Holistic Explanations of Events

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People have always explained all sorts of things, relations, regularities, properties, and events. Explanations attempt to answer all sorts of questions, why questions, how questions, even what questions. This paper examines explanations of events. I argue that existing general philosophical models of explanation do not fit what most people would consider to be explanations of events. Instead, I present an alternative 'holistic' model of explanations of events. I distinguish the defining properties of explanations of events from their justifications. I argue that we may analyse explanations of events 'holistically,' understanding their justification does not require an analysis of their internal structure. Such a structural analysis is epistemically redundant. I support this 'holistic' model of explanations of events by demonstrating that it fits better the actual practices of scientists, historians and ordinary people who attempt to explain events than competing models. First, I analyse several typical examples of explanations of events as described by scientists and ordinary people, and how they are justified in practice. I demonstrate that none of the standard trifold philosophical models of explanation fits all of these typical cases. I present instead an alternative model of justification that considers explanations to be justified holistically, as single units, by other propositions that represent the evidence and a theoretical background that connects the explanation with the evidence, but usually does not connect the explanans with the explanandum. Then, I consider the 'inference to the best explanation' model and argue that under one interpretation, it cannot account for all the paradigmatic cases that I present, though under another interpretation it fits comfortably with my holistic model. Finally, I argue that there is nothing intrinsic or structural to distinguish holistic explanations of events from other hypothetical propositions because the pragmatic context of inquiry may well determine exclusively whether a proposition is considered explanatory.

Philosophers have been asking two questions about explanations of events:

1. What are the defining properties of such explanatory propositions, such as their logical structure?
2. What justifies such explanations?

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Usually, philosophers have considered the second question to be an aspect of the first question and its answer, a part of the answer to the first question: Philosophers have analysed the structure of the explanation of events as composed of three parts:

1) A description of an event that is explained, the *explanandum* in Latin. Events are explained only as described or conceptualized since '[a]ny token event has an infinitely large number of descriptions true of it.'[1]

Accordingly, henceforth, I will refer to *explanations of descriptions of events* because it is a more accurate expression than 'explanations of events,' yet less awkward sounding than 'events under description' or 'described events.' Explanations of descriptions of events explain aspects of a token event that are picked by a description. For example, historians may explain 'the fall of the Roman Empire' as a military defeat, a political collapse or a failure of slave economy. Each of these three kinds of descriptions may pick different aspects of fifth century Roman history. Each explanation of the different descriptions of the fall of the Roman Empire would accordingly discuss different descriptions of events that preceded the fall. This is not a problem as long as it is clear that different explanations explain different descriptions of the same event, and are not confused with each other.

2) A description of an event or events that purport to explain (1), the *explanans* in Latin.
3) An extra something that connects (2) with (1), and thereby justifies their association as an answer to the second question.

Philosophical debates focused on the nature of (3), whether it is a law of nature, a rule, a statistical correlation, a causal mechanism, a narrative, etc. The logical structure that characterizes explanations of descriptions of events appeared to hinge on the exact nature of (3). If (3) is a universal law, this explanation is a deductive argument. If (3) is a statistical probability, it is an inductive argument. Singular causal explanations, irrelevant statistical correlations and other complications and difficulties in applying the inductive and deductive models to actual explanations of described events led to their modifications and the introduction of 'causal mechanism,'

[1] D. H. Ruben, 'Singular Explanation and the Social Sciences,' *Explanation and Its Limits*, Dudley Knowls (ed.) (Cambridge: Cambridge University Press, 1990), 105.

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'unificationist,' and 'counterfactual' models. Still, the differences between these models concern only the correct characterization of (3). Otherwise, they agree on the triform structure of all explanations, including explanation of descriptions of events, and that justification is an integral part of the structure of explanation.

