An Epistemological Analysis of the Paradoxes in Evidence-Based History

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Abstract
The justifying and rationalizing roles evidence plays is conspicuous in epistemological discussions. This paper is an epistemological examination of the nature and justification of historical evidence especially when historical evidence passes as knowledge. It questions which evidence-based historical search strategies generate discoveries, truth and / or facts effectively? The impetus for this research is that history is rational, and a study that covers all disciplines. Evidence acts as justification for arguments. Historians use evidence to prove their historical records, thus, this paper argues that historical evidence and facts at times do not speak for themselves because of different ways historians present different interpretations. Thus, historians have not shown that epistemic reasons exist for justification of the varying accounts, statistical errors, probabilistic, multiple and disjunctive narratives presented within historical discourses. In so far as there are general and probably specific epistemic landscape model within which evidence is raised to the status of knowledge, history has not displayed such models. It is sceptical to question the benefits of social learning in epistemically complex environment displayed in history. This paper adds new dimension to historical research by stimulating discussions on the nature of “epistemic justificatory landscape model” for history. In so doing, the paper will throw light on the nature of evidential theory in history and the need to support the move for evidence-based history. Our methodology is constructive and epistemological analysis. This paper ends by discussing the problems, implications and epistemological paradoxes arising from lack of epistemic models in evidence-based history.

Keywords: Evidence, Epistemology, History, Evidence-Based History (EBH)

Evidence, Evidentialism and Knowledge
To think about evidence, is to understand the role evidence plays every day in our lives. Evidence consists of facts, objects, symbols, and signs to make you believe that something is true (Hornby, 2000: 398). There are two approaches to evidential reasoning. These two approaches are displayed compete in the biomedical and social sciences. The first is the experimental while the second is the pragmatist. However, experimentalism has received considerable philosophical analysis and support since the times of Bacon and Mill.
It has continued to enjoy attention and support in very recent work on causation and evidence. Pragmatism about evidence has been neither articulated nor defended. Evidence, again, is a tool to maintain truth. Evidence is a \textit{neutral arbiter} among rival theories and their adherents. This means that only propositions that are consistent with one's evidence fulfills the truth conditions (Oke and Amodu, 2013: 156). In as much as any known proposition is true, its inconsistency with one's evidence necessitates inconsistency with some truth. Evidence then is a reliable indicator of truth. It is priori to theory, history, hypothesis and formulae, especially in terms of \textit{epistemic} priority. It serves as a straightforward correlation to truth.

In history, the place of evidence cannot be neglected. History studies events, and the study of these events is to enable us learn from the past in particular but generally it enables us to comprehend the world. In line with this, Hurley notes that:

"Our efforts to understand the world in which we live have integrity to the extent that they involve honesty in gathering evidence and honest logical thinking in responding to theoretical problems that develop along the way. Most forms of superstition involve elements of dishonesty in gathering evidence or failure of logic in responding to theoretical problems. Such failures of logic can be found in the lack coherence, or external consistency of the hypothesis related to their practices" (Hurley, 2001: 625-6).

Following from the above, history needs evidence to distinguish itself from rumours, chronicles, superstition, myths and to avoid ad hoc modification which shore up failure of evidentiary support of the original history. The agreement, disagreement or neutrality of a given evidence in relation to given history constitutes a central feature of epistemological and logical inference. Thus, much traditional epistemology construes the relationship between one's experiences and one's beliefs about the physical world on the model of the relationship between evidence and history. It is conceivable to presume that both the capability of evidence to justify belief and the fact that rational thinkers respect their evidence depends upon the connection between evidence and truth.

Plato’s \textit{Theatatus}, defined knowledge as justified belief (Plato, 1967:193; Unah 2011:30). It is evidence that determines the truth of such knowledge. This as well differentiates dream from the real world. Evidence, experimentation among others, are ways to link and legislate knowledge with truth; it is proper to proximate our belief with evidence. This is a ground for \textit{evidentialism}. Evidentialism is the view that a belief is rational or justified if and only if it is supported by one’s evidence. It states that the rational or justified attitude to adopt with respect to a claim or proposition is the attitude that fits one’s evidence. Although evidentialism is much harder to clarify and defend than it might seem, there is no denying its \textit{prima facie} reasonableness. We can argue that any belief or knowledge that would be considered irrational, epistemically unjustified, or intellectually illegitimate should be rejected. Evidentialism plays a key role in attacks against historical dogmatism and pseudo- history. How can historians employ evidentialists’ principles (commonly used in legal, mathematics, mathematical science, medicine) to substantiate
their accounts, narratives and make them true, real, rational and objective? How genuine is evidence-based history? Is evidence-based history epistemically justified? Is evidentialism logical in principle and practice? The way evidence is needed is thus summarized as follows:

