LAWS AND OTHER WORLDS

THE UNIVERSITY OF WESTERN ONTARIO
SERIES IN PHILOSOPHY OF SCIENCE

A SERIES OF BOOKS
IN PHILOSOPHY OF SCIENCE, METHODOLOGY,
EPISTEMOLOGY, LOGIC, HISTORY OF SCIENCE,
AND RELATED FIELDS

VOLUME 31

FRED WILSON

Dept. of Philosophy, University of Toronto, Canada

LAWS AND

OTHER WORLDS

A Humean Account of Laws
and Counterfactuals

To Carolyn Siobhan
who, at age $3\frac{1}{2}$, said of the manuscript
"If I would have written that,
it would stand by itself"
and who may well have been right.

TABLE OF CONTENTS

PREFACE

Problems in the philosophy of language have the habit of not remaining just such problems. The problem of counterfactuals has been a standing problem in the philosophy of language ever since the classic discussions of Chisholm ('The Contrary-to-Fact Conditional') and Goodman ('The Problem of Counterfactual Conditionals') — though the problems had been discussed by philosophers such as Hume, J. S. Mill and Bradley, and even, in his own way, by Aristotle. There has been a tendency recently for approaches to the problem of counterfactuals to divide into two streams. In fact, the two streams are there at the origin of the contemporary discussions. One stream derives from Chisholm's approach and takes its inspiration from modal lgoic and set theory. Often enough this approach involves — as with Aristotle — an assumption of non-truth-functional connectives to define unanalyzable natural necessities, or defines such connectives and such necessities in terms of an ontology of possible worlds. The other stream derives from Goodman's approach and takes its inspiration from philosophy of science, most often an empiricist philosophy of science.

From the approach of modal logic, the empiricist philosophy of science is far too meagre in its resources to adequately analyze the logic and semantics of counterfactuals. From the approach of empiricist philosophy of science, ontologies of natural necessities and possible worlds are far too problematic to provide a *philosophically* adequate account of counterfactuals.

The present essay firmly locates itself in the second stream, arguing, on the one hand, that the other approach is philosophically inadequate and incapable of analyzing counterfactual conditionals, while arguing on the other hand that an analysis flowing from an empiricist philosophy of science can adequately solve the problem of counterfactuals.

This essay is written in the conviction that there are no necessities other than the logical and no worlds other than the actual.

It defends a Humean account of laws against the natural necessities of the rationalists. It analyzes counterfactual conditionals as condensed arguments in which Humean laws function as major premisses. It

defends this analysis of counterfactual conditionals against those who
argue that the logic of such conditionals can be adequately explicated
only in terms of an ontology of possible worlds.

The Humean account of laws and of counterfactuals is, according to
the approach deriving from Goodman, closely tied to many empiricist
claims about the nature of science and of the scientific method, for
example, the claim that the deductive-nomological model of explana-
tion adequately captures the logic of scientific explanation. This essay
therefore briefly sketches an empiricist philosophy of science. This is
not merely descriptive of science, but descriptive of science at its best;
it is a *normative* account of science. These norms are justified by
reference to the cognitive interests that motivate our concern for
science. These same interests define the context in which counterfactual
conditionals find their major use. It is by reference to these cognitive
interests that the argument is made that the Humean account of
counterfactuals as conditionals sustained by laws is the analysis that one
ought to accept.

Chapter I, "Science and Scientific Explanation," presents the empiri-
cist account of science and scientific method. Section I, "The Aims of
Science," has as its primary concern the statement and defence of the
deductive-nomological model of explanation and its corollary, the thesis
that explanation and prediction are symmetric. Section II, "Ideals and
Research," defends certain notions of content and scope as the ideals of
scientific explanation of individual facts and laws respectively. It also
shows how these ideals generate research tasks, and how the latter are
often guided by theories. In particular, it shows how an empiricist
account of research ties in with certain views of Kuhn about the nature
of science.

These two sections re-state briefly, and in a way relevant for our
present purposes, claims that I have argued for in the greater detail
elsewhere, in my *Explanation, Causation, and Deduction,* (Western
Ontario Series in Philosophy of Science, D. Reidel, 1985) and my
Empiricism and Darwin's Science (in preparation). The former deals
largely with the deductive-nomological model of explanation, while the
latter deals with theory structure and the nature of research. Scientific
ideals are discussed in detail in both.

