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## EXPLANATION

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Three key issues drive discussion of explanation in the social sciences: First, must explanation be of a certain form to be regarded as scientific? Second, how does explanation contrast with the notion of understanding? Third, how can explanations be evaluated? The answers interrelate in important ways.

The notion of explanation has at its root philosophical usage a connection to the provision of causes, and in particular of causal mechanisms. This leads by the usual logic of causal or mechanistic explanation to a demand for laws and predictions. For, the thought goes, a law is just a regularity in nature. Hence, any event that can be explained (the *explanandum*) by adverting to the relevant law that identifies its cause should also be predictable, given knowledge of the presence of the antecedent conditions (the *explanantia*). This is the essence of the deductive-nomological (D-N) model of explanation. A great virtue of this model (long associated with logical positivism but surviving its demise) involves the fact that it provides a purely formal or syntactic criterion by which to adjudicate whether an explanation exists. The D-N model also provides a straightforward criterion for evaluating the soundness and not just the formal adequacy of an explanation.

However, at this point, matters become contentious, for well-known counterexamples to this model exist. The counterexamples demonstrate that law-like connections may well have no causal connection to the phenomenon to which they may

be correlated. For example, a falling barometer may correlate highly with the coming of rain, but the barometer's falling has no causal connection to the rain. Merely fulfilling the D-N model, thus, cannot be sufficient for explanation. Likewise, reasons may count as causes, but reasons do not provide mechanism and typically rationalize actions rather than explain them in the sense of making the actions a logical consequence of some antecedently specified conditions.

A key element involved in criticisms of logical positivism in the social sciences concerns the place of the D-N model and its heirs as defining proper scientific explanation. While some criticisms can be understood as philosophically valid, they can also reflect an animus toward the presumed absence of any normative concerns underlying this model. There may also be doubts regarding the existence in the social sciences of the sorts of laws or robust generalizations on which application of the model relies. The question that lingers, however, is how to evaluate purported explanations, absent some such models.

### Explanation Versus Interpretation

In the philosophy of the social sciences, the term *explanation* is typically used as a contrast to that of *interpretation*. The contrast involves many differences. The most fundamental concerns whether or not the goal or purpose of social inquiry should be to reconstruct actions (i.e., purposive behavior) in terms of an agent's (individual actor's) perspective. An alternative view maintains that the purpose of social inquiry should be to develop explanations, that is, accounts that have robust predictive value. Explanation, from this point of view, is unconstrained by any need to reflect or reconstruct the view of agents with respect to the events to be explained. So, for example, economic explanations of choice of marital partner or ecological explanations of cultural traditions employ underlying regularities to account for observed behaviors but diverge from any account that might be offered of those whose behavior is so explained.

The aims of interpretation and explanation appear *prima facie* incompatible. An interpretative account focuses on reasons specific to an agent, a time, and a situation. The expected result

would be an account that did not generalize but applied only to the people and the time studied. These historicist or ethnographic approaches to the study of human behavior must be distinguished from case studies because the latter but not the former are taken to provide a basis for generalizations.

While we owe the term *positivism* to Auguste Comte, logical positivism names the philosophical movement (also referred to as the Vienna Circle) that emerged in the 1920s and 1930s through the writings of associated philosophers, scientists, and social scientists. Following the dispersion of these thinkers to England and the United States due to the rise of fascism throughout central Europe, logical positivism became the dominant account of what defined scientific explanation. Within the social sciences, the term positivism enjoys wide use as an epithet attached to all views that insist that the purpose of social science explanation requires being able to apply generalizations to account for observed cases. Ideally, generalizations used to explain would also allow social scientists to make predictions. In the terminology of logical positivism, a statement of that which is to be explained is termed the *explanandum* (pl. *explananda*); *explanans* is the class of statements (pl. *explanantia*) that account for the explanandum.

Because a primary goal of logical positivists was to help distinguish scientific from pseudo-scientific explanations, two key criteria were developed that were thought to capture the relevant differences. The first offered a syntactic formulation for an explanation. This requirement held that good explanations had a specific form, and this form allowed for the logical derivation of the explanandum from the explanans. This format also required the use of an appropriate law-like or statistical generalization.