‘Surely the only possible rule’, one may say, ‘is to believe what is true and disbelieve what is false.’ And of course that would be the rule if we were in a position to know what was true and what was false. But the whole difficulty arises from the fact that we do not and often cannot. What is to guide us then? … The ideal is believed no more, but also no less, than what the evidence warrants (Blanshard, 1974:410-1).

Evidence is one way to explain and prove historical occurrences in history. Evidence constitutes a capable way of pursuing an accurate view of the world but the problem is on some conceptions of evidence than on others especially when comparing the nature of evidence in other disciplines like law, medicine and mathematical science with history. Some disciplines use the confirmatory theory of evidential relations (such as classificatory or qualitative and quantitative) while others use the covering laws and the like. The classificatory concept is employed in the making of yes-or-no judgements about whether a given piece of evidence does or does not support a given hypothesis. Thus, it is the classificatory concept which is in play when one is concerned with judgements of the following form: ‘Hypothesis \( H \) is confirmed by evidence \( E \)’. On the other hand, the quantitative concept is employed in making numerical judgements about how much support a hypothesis derives from a given piece of evidence (for example, ‘Hypothesis \( H \) is confirmed by evidence \( E \) to degree \( R \)’).

Philosophy had for long questioned about when evidence makes a history more likely to be true and the study of this relationship reached new levels of systematicity and rigor especially during the positivist era. The positivists thought that the role of philosophy is analysis and explication of fundamental scientific concepts such as explanation and confirmation. Thus, the positivists thought that philosophy was used as the logic of science. In general, the concept of evidence is closely related to the cognitive desideratum of objectivity. According to this line of thought, individuals, disciplines and institutions are objective to the extent that they allow their views about what is the case or what ought to be done to be guided by the evidence (especially those disciplines that make use of evidence like the sciences). Evidence keeps ideas, thought, histories, findings, researches and inventions free from the distorting influences of ideological dogma, prejudice and traditions. Thus, an objective inquiry is an evidence-driven inquiry that makes for intersubjective agreement among inquirers.

Within historical study we ask the following questions: Are there general laws for confirming historical evidence? What is the criterion to pass any evidence as knowledge? History in general relies heavily on evidence. This includes all aspects of history, archaeological, economy, political, geographical and medical history all rely on evidence. Is there any need for evidence in history? Going from the fact that history studies the past, how do we believe what happened the past? The important issue is that there is need to
rationalize the past. For history to be rationalized there is this idea that history must be based on evidence. Evidence-Based History (EBH) suggests that there is need for proof of historical events especially since the demand of history is on past events. This accounts for the necessity of epistemic justificatory landscapes models for evidence in historical researches and discourses. Evidence, however, is necessary to justify historical events. Evidence is the kind of thing which can make a difference to what one is justified in believing. It creates a ground to what it is reasonable for one to believe. ‘Evidentialism’ can be formulated as a supervenience thesis, according to which normative facts about what one is justified in believing supervene on facts about one's evidence (Earl and Feldman, 2004).

Again if evidence is conceived as the sort of thing which confers justification, the concept of evidence then is closely related to other fundamental normative concepts such as the concept of reason. Undeniably, it is natural to think that ‘reason to believe’ and ‘evidence’ are more or less identical, being notable principally by the fact that the former functions grammatically as a count noun while the latter functions as a mass term.

**The Nature and Role of Evidence in History**

When we talk about evidence in history, we make reference to historical sources (primary and secondary), (namely, written and unwritten) testimony, literature, arts, systematic observation, interviews and surveys, careful examination of documents, inscriptions, coins, archaeological relics and lots more. There are other forms of history such as oral history. Actually oral histories are not usually in the realm of academic. They are sometimes dismissed as myths. The only way to save oral history from primeval silence is to turn them to written history. Arthur Marwick writes that historical research involves:

Diligent and systematic investigation in all potentially relevant primary and secondary sources, including research for hitherto unknown primary sources, conducted with the aim not merely of ‘making a book’ but in order to address precise problem and extends human knowledge in a particular area (Marwick, 1989:199) (emphasis is mine).