Chapter II, "Laws, Accidental Generalities, and Counterfactual
Conditionals," develops the Humean account of laws and explores the
connections between this analysis of laws and the analysis of counter-

factual conditionals. The basic ideas are presented in Section I, "Introduction: Counterfactuals and the Humean Account of Laws." The basic proposal is the familiar one that a counterfactual conditional:

> if this were F then it would be G

is a condensed argument

> All F are G
> This is F
> _____
> This is G

where the generality is a law, and only implicit in the context, while the minor premiss and the conclusion are not asserted, i.e., are either denied or suspended. The case of Locke and Hume against objective necessary connections is sketched. This argument is based on an appeal to a Principle of Acquaintance. But to criticize one account of laws is not yet to have a positive position. The positive Humean account of laws is also sketched. Hume's proposal is first, that what distinguishes a law from an accidental generality is *not* something objective: in terms of truth-conditions, both are of the form

$$\text{All } F \text{ are } G = (x)\,(Fx \supset Gx)$$

What distinguishes them, rather, is something *subjective*, specifically, the different assertive attitudes adopted towards them. A generality is asserted as a law (briefly: law-asserted) just in case that one is prepared to use it to predict and to support counterfactual conditionals. If one is not prepared so to use it, then it is accidental. The Humean criterion for lawfulness is thus *contextual* rather than *ontological*. Hume's proposal is, second, that a generalization is *worthy* of acceptance as a law, i.e., for purposes of explanation and prediction, and assertion of counterfactuals, just in case that the evidence testifying to its truth has been acquired in accordance with the rules of the scientific method. But ought this proposal be accepted? The Humean defence of this proposal is briefly sketched, that is, the Humean defence of the claim that it is reasonable to adopt the rules of sceince and not those of, e.g., superstition, as those we use to justify the acceptance of laws. (Some of the relevant points are treated in greater detail in my 'Hume's Defence of Causal Inference'.)

The Humean criterion for lawfulness is that those generalities that

are laws can, whereas those that are accidental cannot, support the
assertion of counterfactual conditionals. Section II, "Accidental Gener-
alities," attempts to sketch what it is that accidental generaliteis lack
that renders them incapable of sustaining the assertion of counterfactual
conditionals. The Humean holds that, objectively considered, there is
no difference between those generalities that are laws and those that are
accidental generalities: both are of the form

$$\text{All } F \text{ and } G = (x)\,(Fx \supset Gx)$$

The criteria for a deductive-nomological explanation that are defended
in Chapter I, Section I are purely objective: deduction from a true
generality is necessary and sufficient for explanation — though not, of
course, for the best explanation. Given these criteria, it would seem
that, objectively considered, accidental generalities are as good as laws
at explaining. Equally it would seem that, objectively considered,
accidental generalities are as good as laws at predicting. But if laws and
accidental generalities are, objectively considered, equally as good at
explaining and predicting, then it would seem that they should be
equally as good at supporting counterfactual conditionals. The Humean
distinction between laws and accidental generalities would thus seem to
collapse. But, on the other hand, this is precisely what one would
expect, since, after all, the Humean holds that, objectively, there is no
such distinction. On the other hand, we *do* have such a distinction, and
it must be accounted for. The point to be made about prediction is that
while an accidental generality, *if* true, is as good a predictor as a law,
the "if" here is of the essence: we in fact often *do not know* whether the
generality we treat as accidental is true, and in fact *treat it as accidental,
unworthy of being relied upon as a predictor, precisely because the
evidence available testifies that we ought not to accept it as reliable.* As
for the support of counterfactual conditionals, what we suggest is that
the generalities we accept as accidental are such that, *when the
contrary-to-fact assumption is made then, in the context of accepted and
law-asserted background knowledge that is not held in abeyance, it turns
out that the generality* cannot consistently *be used to deduce the
consequent of the counterfactual.*

   Involved here are two sets of rules. There are, first, the rules for use
in explanations and predictions. These have already been examined in
Chapter I, Section II, but a further point remains which we take up in
Section III, the final section of the part, which critically evaluates a

recent anti-Humean argument to the effect that the very rules of
scientific method that the Humean relies upon to distinguish science
from superstition presuppose a non-Humean account of laws in terms
of natural necessities.