The only significant exception to this intrinsic justification philosophical model of explanation is the school of 'inference to the best explanation,' since it distinguishes justification from explication of the structure of explanation. According to the 'inference to the best explanation' model explanations are chosen through mutual comparison. It is unnecessary to examine the exact structure of a favoured explanation to justify it, if it can be proved that competing explanations are not as good, according to certain external criteria. Debates within this camp range over the exact list of criteria for comparison of competing explanations.

The relevance of these models to explanations of descriptions of events can be evaluated only against typical tokens of such explanations.

Cases of Explanations of Descriptions of Events

Consider the following cases of explanatory propositions, their justifications, and the practices that establish and support these justifications:

> Explanation 1: On a certain night in 1916, a certain company of soldiers retreated in fear because the line it was defending came under heavy bombardment.
> Justification 1: The war diaries of two of the soldiers who served in that company mention that on that night their company came under heavy bombardment and consequently, panicked and retreated.
> Practice 1: Historians search for contemporary testimonies such as diaries, military dispatches, correspondences, reports etc. that describe the alleged retreat. They ascertain that the testimonies are independent of each other and authentic.

The independent diaries of soldiers of the same company that state that on a certain date their unit came under heavy bombardment and therefore panicked and retreated confirm that indeed they had come under attack and consequently panicked and retreated. The

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relevant background theory is not psychological, but informational, the high reliability of information preserved in independent diaries of witnesses who saw and participated in the events and committed their memories to paper before they could fade or become confused and had no interest in falsifying documents that they wrote for themselves; the probability that two or more such *independent* witnesses would come with exactly the same false account of that night is negligible. There is no need for further knowledge of psychology or human nature under fire, nor do historians typically possess or pursue this kind of knowledge: They do not read psychology books, nor do they conduct comparative studies of men under fire. Had this explanation of the retreat depended on psychological theories, it would have been indeterminate, since under fire soldiers are known to retreat out of fear, become paralysed with fear and stay put, or become emboldened with rage and charge forward. The mere description of the stimulus together with background knowledge of contemporary psychology would have been insufficient for inferring the actual retreat. But psychology is redundant here. The preservation of information on fear and retreat, the evidence, is sufficient for confirming the explanation.

It may be argued that there must be some connection between the bombardment and the retreat; for example, the bombardment should increase the probability of the retreat. Otherwise, we would be forced to accept meaningless, absurd or unlikely statements that independent usually reliable witnesses agree on, for example, that the retreat resulted from the 'destiny' of the defeated unit, or from what they had for dinner the previous night. However, evidence, including testimonies, may preserve information without being *literally* true. It may support an explanation that does not merely reproduce its contents. For example, the Aztecs believed that their destiny was to be vanquished. Multiple testimonies to this faith in their doomed fate support an explanation that shares none of the teleological metaphysical presuppositions of the Aztecs, but states that the common Aztec belief in their apocalyptic destiny explains partly the ease with which Cortez's small band of warriors vanquished the vast Aztec empire. Historians and archeologists who present such an explanation of the fall of the Aztec empire do not have knowledge of laws that govern the behaviour of communities who believe they are doomed. The whole psychological or cultural phenomenon of belief in doomed fate is insufficiently understood. Yet, such knowledge is redundant if there is sufficient evidence for the local effect of belief in doomed fate on the behaviour of a community.

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If testimonies agree only that 'dinner caused the retreat,' the evidence does not preserve sufficient information to determine an explanation of a description of the retreat. Perhaps the soldiers had food poisoning, perhaps the food was too heavy and consequently the soldiers were insufficiently nimble to fight, perhaps the soldiers believed that the dinner explained the retreat because they had meat sauce that they found out later was made of animals they considered unholy, and unconsequently they interpreted the retreat as divine retribution. … Without further evidence it is simply impossible to know, to determine a non-speculative explanation of the retreat.