Thus, the primary objective of history is to extend knowledge through the use of evidence, and the primary sources are the evidence of those relics and traces of the past. Again, a historian’s work is generally esteemed serious and scholarly to the extent that it is properly based on primary sources. Thus there are hierarchical categories of historical evidence and the epistemic value of any historical work is a function of the extent it bears on primary sources. These hierarchical categories of historical sources can be distinguished between first-order evidence $E_1$ and higher-order $E^1$ and second Order $E_2$, third order $E_3$ and $E_n$ evidence. {Where $E_1$ is the first-order evidence; this evidence that bears directly on some target primary historical propositions or facts. $E^1$ is Higher-order evidence. This evidence is about the character of $E$ itself, or about subjects' capacities and dispositions for responding rationally to $E$. And $E_2$, $E_3$ and $E_n$ represent secondary and any other sources}.

This makes the reliance of history on evidence of great importance. Evidence is the totality of the reasons, grounds or facts presented in support of a claim (Oke and Amodu,
This places evidence as a determinant of how a historical work is rated. In order words, to extend human knowledge, there is need for evidence-based history. One of the foremost characteristic of an objective historian is the capacity to rise above the limited vision of his own situation in society and in history, ‘thus this capacity is partly dependent on his capacity to recognize the extent of his involvement in that situation, to recognize, that is to say, the impossibility of total objectivity (Carr, 1964:123). This makes this discussion on the historical evidence paramount. In as much as we acknowledge the processes historians go through in writing history, historians depend largely on evidence. The problem is how can historical evidence undergo critical analysis? How reliable is the eye-witness account? Is there corroborating testimony? Recall that in some instances reliability of the evidence can be a matter of impression. Again there is another problem of ‘reliability on evidence.’ Historians might argue that their accuracy of facts and producing series of interpretations is based on reliability on evidences. Reliability of any evidence is dependent on the extent to which the test of severity arises in the mist of competing alternatives. More so, the reliabilist’s theories of epistemic justification, typically seek to accommodate the intuition that such a subject is not justified in maintaining his /her reliably-arrived-at beliefs in the face of his /her evidence, and they seek to modify the simple reliabilist account to allow for this (Goldman, 1986:109-102).This idea maintains that one's evidence can make a difference to what one is justified in believing, even if other factors are also taken to be relevant. However, the stand of this paper is that ‘facts should speak for themselves in evidence-based history.’

The Paradoxes of Evidence –Based History (EBH)
An epistemological evaluation of the use of evidence in history reveals that there are lots of paradoxes and polarities associated with evidence based history. An epistemological notion of evidence is appropriate for history; where as an objective notion is appropriate for natural sciences. I will concentrate on the question of interpreting evidence in history since the role of evidence in history has been discussed. This section presents general arguments for interpreting evidence in history as epistemological rather than objective. This implies a difference between evidence-based sciences and evidence-based history, especially in terms of research methodology, use and application of evidence as well as its interpretation. The impetus of this is that objective notion of evidence is associated with repeatable conditions whose outcomes are independent; where as in history events are not repeatable. The use of evidence in history shows an operationalist definition of degree in belief in terms of betting quotients as providing a satisfactory foundation for the objective interpretation of evidence. This goes a long way to show operationalism as appropriate in evidence-based history, since our argument challenges the objective interpretation of evidence in history. The various epistemological challenges of the notions of evidence in history shall be discussed next.

Evidence in history versus evidence in other disciplines
Historical evidences do not deliver certainty, as in mathematics or logic. History is an empirical study, it also tries to explore, to describe, explain and predict the occurrences
in the world we live. Carl Hempel (1966:1) noted that historians’ statements must be checked against the facts of our experiences; these statements are acceptable only when properly supported by empirical evidence. The dependence of history on empirical evidence distinguishes history as empirical discipline from the non-empirical disciples like logic and pure mathematics, whose propositions are proved without essential reference to empirical findings (Osuji 2017: 160). One of the problems of EBH is the burden of proof which is a methodological or procedural concept. It is a regulative principle of rationality in the context of argumentation, a ground rule, as it were, of the process of rational controversy. Evidence is required for the belief to be justified even if there is no burden to defend the belief.

