to him, give rise to habits of expectation; and thus it is predictions conforming to past regularities that are normal or valid. But Hume overlooks the fact that some regularities do and some do not establish such habits; that predictions based on some regularities are valid while predictions based on other regularities are not. Every word you have heard me say has occurred prior to the final sentence of this lecture; but that does not, I hope, create any expectations that every word you will hear me say will be prior to that sentence. Again, consider our case of emeralds. All those examined before time *t* are green; and this leads us to expect, and confirms the prediction, that the next one will be green? But also, all those examined are grue; and this does not lead us to expect, and does not confirm the prediction, that the next one will be grue. Regularity in greenness confirms the prediction of further cases; regularity in grueness does not. To say that valid predictions are those based on past regularities, without being able to say *which* regularities, is thus quite pointless. Regularities are where you find them, and you can find them anywhere. […]

If I am correct, then, the roots of inductive validity are to be found in our use of language. A valid prediction is admittedly, one that is in agreement with past regularities in what has been observed; but the difficulty has always been to say what constitutes such agreement. The suggestion I have been developing here is that such agreement with regularities in what has been observed is a function of our linguistic practices. Thus the line between valid and invalid predictions (or inductions or projections) is drawn upon the basis of how the world is and has been described and anticipated with words.

Commentaire : les deux contre-exemples (fin de la conférence et émeraudes "blertes") ont cela en commun de comporter explicitement une rupture temporelle, à savoir la fin précisément de la régularité observée. Tout le problème nous semble de débusquer les hypothèses qui *cachent* ces ruptures : et il semble impossible, par définition d'une telle hypothèse, d'en exhiber une comme contre-exemple face à Hume.

82/108 Quelques définitions, en vue de la théorie de la projection

In what follows I shall make frequent use of certain convenient terms that call for brief explanation. Whether or not a hypothesis is actually projected at a given time, such instantiations of it as have already been determined to be true or false may be called respectively its *positive* and its *negative* instances or cases at that time. All the remaining instances are *undetermined* cases. For example, if the hypothesis is

All emeralds are green

and *e* is an emerald, then

Emerald *e* is green

is a positive case when *e* has been found to be green, a negative case when *e* has been found not to be green, and an undetermined case when *e* has not yet found either to be green or not to be green. The emeralds named in the positive cases constitute the *evidence class* for the hypothesis at the tie in question, while the emeralds not named in any of the positive or negative cases constitute the *projective class* for the hypothesis at that time. A hypothesis for which there are some positive or some negative cases up to a given time is said to be *supported* or to be *violated* at that time. A violated hypothesis is false; but a false hypothesis may at a given time be unviolated. If a hypothesis has both positive and negative cases at a given time, it is then both supported and violated; while if it has ne cases determined as yet, it is neither. A hypothesis without any remaining undetermined cases is said to be *exhausted*.

[…] a hypothesis is *projectible* when and only when it is supported, unviolated, and unexhausted, and all such hypotheses that conflict with it are overridden; *non-projectible* when and only when it and a conflicting hypothesis are supported, unviolated, unexhausted, and not overridden; and *unprojectible* when and only when it is unsupported, violated, exhausted, or overridden.

These formulae, tough, are only provisional, and the projectibility here defined is at best *presumptive projectibility*. The sorting into three categories is gross and tentative. Hypotheses assigned to the same category may differ greatly in *degree* of projectibility; and the degree of projectibility of a given hypothesis may be affected by indirect evidence.