> Explanation 2: The fugitive was able to leave the country because he stopped at the ATM machine on the corner of Pinkas and Ibn-Gabriol streets on his way to the airport and withdrew money.
> Justification 2: A bank surveillance camera captured photos of the fugitive withdrawing money and the bank computer recorded that money was withdrawn at that time and place from the fugitive's account.
> Practice 2: The police examined all records of transactions and photos from ATM machines located between the fugitive's home and the airport for the 24 hours period preceding the flight that whisked him out of the country.

This explanation clearly cannot support a counterfactual. Had the fugitive not used that ATM machine, he would have used another one. Likewise, many historical explanations are of events that were overdetermined in one way or another because more than a single causal chain was leading towards them or an event quite similar to them. However, this does not matter for the justification of the explanation, if it is confirmed by evidence that preserves reliable information about the chain of events that led to the explained event.

> Explanation 3: The airplane crashed because of faulty wiring in the fuselage area.
> Justification 3: The airplane's 'black box' found at the crash site recorded this information.
> Practice 3: Air crash investigators search for the black box.

The design and construction of 'black boxes' preserves information about measurements made during the flight. The design of black boxes relies obviously on background theories and engineering principles. But most of these are not the theories that govern the functioning of the airplane itself and its parts such as the fuselage.

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The support for the explanation comes from its relation with the evidence and against the background of information theories, just as in the previous cases. These theories deal with different media for preserving information about the past, but nevertheless, they all connect the explanation with the evidence.

> Explanation 4: The Cambrian extinction explains the range of traits we find in life forms ever since.[2]
> Justification 4: The fossil remains of the Cambrian period in places such as the Burgess Shale, in comparison with fossil remains of later periods.
> Practice 4: Paleontologists look for fossil records.

This example is useful for distinguishing causation from explanation. The claim that all life today results from life in the past is trivially true, assuming that there was only a single generation of life. However, this explanation purports to convey that the Cambrian extinction was a radical reduction in the variety of traits distributed over all life forms, which explains the greater degree of homogeneity of traits since. However, natural historians do not know much and agree even less about which traits endowed life forms with greater fitness than other traits and why. The Cambrian extinction may well have been a chaotic process.[3] Knowing why certain traits were better adapted than others requires background information of three kinds. A functional-engineering analysis of the competing organisms in questions; an ecological analysis of their environment; and a genetic analysis of these organisms. Most evolutionary studies cannot infer sufficient knowledge of these background conditions.[4] The paucity of evidence, incomplete fossil and geological records, about the exact natural conditions during most evolutionary changes precludes the reduction of such explanations to causal mechanism. The well-confirmed theory of evolution is insufficient for deducing the explanada from the explanans. But if we consider the explanation as a single holistic unit, it is unnecessary to look for anything to 'cover' the relationship between the Cambrian extinction and later life because the fossil record preserves sufficient information to confirm it without determining the causal mechanisms behind it.

[2] S. J. Gould, *Wonderful Life,* (New York: Norton, 1989).

[3] Ibid., J. Hobbs, 'Ex Post Facto Explanations,' *Journal of Philosophy,* **90** (1993), 117–36.

[4] D. B. Resnik, 'Adaptationist Explanations,' *Studies in History and Philosophy of Science,* **20** (1989), 198.

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Explanation 5: Peppered moths in Liverpool became black after the Industrial Revolution because the tree barks on which they live became black from industrial pollution.[5]
Justification 5: Later, when the level of pollution decreased, the colour of the moths reverted to light gray. Historical evidence recorded the industrial revolution, its accompanying pollution and the changing colours of moths in Liverpool.
Practice 5: Biologists have been comparing changes in biological traits with changes in the environment by collecting evidence for both and look for correlations.

This is an example for a functional or adaptationist explanation of a description of an event. It is justified just like the previous explanations: the evidence confirms the explanation by preserving information from it. As Resnik noted, this is a rare example for a case where the evidence for the explanation is almost complete.[6] It is interesting to notice that a *Darwinian* theory of evolution does not have to be assumed here. Lamarckian theory of evolution for example is just as consistent with the justification of this explanation.