**Cognitive Strength of Historical evidence**

Historical evidence does not prove with absolute certainty. This situation is not decisive; however this can easily be understood as a situation where the value of $E$ might consist in its serving as a means to $H$, even if there are conditions in which relying on $E$ utterly fails to bring about (or even frustrates the achievement of) $H$. (where $E$ stands for evidence and $H$ stands for history). In the scenario, the phenomenon of evidence is not well harnessed. At times, another perspective of definition of evidence is arrived at in History. For instance, ‘$E$ is evidence for $H$, for a rational subject $S$ at a time $t$ and place $P$, if and only if $E$ would make $S$ believe $H$ more, where it has to learn that $E$ is the case.’ That is $E \propto H$ if $P$ and $T$ are constant (evidence $E$ is directly proportional to $H$, if and only if time and place is constant). This is illustrates the positive relevance of the epistemic justification of evidence in accounting for historical events. Naturally, then, evidence against $H$ would make a rational subject believe $H$ less, and evidence that is neutral towards $H$ would leave a rational subject's degree of belief in $H$ unchanged.

**Probabilities in Historical Evidences**

Probabilities establish only the probable truth of their conclusions and are the sorts of proofs which result from successful empirical investigations. And at most, one is justified in drawing inferences about what one believes on the basis of one’s knowledge of such epistemic situation. Thus, one is authorized to draw inferences about the contents of another's beliefs on the basis of information about the character of her evidence. In certain case, one might be led astray by following one's evidence. Consider the instance of the machinations of a Cartesian evil demon, a being bent on deceiving the world's inhabitants as its primary concerns. There is a demarcation between probability in experimental science and history. According to Lad;... an event $A$ is said to have a probability relative to condition $C$ if: (a) it is possible, at least in principle, to set up an unlimited number of mutually independent trials of $A$ under the same repeated condition $C$; ... (1983:290). From Lad’s thesis above, one way to argue for objective notion of probability is repeated condition. Here, historical events does not repeat themselves. They are natural events. This is one distinguishing factor of probabilistic nature of historical events. Historical events do not happen under controlled conditions as seen in sciences. Surely, the dialectic process of evolving nature does not admit the possibility of repetitions of identical circumstances,
necessary in principle for construction of probability. Judgement of historical events are made on probability (the probability of the states of the world) are formally used by historians; probabilities in histories mean something wilder and subjective. Popper (1934:148) writes that “a subjective interpretation of probability theory … treats the degree of probability as a measure of feelings of certainty or uncertainty, of belief or doubt, which may be aroused in us by certain assertions or conjectures”. This is because subjective probabilities are appropriate for singular events; where no repetitions can easily be defined as in history. We then move to the epistemological challenges on the notion of probability in evidence-based history. The problem of probability of evidence could be understood from Bayesian perspective, which considers the epistemic support evidence, confers on a hypothesis as probable. First, the idea that the probability calculus provides the key to understanding the relation of confirmation is central to Bayesianism. It is also the dominant view within contemporary confirmation theory. The significance of evidence to history is that it makes the history more likely to be true and/or renders the history less likely to be true. The Bayesian takes these platitudes at face value and offers the following probabilistic explication of what it is for E to be evidence for H:

\[
E \text{ is evidence for } H \text{ if and only if } \text{Prob}(H|E) > \text{Prob}(H).
\]

That is, E is evidence for H just in case the conditional probability of H on E is greater than the unconditional probability of H. Thus, the fact that the suspect's blood is on the knife is evidence for the hypothesis that the suspect committed the murder if and only if the probability that the suspect committed the murder is greater given that his blood is on the knife than it would be otherwise. Similarly,

\[
E \text{ is evidence against } H \text{ if and only if } \text{Prob}(H|E) < \text{Prob}(H).
\]

That is, E is evidence against H just in case the conditional probability of H on E is less than the unconditional probability of H. Thus, the fact that the suspect's fingerprints are not on the knife is evidence against the hypothesis that the suspect committed the murder if and only if the probability that the suspect committed the murder is lower given the absence of his fingerprints on the knife than it would be otherwise. Within this probabilistic model, verification (in the sense of conclusive confirmation) would involve bestowing probability 1 on a historical hypothesis while falsification would involve bestowing probability 0 on it (Hurley, 2012: 557 and Copi et al, 2009:640).