The second requirement concerns the need for empirical testability. Logical positivists themselves differed with regard to the so-called logic of confirmation for explanations. The basic split concerned whether testing of hypotheses should stress confirmation or disconfirmation. The essence of the controversy involved the fact that no law can ever be fully confirmed by observed positive cases; the law makes claims about cases seen and unseen, as well as past, present, and future. Thus, no finite amount of observed evidence, however great,

suffices to prove that a statement about some observed regularity expresses a law.

However, observational data can *disprove* a supposed law of nature by providing just one counterinstance. Thus, some hold that the purpose of testing should be to seek disconfirming instances of laws. Laws that survive repeated attempts to disconfirm them may then have claim to some degree of verisimilitude. But whatever one's view of the evaluation of proffered explanations by empirical test, the orthodoxy holds that proper explanation requires laws and empirical information that allows for a logical connection between the explanans and the explanandum. Only by virtue of the logical connection can one determine whether the observed instances follow from the statements said to explain them, and only by virtue of the logical connection can one assess whether the generalization appealed to in the explanation has been confirmed or survived disconfirmation, and so has a real use for purposes of explanation. All models of scientific explanation, in short, take explanation to consist in a relation between some theory and instances that the theory is a theory of.

Absent any logical connection between explanans and explanandum, however, no rational assessment of an offered explanation appears possible. This insistence on the syntactic formulation of explanation, one that provides a logical connection between explanans and explanandum, remains an important yet largely unappreciated feature of positivist accounts of explanations. This syntactic standard allowed a clear formal criterion by which to identify a candidate explanation.

A recurrent criticism of positivist models of explanation concerns the principled absence of any need to incorporate the perspective of those whose actions are to be explained. In addition, the syntactic structure of positivist explanation is viewed as also precluding any normative evaluations of the actions. Scientific explanations are typically held to be purely descriptive. Absent an overt inclusion of a normative premise, no normative conclusion can be derived.

For example, in explaining why people might be co-opted to be mass murders in the case of the Holocaust, the use of generalizations that a large majority of people simply tend to obey authority might be employed, together with other

information. However, this might lead to complaints that perpetrators are in fact thoughtless, that is, not portrayed as making a choice about how to act. To the extent that perpetrators did not make choices, then they might appear to be less morally culpable for their acts. Culpability typically involves holding people responsible for the choices they make.

Alternatively, explanations in the positivist mode may be thought to offend against the specifics of the situation. Did the Hawaiians murder Captain Cook because he violated expectations attached to the god Lono, whom Cook was thought to be? Or did they do so because the Hawaiians, as rational agents, perceived Cook for what he was—an agent of an alien political power—and acted to protect themselves from this threat? The difference between explanations here is just the difference between an emphasis on the culturally specific and a universalizing rational agent approach to explanation. The former explains by reconstructing the agents' reasons for doing what they did but yields no generalization. The latter explains by seeing this action as typifying what any rational agent (taken as a generic notion) would do in such a case. The same explanandum event is in this instance explained by incompatible explanantia.

### Explanation After Logical Positivism

The demise of positivism and so of the hegemony of positivist accounts of explanation have had mixed impact on debates in the social sciences regarding explanation. In a philosophical context, positivism fails for two fundamental reasons. The first concerns the holistic relationship between the sentences that make up a theory and statements about the evidence taken to support them.

Logical positivism assumes that sentences *taken individually* can be assessed for their truth or falsity. This is critical to the logic of empirical testing, and so of the evaluation of statements deduced from those said to explain or predict it. The inability to assess statements apart from the theoretical context that explains them has, as a consequence, an ambiguity with regard to what statements need revision when an explanatory theory runs afoul of experience. If no single sentence has a logically tight connection to specific statements in the theory, on the one hand, and the recalcitrant experience(s) on the other, then any failure of

experience to apparently agree with what theory implies can be accommodated in an *ad hoc* fashion by the explanatory framework.