Explanation 6: The artist who created this painting used this colour, theme and techniques because he worked in Pisa in the fourteenth century.
Justification 6: Some of the properties of this painting resemble those of other paintings that we know to have originated in fourteenth century Pisa.
Practice 6: Art historians devote much time to determining the provenance of works of art and then compare and catalogue them.

This is clearly not a causal explanation. It removes puzzlement by locating the painting in its historical context. This context is inferred from further evidence and theories that are used to date them and divine their provenance. There are no explicit statistical local generalizations here, though there could be. Art historians do not measure; they develop a sense for types of art.

These six explanations and their justifications are drawn from ordinary life, historiography, paleontology, biology, engineering and art. These are typical explanations of descriptions of events. None of their justifications is a part of the explanation it justifies. The justifications consist of evidence for the explanation with explicit or

[5] Ibid, 199.
[6] Ibid, 193–213.

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implicit theoretical background that connects the explanation as a single holistic unit with the evidence. The evidence typically, though not necessarily, results from the events whose description is explained and preserves information about them. It is also possible to obtain information that confirms an explanation indirectly, through evidence for events that are connected with the events referred to by the explanation. For example:

> Explanation 7: John, who worked for British Intelligence in France, did not survive the Second World War because he was executed.
> Justification 7: A German message reporting his capture was intercepted; there is ample evidence for the German practice of executing allied spies, and John did not return from the war.

Here the evidence confirms the occurrence of an event (the capture) that together with background knowledge infers the explanation. But the background knowledge does not concern the relation between the explanans and explanandum but between an auxiliary event that generated information that reached the present and the explanation that did not generate such information.

The theoretical background involved in justifying these explanations of descriptions of events do not 'cover' the relations between explanans and explanandum, but the transmission of various types of information in time. The practices, the inquiries, of historians, journalists, engineers and paleontologists are all about tracing the transmission of information in time. The theories they use are about various forms of information transmission: historians assume a theoretical background about the limits of memory and the probabilities that independent witnesses who present the same testimony about a past event preserve information about it. Their inquiries are about the transmission: Are the testimonies independent of each other or was there a common influence between the time of the explained events and their recording as evidence? Historians do no spend time on making inquiries or reading books of psychology or social science.[7] Similarly, investigators of airplane crashes do not

[7] M. G. Murphey, *Our Knowledge of the Historical past,* (Indianapolis and New York: Bobbs-Merrill, 1973), 95–8, proposed that historiographic theories explain descriptions of events but 'viewed as a whole' and 'in an ultimate sense' they explain 'present observations,' or 'data.' Murphy concluded that '[t]he whole structure of law and 'fact' is a single hypothetical construction the purpose of which is to make sense of the observational data, and the explanations of the facts are fully as constrained by the data as are the factual hypotheses themselves.' (98)

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possess background knowledge and laws that can infer crashes, had they had such knowledge in advance, no crashes would have resulted from technical malfunctions. Their expertise, shared with that of the engineers who design black boxes, is in information recording and preservation of data of what took place in the airplane before and during the crash. Paleontologists usually cannot infer substantial missing links on the evolutionary tree. Their expertise is in analysing and dating fossils that preserve information about such missing links. Arguably, there are no covering laws that can cover, predict or retrodict precisely chaotic events such as evolutionary changes.[8] Arguably, the philosophic concentration on covering laws, rather than on the evidence arose out of ignorance of what historians and scientists actually do:

> [P]hilosophical writers have virtually ignored … problems concerning the emergence or constitution of the historical past in the course of historical inquiry … because the history books they tend to read, full blown accounts of much-studies periods, tend to obscure them. Such a book would tend to present what is essentially the generally accepted tradition of those historians who work on the period in question as if it were a description of the real past. The author of the work… will constantly be referring to evidence, either in published collections of material or in archival sources, but mostly these references will be understood only by his professional colleagues… [W]riters of philosophical essays on history … may note … that the historian's account must … be based upon evidence, but … have not the slightest idea of precisely how … It is very easy, indeed, on the basis of such reading, to take the historical past for granted…[9]

Human beings have been explaining descriptions of events since the beginning of recorded history. The idea of natural immutable and unbreakable laws of nature is as recent as the seventeenth century. Explanations of descriptions of events are usually justified as undi-

[8] Op. cit., note 3.