**Probability Distribution / Unconditional probability of interest**

There is the presence of historians’ combinations of prior and posterior probability distribution effect on evidence. If it is more on the prior probability, history will be subjective, and if it is more on the posterior probability distribution, history will be relative. This is to say for any given value of historical ratio, the posterior probability of H increases with its prior probability, while for a given value of the prior, the posterior probability of H is the greater, and the less probable E is, relative to –H than H (Howson and Urbach, 1996,117). Thus three states of evidence can be deduced:
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(i) $P(H/E) > P(H)$ in this case, evidence is said to confirm the historical hypothesis
(ii) $P(HP) < P(H)$ here evidence disconfirms the historical hypothesis
(iii) $P(H/E) = P(H)$ again, evidence is neutral

One of the epistemic implications displayed by the analysis of prior and posterior probabilities is the undeniable role of subjective position (preference) in universal history. This calls for epistemic re-evaluation of history where any ‘body of data’ renders its truth probable as a product of subjective methodology. All these will be overcome where evidences $E$ are made objective probability in a given history $H$ and that history, $H$ logically entails evidence, $E$.

From the Bayesian perspective, it is reasonable for one to believe both on the evidence to which one is exposed as well as on one’s prior probability distribution. Thus for the Bayesian, two persons who share just the same total evidence might differ in what it is reasonable for them to believe because of some questions from their perspectives of having different prior probability distributions. Thus, it should be noted that:

The Bayesian theory is proposing a theory of inference from data, we say nothing about whether it is correct to accept the data … the Bayesian theory of support is a theory of how the acceptance as true of some evidential statement, affects your belief in some hypothesis.

How you came to accept the truth of the evidence, and whether you are correct in accepting it as true, are matters which, from the point of view of theory, are simply irrelevant (Howson and Urbach, 1996:272).

Since Bayesians regularly emphasize on rational belief change (that is on what is involved in rationally revising one’s beliefs over time), the justificatory role of evidence retains a superior status within the Bayesian system. This is so because Bayesians usually maintain that which differentiates those changes in one’s beliefs that are reasonable from those that are not. This is so because the former, unlike the latter, involve responding to newly-acquired evidence in an appropriate way. For the Bayesian, it can be categorized as evidentialist; it is evidence which justifies that which stands in need of justification.

There are terms of dispositions to take risks whose outcomes would depend on the correctness of the history of interest. Thus someone who evaluates a historical knowledge $(H)$ on the basis of evidence $(E)$ brings to its assessment the following:

A prior degree of confidence in $H$ ………………. … (1)
Prior expectations concerning whether $E$ should have occurred regardless of whether $H$ is correct. …………………………………………………. (2)
A prior degree of confidence that $E$ should or should not occur, regardless of whether $H$ is true. ………………………………………………………… (3)

Now if $B$ is the investigators background beliefs which determines these expectations, Bayesian theory says that the probability of $H$, given $E$, should vary directly
with (1) and (2) and inversely with (3). This is represented symbolically (Honderich, 1995:79) as follows;

$$Pr(H|E&B) \{the\ probability\ of\ H,\ given\ B\ and\ E\}$$

$$= \frac{Pr(E|H&B) \times Pr(H|B)}{Pr(E|B)}$$

Where $$Pr(H|B)$$ corresponds to (1) above, $$Pr(E|H&B)$$ corresponds to (2) above and $$Pr(E|B)$$ corresponds to (3). (There are various forms of Bayes’ theorem. Our discussion here will be limited from a historical perspective). This probability calculus is necessary especially in the evaluation of historical evidence even though the idea that the probability calculus provides the key to understanding the concept of evidence has found greater favour among philosophers of science than among traditional epistemologists. It is good to note that probability calculus is needed for computing the probabilities of compound arrangement of events. It functions analogously to the set of truth-functional rules in propositional logic.