Moreover, it is important to note that even the staunchest advocates of the positivist models of testing came to holist conclusions about the theory-evidence relationship. Only within the context of a prior theory do statements serve as evidence for or against the explanatory efficacy of the theory in question. Moreover, theories could be adjusted to accommodate apparently discrepant experiences, that is, those that at first might seem incongruous with the way a theory says things should be. This close relationship between how theories characterize the world and the evidence in it came to be known as holism. The chief consequence of this view is the way it clouds questions of when an explanatory hypothesis can be saved by altering other aspects of the theory connected to it, or when the explanation has been refuted by evidence. Historical studies of science offer up numerous cases of how theories variously adapt to or otherwise incorporate apparently disconfirming results.

A second feature of the so-called postpositivist era involves the failure of logical positivism to succeed in providing any way of characterizing the unity of science. The separate sciences, for example, biology and physics, did not, it turns out, neatly fit as a group into positivist-designed models for what the form of explanation had to be for a discipline to be a genuine science. The individual cases of scientific investigation within one or another science could be studied, but no general model of explanation could be tailored to fit all accepted scientific practices, even within those sciences unproblematically regarded as such.

From these specific shortcomings—that is, the failure of logical positivism to provide a demarcation criterion by which to distinguish science and nonscience and to find a syntactic model of explanation adequate to all scientific activity, which could be evaluated for explanatory adequacy by its form alone—arise the postmodern moment with regard to views about explanation. It comes, that is, when philosophy of science appears to lose its grip on what to count as a scientific explanation properly so-called and on the logically and empirically determinate criteria for assessing the goodness of explanations.

Into this philosophical vacuum rushed post-positivist theorists. These theorists were happy to declare the demise of any “master-narrative.” Yet, the problems that positivism meant to solve did not disappear or go away. By what mark does one identify an explanation as an explanation? The positivists had a neat, straightforward, and seemingly rationally defensible account of what this mark should be: deducibility. Postpositivist accounts within philosophy have looked to less straightforward but still roughly quantifiable criteria, for example, the ability to unify fields that were previously thought to be unconnected. Informally, such criteria hold that good explanations contribute to understanding, and understanding consists primarily in unifying fields of scientific inquiry.

A shared but unfortunate feature of much that postpositivists offer as explanations concerns the fact that no visible effort goes into examining what might possibly play the role of confirming or disconfirming any of the explanations offered. This appears to be the case whether explanations of social phenomena are advanced in the name of one or another science—for example, evolutionary psychology, decision theoretic models, sociobiology—or are tied to more explicitly political or normative explanatory accounts, as in cultural studies or traditional Marxist theory. Absence of predictions, or failure of prediction, appears to leave these accounts untroubled. Much more so than the natural sciences, the social sciences suffer from the underdetermination of explanation, that is, the fact that competing explanatory frameworks appear capable of accounting for the known data. This fact underlines the desirability of once again having clear criteria for explanations and ways of testing the proposed account. Yet, what constitutes the mark of explanation remains unknown.

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*See also* Historical Understanding; Interpretive Theory; Positivism; Postmodernism

#### Further Readings

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## EXPLOITATION

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*Exploitation* refers to using a resource, situation, or person for a purpose. In a technical, neutral sense, this might mean no more than making use of a resource for benefit, for example, when the existence of underground sources of energy is exploited by drilling and extraction. In social theory, however, the term implies a normatively negative evaluation of the use being made, although identifying the norm being violated is not straightforward. For example, some have argued that such exploitation is a violation of justice, but this may be identified with a rights violation, a lack of reciprocity, or a failure of equality. Others, again, have concentrated on an infringement of liberty, perhaps construed as the consequence of coercion, or the lack of opportunity for self-development, or autonomy.

The relationship between the neutral and the condemnatory applications of exploitation is complicated by two considerations. First, in the history of social thought, the exploitation of nature was contrasted with the exploitation of people by other people, where this latter referred to the situation in which the direct producer was placed. Exploitation in the wage labor market, in particular, had historical priority in developing the normative usage. But the best-known account of exploitation under capitalism was provided by Karl Marx. His official account of exploitation concerns the fate of