[9] L. J. Goldstein, *Historical Knowing* (Austin: University of Texas Press, 1976), 50–1.

However, Murphy believed that the theory that justifies the connection between explanans and explanandum also connects the whole explanation to the evidence. As we have seen, the theories that connect historiography with evidence have to do with the preservation of information in time rather than with historical social or economic changes.

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vided, holistic, units. Their justifications are based on the transmission of information about the past, its interpretation and analysis. Further analysis of the structure of explanations of descriptions of events is redundant. Therefore, the debate on the covering law of explanation has been quite irrelevant for explanations of descriptions of events. Goldstein argued that the whole philosophic discussion of the language used by historians, of the ultimate textbook product of research, as distinct of the process of research that results in adopting an explanation is symptomatic of philosophic misunderstanding of historiographic practice.[10]

Holistic Explanatory Propositions

Fred Dretske attempted to understand knowledge in general as beliefs caused or sustained by information. Information is transmitted from a source, events in our case, to a receiver, a historian for example, through evidence. Received information that is independent of the source is considered 'noise'. For example, the information signals that historians receive in the present were contaminated with much noise, forgeries, later additions, false memories, etc. Scientists, historians and ordinary people attempt to separate noise from information, and infer more information from the information they receive with the assistance of background information and theories. Dretske used the term 'nested information' to refer to information that is generated from a signal that connects a source event with reception, in conjunction with nomic regulations. Dretske's epistemology would imply then that the nomic regulation, the 'covering law' if you wish, does not connect an explanans with an explanandum, but a holistic explanation of a description of an event with its evidence.[11]

This account of holistic explanations of descriptions of events solves the so-called 'paradox of ex post facto explanations,' explanations that can be known only after the fact: If the structure of explanation is symmetric to that of prediction, as verificationists, advocates of the covering law and others claimed, the theories that cover ex post facto explanations are not confirmed, since they could not predict the explanandum, and so the explanation is unjustified. If, conversely, the covering theory is predictive, the explanation

[10] L. J. Goldstein, *The What and the Why of History: Philosophical Essays* (Leiden: Brill 1996), 36.

[11] F. I. Dretske, *Knowledge and the Flow of Information* (Cambridge MA: MIT Press, 1981).

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could not be ex post facto. The solution to this paradox is that the predictive theories are not predicting the explanandum but the transmission of information through the evidence.

This account of holistic explanations of descriptions of events also solves the 'problem' of singular causal explanations that generated extensive philosophical discussions and complex proposed solutions.[12] Singular causal explanations can be confirmed by the evidence and require no covering laws that connect the explaining cause with the explained effect, just like any other explanation of descriptions of events. In fact, when such covering laws are proposed, the evidence often underdetermines them. The following contrived comic example clarifies the distinction between determined singular causal explanations of descriptions of events and underdetermined laws that purport to cover them:

Suppose two independent witnesses, Mr Kramer, who lives opposite the apartment of the Pecheur family, and Mr Newman, a mailman, testify having seen Mr Pecheur drowning his son by immersing his head in the family aquarium until the son ceased moving, while shouting 'you love my gold fish, so now you can have her, forever! We could have had a future together, but you had to keep staring at the aquarium until she noticed you. I saw you, how she swam in your direction, skirting the glass walls of the aquarium. Now you are going to pay for this, you will die together with my gold fish! No one else will have my gold fish!' Further interviews by the police of co-workers, family and neighbours corroborate the special attachment that Mr Pecheur Sr had developed to the family goldfish. A diary kept by Mr Pecheur divulges increasing infatuation with the family goldfish that turned in the weeks before the murder into jealous rage directed at his son. Based on this evidence, the police would have to conclude that Mr Pecheur Jr. is dead because his father killed him and that the motive for the crime was jealousy for a goldfish. The evidence confirms these two explanations of descriptions of events; they require no psychological covering laws. Any sane judge and juror would convict Mr. Pecheur of killing his son for no better reason than jealously for a goldfish.