Applying Bayesian argument to historical evidence means that there are major elements of historical inference which are determined by the influence of one’s belief. Again there are elements of historical inference in terms of the probabilities of the various competing historical facts that are considered relative to the other available evidence. This means that our belief about historical facts and evidence are as well influenced by our subjectivities in degrees. This as such is seen in the scenario where disputes among historians are traced to subjective disagreements about the unconditional probabilities of history (H) and evidence (E). The justification for this probabilistic coherence could be linked to the language of probability which is sufficient to capture the essentials of causality, namely the positive relevance of the causes to the effects. And more so from what could be referred to as static aspects of belief as seen in religions and culture. When this is brought within the arena of probability calculus, there are the posterior and prior aspects of historical evidence. The prior probability includes the statistics aspects of beliefs, customs, influence of tradition and religion; of course does not change while we are placing judgments. They are usually static. Another thing is that they can be static and fine as long as probability axioms are not violated. All these affect the choice of evidence by the historian. This is best understood in real life context: For instance with the Boko Haram attacks in Bauchi state Nigeria in 2014, there are different versions of the history; the perspectives of the Bauchi indigenes, that of the Igbo residents which are the victims of such attacks, that of the Yoruba victim, military, Christian and Islam perspectives. This shows that historical themes and interests are usually determined by the historians’ inclinations to prior probabilities. To buttress this point, see the research interests, themes and stands of various historians and historical scholars on the theme ‘Democracy, Terrorism and Development’ in the Proceedings of the First International Conference of the Department of History and International Studies, Adekunle Ajasin University Akungba-Akoko, November 25-24, 2015. We can accept that historians might be perfectly rational in holding incompatible theories, inasmuch as rationality is
relative to a paradigm, and the two historians might be operating within different paradigms as a result of the priori probabilities.

Again, we may suppose that historians might be rational because rationality is relative to an inductive method or confirmation function, and the two historians might be employing different inductive methods or confirmation functions as a result of priori probabilities. The epistemic issue here is; how objectively can response to a given body of historical evidence be when the historians depend upon their prior probability distribution: the two historians might thus both be rational in virtue of possessing different prior probability distributions.

Consider that there are important differences among these accounts of historical rationality even when they possess the same structure. This means that evidence is not enough to justify history. There is need for some further feature $F$ (which includes one's prior probability distribution, paradigm, and inductive method). One of the major characteristics of this further feature $F$ is its variance between different individuals. On this note, the demeanours of a given body of evidence on a given history grow into a highly relativized matter. For this reason, the capacity of evidence to spawn agreement among even impeccably rational individuals is in principle subject to substantial restrictions.

Why is relativity to a prior probability distribution (paradigm, inductive method) more hostile to the idea of truth and certainty of fact in evidence-based history? The difference of prior and background theory, one is either inferior or superior to the other, domineering and the other dominates (recessive or subordinate) affect the choice and analysis of evidence in history. There is also the problem of old evidence. This means that an objective historian must consider a relatively wide range of prior probability distributions (confirmation functions, inductive methods, paradigms) and given-in to subsequent exposure to sufficiently extensive body of common evidence in his historical researches. This is why some histories are often criticized on the grounds that they turn the relationship between evidence and history into an overly subjective affair.

Now considering the influences of the posterior, that a proposition is inconsistent with one’s beliefs, or with the content of one’s certain experiences, or with a proposition, of which one is psychologically certain, does not guarantee that it is false. In a situation two historians produces different histories at the same given place and time, it will be such that we have $H_1$ and $H_2$ where t & p are constants (H stands for history and t is time and p is place). This informs the idea of probability in history. It is such that it could be contended that rational history is governed by laws of probability; historians rely more on conditional probabilities in their choices of evidence and models of empirical learning. Thus, where $H_1$ and $H_2$ are logically incompatible historical hypotheses, the degree to which a rational subject believes $H_1 or H_2$ ought to be equal to the degree to which he believes $H_1 plus$ the degree to which he believes $H_2$ since \[ P(H_1 \lor H_2) = P(H_1) + P(H_2) \] is an axiom of the probability calculus. From the perspective of product theorem (Copi, 2009:650), to calculate the probability of a joint occurrence of two or more events (in this instance history), there are two possibilities;
a. If the events say $a$ and $b$, are independent, the probability of their joint occurrence is the product of their probabilities; $P(a \text{ and } b) = P(a) \times P(b)$.

b. If the events say $a$ and $b$ and $c$ etc. are not independent, the probability of their joint occurrences is the probability of the first event times the probability of the second event if the first event occurred, times the probability of the third event if the first and second events occurred etc.; $P(a \text{ and } b \text{ and } c) = P(a) \times P(b \text{ if } a) \times P(c \text{ if both } a \text{ and } b)$.