But there is a second set of rules that must also be taken into
account, namely, those that govern counterfactual conditionals, and, in
particular, govern which belief-contravening assumptions are legitimate
and which are not. We delay a discussion of these rules until Chapter
III, Section VIII (iv), where it is argued, first, that if we refer to the
cognitive interests which motivate science and which, very often at
least, define the contexts in which counterfactuals are used, then certain
rules for belief-contravening assumptions are reasonable; and, second,
that these rules make sense of much of our ordinary use of counter-
factuals and of our ordinary distinctions of laws and accidental
generalities. Perhaps not surprisingly, these rules turn out to presup-
pose the norms of scientific method for determining which generalities
are worthy of acceptance for explanation and prediction.

The discussion of these rules is delayed until Chapter III, where their
point easily becomes clear in the context of the philosophical dialectics
aimed at defending the Humean account of laws and counterfactuals by
criticizing the account of counterfactuals in terms of a "possible world"
semantics.

Chapter III, "Possible Worlds: A Defence of Hume," takes up the
wide variety of themes associated with the "possible worlds" account of
counterfactual conditionals. The basic contrast to the Humean position
on laws and explanation is brought out in Section I, "Introduction." In
Section II, "The Possible Worlds Account of Counterfactuals," the
position of David Lewis, one of the clearest and most forceful of the
possible worlds accounts, is laid out. Section III, "How Possible Are
Possible Worlds?" criticizes Lewis' realism about possible worlds,
rejecting the idea that there are unrealities that are nonetheless actual.
But it also argues that, some objections of Lewis notwithstanding, the
notion of "possible worlds" can be given a *linguistic explication* that
renders it ontologically innocuous and *philosophically unproblematic*
for the empiricist. With this explication, the possible worlds account of
counterfactuals enters the same ring as the Humean account sketched
in Chapter II. The question then becomes, which of the two accounts is
true?

Before answering this question, it is necessary to discuss Lewis' view

of causation. Lewis' position on this matter is laid out in Section IV, "Nomic and Causal Dependence." It turns out that Lewis' thesis about the truth-conditions of counterfactuals and his views about laws turn on the idea of "similarity" among possible worlds. This idea is examined in Section V, "Similarity among Possible Worlds." It turns out that the idea is seriously ambiguous; contrary to Lewis, there are in fact several scales of inter-world similarity. Lewis distinguishes causal judgments from laws. The former are understood in terms of counterfactuals; laws are regularities embedded in theories. This separation of laws and counterfactuals is contrary to the Humean position. In Section VI we examine Lewis' criterion for lawfulness, and find it inadequate.

The main point remains, however. For Lewis, counterfactuals do not require laws to sustain them; for the Humean, laws are indispensible. The issue is addressed explicitly in Section VII, "Are There Counterfactual Conditionals that Involve No Laws?" The question it asks is answered negatively. Or rather, this Humean answer is defended by arguing that, in contexts defined by the cognitive interests that motivate science, one *ought not* to assert a counterfactual conditional *unless* it is sustained by a law.

Finally, in Section VIII, "The Case for Lewis' Analysis Examined," we evaluate — and find wanting — the arguments given to defend the possible world analysis of counterfactuals. Subsection (i) looks at claims that certain features of the logic and semantics of counterfactuals are better accounted for by Lewis' analysis than the Humean's. Subsection (ii) examines claims that certain features of causal discourse are better handled by Lewis' account than the Humean's. Subsection (iii) looks at an example of a complex causal process that Lewis calls "pre-emption" which he claims his analysis can handle but the Humean's cannot. Subsection (iv) discusses the problem of what Goodman has called "cotenability", and in this context attempts to sketch the norms that determine which belief-contravening assumptions are legitimate. Certain norms are defended as reasonable relative to the cognitive interests that motivate science and which define the contexts in which counterfactuals are used. These norms, we suggest, do in fact make sense of much of our counterfactual discourse. Finally, Subsection (v) examines a particularly intriguing example that Lewis claims refutes the Humean's position.

A brief "Conclusion" (Section IX) ties the results at which we have arrived once again to the empiricist philosophy of science presented in Chapter I.

ACKNOWLEDGEMENTS