Suppose psychiatrists are asked to analyse this case, perhaps to determine whether the murderer was insane. It is unusual for a father to kill his son out of jealousy for a goldfish. So, the psychiatrist is likely to come with some ad hoc theory about Mr

[12] Op. cit., note 1, 95–117; N. Cartwright, Nature's Capacities and their Measurement, (Oxford: Oxford University Press, 1989).

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Pecheur's personality, perhaps he transferred some conflict from his early childhood to his relations with his son and the goldfish. Perhaps the goldfish came to symbolize his elusive mother and his son merged with his abusive father? Psychologists of different schools who interpret different vague theoretical traditions could dispute such explanations and the theories behind them. The psychiatrist for the defence will say one thing and the psychiatrist for the prosecution another. Nevertheless, any police report would certainly mention the murder and jealousy for the goldfish as its explanation because the evidence determines them. Since the probability that two independent eyewitnesses would decide independently to deceive the police by presenting love for a goldfish as a motive for murder is vanishing. Psychiatric hypotheses can be determined only if there is more evidence. For example, if a hundred more such murders are committed, the American Psychiatric Association would come probably with 'the Goldfish Jealousy Syndrome (GJS)' and psychiatrists could discriminate between hypotheses according to their scope, whether or not they make all 100 cases likely.

Some explanations of descriptions of events are underdetermined by their insufficient yet fixed evidence; several explanations of descriptions of events may increase the likelihood of a similar body of evidence by roughly equal measures against shared background knowledge. Historians, psychologists and ordinary people choose then between explanations of descriptions of events by adding different theoretical assumptions. For example, psychiatrists of different schools would offer different explanations of unusual mental events because there is insufficient fixed evidence to discriminate between them. The scientific value of psychiatry is undermined by conflicting diagnoses by psychiatrists of different schools.

Laudan and Leplin suggested that empirically equivalent hypotheses can be determined through their relations with a more general mediating theory that receives support from other hypotheses that do not have a direct empirical support.[13] Such hypotheses could be explanations of descriptions of events. Their determination would depend on the existence of mediating theories. It appears however that there are actually few such mediating theories. When historians, social scientists, and psychologists add mediating theories to choose among underdetermined explanations of descriptions of events, these theories often fall short of a scientific status. The vague theories that are associated with schools

[13] L. Laudan and J. Leplin 'Empirical Equivalence and Underdetermination,' *The Journal of Philosophy,* **88** (1991), 464.

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in the social sciences, psychology and historiography are underdetermined themselves and can lend support to mutually inconsistent explanations of descriptions of events that rely either on the underdetermined theories of conflicting schools, or on different interpretations of the same vague theory. Such vague mediating theories 'are so general that it is not at all clear how they are supposed to explain particular cases… [T]hese theories are … models or concepts … having very little empirical content or reference.'[14] Lloyd's examples for such vague theories are Marx's materialist theory of history, Durkheim and Parson's functionalist theories or religion and social evolution, 'Rostow's stages theory of economic growth, Olson's rationalist economic theory of the rise and decline of nations, Bendix's historical sociology of nation building, Elias's theory of social figurations, Tourain's sociology of action, and Mann's theory of social and state power'. (Ibid.) Such vague inaccurate theories form the theoretical foundations of *schools* as in psychoanalysis, and even biology: '… very general causal theories about large domains of phenomena may become totally impervious to evidence. The consequence is that, although observations may abound, *evidence* ceases to exist as theories become dogma.'[15]