The products of the probabilities of historical evidence will result to a multiplicity effect where the epistemic value will be lost. Another reason why this cannot be applied to history is that historical evidence are neither discrete like in mathematics and logic; nor are historical events like scientific events which can be repeated under controlled environment. One unique character of history is that it is a natural phenomenon which cannot be repeated at will. But we can add the two histories (that are independent of the other, but records different versions of the same events) together such that we add $H_1$ and $H_2$ in order to accommodate and re-evaluate the various perspectives and it will be such that; $P(H_1 \text{ or } H_2) = P(H_1) + P(H_2)$. This will demand a thorough assessment of the historical evidence of the different historical positions.

**Conditions for Evidence**

There are no classifications of evidence in historical discourse; which evidence is weak, strong, or in essence required or necessary; that every type of evidence is strong and necessary is not a good epistemic ground for evidence-based history considering the situation where one's evidence is exhausted by one's subjective historical research and statements. Because there is neither classification nor covering laws of evidence, a historian may have the temptation to simply identify one's evidence with one's experiences. In as much as we are not advocating that historians should be constrained on the classification of evidence; it is inconsistent to insist that evidence must consist of true propositions (as in science) and at the same time that evidence should not include perceptual states individuated in part by relations to the environment.

The argument here should be focused on the nature and conditions of evidence in history. Let us discuss this with the illustrations below. Given two propositions;

$E_1$ is the evidence for $H_1$ ........................ (1) { $E_1$ is insufficient to persuade a disbeliever that $H_1$ is true.}

$E_2$ is the evidence for $H_2$ ........................ (2) { $E_2$ is sufficient or compelling grounds for rational belief, or at least, powerful considerations which competing theories cannot account for}.

{Where $E$ stands for evidence and $H$ stands for history, $E_1$ and $E_2$ stand for different forms of evidence and $H$ stands for History. $E_1$ is the evidence for history in a particular time and place, $H_1$. $E_2$ is historical evidence in a particular time and place, $H_2$}
Given these two propositions above, two important positions could be seen; proposition (1) above illustrates a situation of insufficient evidence resulting to weak evidence (WE), whereas proposition (2) illustrates situation of strong evidence (SE). More so, one time-honoured debate that divides realists and antirealists in the philosophy of science can be understood as a debate about whether the kind of evidence which is available to scientists is ever sufficient to justify belief in theories that quantify every entity that are in principle unobservable, such as electrons or quarks. This controversy is similar in EBH; thus one of the problems of evidence-based history is to state the conditions of “evidence” in EBH. EBH will answer and provide the following conditions: What is historical evidence? What are the conditions of historical evidence? When is historical evidence considered as weak or strong evidence? What are the conditions to strengthen weak historical evidences? In answering these questions, evidence-based history will be a more organized body of knowledge. These distinctions are important for establishing the nature and conditions of evidence. They will strengthen the exercise of historical consciousness and propel us to stand against historical negations and contradictions which result from weak evidences.

**Statistical Error**

Again there is the possibility of error statistics. This is because since there is no standard means or covering laws to account for reliability of evidence and the historian might be at risk of error in collection of evidences and historical facts. On this note, we use Debora Mayo’s list of what errors are to demonstrate statistical errors in history. According to her, statistical errors include: mistaking experimental artifacts for real effects, mistaking chance effects for real genuine correlations or regularities, mistakes about a quality or value of a parameter, mistakes about a causal factor, mistakes about a the assumptions of experimental data (Mayo,1996:18). Statistical errors are prevalent in history. An instance of this is seen in the cases of prosopography (multiple biography) (Gracia and Noone, 2002:226). Consider this example from an extract from medieval history in Jorge J.E. Gracia and Timothy B. Noone (eds.) (2002: 226, 515)

“Boethius of Dacia was born in Denmark, not in Sweden, and the dates of birth and death are unknown’. And also, “The basic facts of Bacon’s chronology are still in dispute. On one reading of a single crucial text and some additional evidence, the following would be a likely outcome: born 1214, educated Oxford 1228 to 1236, professor, University of Paris 1237–47, private scholar 1248–56, possible return to Oxford, Franciscan at Paris, 1256 to about 1280, Franciscan at Oxford from about 1280 to about 1292 (according to Little, Maloney, Hackett). On the second reading, the following: born 1220, educated Oxford 1234 to 1242, professor, University of Paris 1243–8, private scholar, 1248 to about 1255, possible return to Oxford, Franciscan at Paris 1256 to about 1280, Franciscan at Oxford 1280 to about 1292 (according to Crowley, Easton, Lindberg).”
Again, there is no probability of dictation of these cases. This is because there are no significant historical model devices to assess evidences for such; given the nature of subjectivism in history. We shall discuss more on this under the problems of probability in EBH below.