Underdetermined theories associated with schools stretch from the grand scope vague theories that unite schools to ad hoc interpretations that lead to increasing theoretical fragmentation. This theoretical fragmentation prevents the confirmation of ad hoc explanations of descriptions of events from being mutually transitive. There can be no mediating theories between such explanations of descriptions of events that are ad hoc and mutually inconsistent. Evidence for one explanation cannot help in the confirmation of another, through a non-existing common mediating theory. Instead, typically, the theories that are involved in the justification of well-

[14] C. Lloyd, *The Structures of History* (Oxford: Blackwell, 1993), 29.

[15] R. C. Lewontin, 'Facts and the Factitious in the Natural Sciences,' *Question of Evidence: Proof, Practice, and Persuasion Across the Disciplines,* James Chandler, Arnold I. Davidson, Harry Harootunian (eds.), (Chicago: Chicago University Press, 1994), 483. Cf. D. P. Spence, *The Rhetorical Voice of Psychoanalysis: displacement of evidence by theory,* (Cambridge MA: Harvard University Press, 1994); A. Tucker, 'The Genealogy of Incommensurability in Psychoanalysis, '*Power and Knowledge: Perspectives in the History of Psychiatry, Proceedings of the third Triennial Conference of the European Association for the History of Psychiatry,* Eric J. Engstrom, Matthias M Weber, Paul Hoff (eds.), (Berlin: Verlag für Wissenschaft und Bildung, 1999), 197–207.

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confirmed explanations of descriptions of events are the ones that connect them with the evidence.

Best Among Competing Explanations

There are two possible interpretations of the 'inference to the best among competing explanations' model in relation to explanations of descriptions of events. First, it may be argued that different explanations explain the same *description of events,* explananda; some philosophers may even claim, the same events.[16] Second, the competition may be between different holistic explanations that explain the same or a similar *range of evidence*. The epistemic status of holistic explanations of descriptions of events would resemble then the status of scientific hypotheses that compete over being the best explanation of the evidence in the philosophy of science.[17] Various cognitive values determine then which of the competing explanations of similar evidence that are themselves holistic explanations of descriptions of events is the best.

For the first interpretation to be true, explananda must be frequently shared by different lay people, historians, and scientists etc. to allow competition. Ruben and others noted that we do not explain events, but their descriptions, and descriptions of the same events may well differ.[18] Goldstein argued persuasively that one of the shared mistakes of the partisans to the covering law model dispute was the assumption that historical facts are given and historians merely debate how to explain them.[19] As van Fraassen emphasized, explanations differ not just because they may describe differently the same event, but because they often refer to a counterfactual contrastive situation, the explanation explains not just the explanandum but also why an alternative class of events did not take place.[20] Contrastive explanations increase the diversity of

[16] M. Scriven, 'Causes, Connections and Conditions in History,' *Philosophical Analysis and History,* William Dray (ed.), (New York: Harper & Row, 1966), 238–64.

[17] Op. cit., Note 4, 193–213. P. Thagard, *Cmputational Philosophy of Science,* (Cambridge MA: MIT Press, 1988). P. Lipton, *Inference to the Best Explanation,* (London: Routledge, 1991). P. Lipton, 'The Epistemology of Testimony,' *Studies in History and Philosophy of Science,* **29** (1998), 1–31.

[18] Op. cit., note 1, 95–117.

[19] Op. cit., note 10, 83–5.

[20] B. Van Fraassen, *The Scientific Image,* (Oxford: Oxford University Press, 1980), Chapter 5.

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explanations of descriptions of events. Dray noted that different historiographic perspectives may lead to historiographic arguments at cross purposes, when historians do not realize that their opponents explain a different topic, use different constrastive classes and different theoretical concepts.[21] Explanations of descriptions of events in traditionalist historiography may appear to compete when they mention identical words such as the 'Roman Empire' or 'the French Revolution', yet such concepts are theory laden and may well be used to explain different evidence. Consequently the explanations of descriptions of events that appear to compete may merely differ. Marwick noted the shifting meanings of historiographic proper names, classificatory generalizations and other theoretical concepts in different historiographies, for example, 'revolution,' 'liberty,' 'democracy,' 'the welfare state,' 'serf,' 'feudalism,' 'the Middle Ages,' 'Europe' and other geographical designations, 'class,' 'ideology,' 'capitalism,' 'imperialism,' etc.[22]

If explanations of descriptions of events are different rather than competing, if they explain different descriptions of the same or different events, disproving one explanation does not demonstrate the superiority of another and it is impossible to rely on the 'inference to the best explanation' to justify explanations of different descriptions of events.

However, the second interpretation is consistent with everything said so far. Competing explanations of descriptions of events, may not explain the same explananda, but a similar range of evidence. The best explanations of descriptions of events are the best explanations of the evidence. Therefore, we discover a radical difference between the justification of explanations of descriptions of events and explanations of evidence. Explanations of descriptions of events are holistic; their justification is typically external to them, the evidence and information theories that connect events with evidence. Explanations of evidence may typically be justified internally, by theories or laws that connect their explanans with their explananda, the evidence. The common use of the word 'explanation' here may be misleading as it refers to different types of claims, logical structures and scientific practices.

[21] W. H. Dray, *Philosophy of History,* second edition, (Upper Saddle River NJ: Prentice Hall, 1993).

[22] A. Marwick, *The Nature of History,* third edition, (London: Macmillan, 1993).

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Pragmatic Conclusion

If explanations of descriptions of events are holistic, what are their defining properties, what makes a proposition into an explanatory one? If explanations are analysed as holistic, their defining properties are not in their structure, but in their external contexts. The same proposition may be considered explanatory in one context and descriptive in another. In other words, the holistic analysis of explanations of descriptions of events is pragmatist. There are quite a few pragmatist accounts of explanation.[23] A commitment to a holistic analysis of explanations of descriptions of events does not imply a commitment to any particular pragmatists theory of explanation. Yet, it does exclude pragmatic theories that incorporate and supplant the traditional trifold analysis of explanation (explanans, Explananda, and something that connects them). For example, Achinstein added to Hempel's trifold model two parts, an audience and an explainer to generate a five parts structure. According to Achinstein, an explanation is considered good or not according to what the audience knows, whether it is correct for the explainer and valuable for the audience, depending on what they are interested in knowing. The criteria for a good explanation change with the audience. For example, a scientific audience is interested in laws, theories, causes etc. Achinstein claimed that the third part of the explanation, the one that should connect the explanans with the explanandum changes according to the audience. I deny that there is such a third part. I agree that what is considered an explanation of a description of an event depends on the audience and its interests, on the kind of questions it is interested in answering, on the context of inquiry. However, the justification of the explanation, irrespective of the context of inquiry, in scientific or in common sense reasoning, is dependent on the evidence and the background theories that connect it with holistic explanations of descriptions of events. It takes something like a philosophical gestalt shift to begin considering explanations of descriptions of events as justified by evidence and background information theories, and cease searching for non-existing covering laws that should connect explanans with explananda. Still, the advantages of an holistic analysis of explanations of descriptions of

[23] Op. cit., note 20. P. Achinstein, *The Nature of Explanation,* (New York: Oxford University Press, 1983). J. J. C. Smart, 'Explanation-Opening Address,' *Explanation and Its Limits,* Dudley Knowles (ed.), (Cambridge: Cambridge University Press, 1990) 1–19.

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events are overwhelming: it avoids the numerous known drawbacks of the covering law model, while fitting the actual practices of scientists, historians and ordinary folks who explain descriptions of events. Additionally, it also explains how singular causal explanations of descriptions of events and *ex post facto* explanations may receive scientific justification.

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