The probability nature of historical facts and data raises controversy on the nature of historical explanations, knowledge and facts (Osuji, 2017:164). It suggests that the measure of how confident a historian is justifies when his history is true. This depends, not only on the character of relevant data to which he has been exposed, but also on the alternative hypotheses of which he is aware. According to this line of thought, how strongly a given collection of data supports a historical hypothesis is not wholly determined by the content of the data and the historical events. (Nor is it wholly determined by their content together with the historian's background knowledge of how the world events unfold). Rather, it also depends upon whether there are other plausible competing hypotheses in the field. It is because of this that the mere articulation of a plausible alternative hypothesis can dramatically reduce how likely the original hypothesis could be made available.

The evidentialist thesis that differences justification are always endorsed by differences in evidence, it follows that a complete requirement of one's evidence at any given time will make reference to the set of hypotheses which one is aware of at that time. This illustrates that intuitive judgments about what individuals are justified in believing in certain circumstances, when coupled with a commitment to evidentialism, can drive one's theory of evidence.

Multiplicity of evidence in History

Another problem of EBH is multiple evidences in history; from Evidentialist perspective, any two persons who have exactly the same evidence would be precisely alike with reference to what they are justified in believing about any given question. It is so to the point that what one is justified in believing depends upon one's evidence. The implication of this is that the historian has to battle with the basic integrity of truth-event explanation rather than belief-desire explanations (Osuji: 2017:160). Let us consider another illustration where evidence $E$ is sufficient to justify belief of a historical hypothesis $H$ when considered in isolation; in another similar scenario one might possess some additional evidence $E_1$, such that one is not justified in believing $H$ given $E$ and $E_1$. Does it not follow that one who possesses evidence $E$ is justified in believing $H$ on its basis? This brings out the fact that evidence $E_1$ defeats the justification for believing $H$. This means that a given piece of historical evidence is defeasible evidence in as much as it is in principle predisposed to being weakened by further evidence in this way. However, historical evidence which is not predisposed to such deflation would be indefeasible evidence. It is controversial whether any historical evidence is indefeasible in this sense. Thus we can illustrate this as

\[
H \equiv \{E_1, E_2, E_3\} \text{ [here history H has to choose from sets of evidences]}
\]

\[
\{E_4, E_5, E_n\}
\]
Thus, these instances where evidences E, for a particular history H, can range from E₁, E₂, E₃,.., Eₙ. (Where E₁, E₂, E₃ are each evidence for a particular history and Eₙ represents multiples of evidence for a particular history. This scenario creates an epistemic problem of selecting the appropriate evidence(s) to suit a particular history. This means that in principle, there is no limit to the complexity of the relations of defeat that might obtain between the members of a given body of evidence. Such complexity in history is one source of our fallibility in responding to evidence in the appropriate way. This stems from the fact that some of the evidence could be affirming while others could be negating a particular history. Thus reasoning of this general form has often encouraged standpoint where one's total evidence is exhausted by one's present experiences. This leaves open questions about what relation one must bear to a piece of evidence E in order for E to count as part of one's total evidence, as well as the related question of what sorts of things are eligible for inclusion among one's total evidence.

Example-based defence and explanations

The problem of example-based defense and explanations offered by evidence-based history is in itself misleading. For instance, they select examples that conform to historical contexts and ignore cases of the sort just offered that conflict with it. Not only does this generate the false impression that EBH is true, it suggests that historical belief, because it lacks strong evidence, must be judged to be just as ridiculous as the myths or goblins. But given that there are numerous non-ridiculous beliefs that lack strong evidence, it remains open that belief in a historical reality is more like those ridiculous beliefs. Historians have said nothing to argue otherwise. Moreover, it is clear that they have no argument that historical accounts at times could be ‘ridiculous.’ If they did, they would have no need to justify history without evidence; the argument would itself be the evidence. My point is that, in presenting ridiculous examples and ignoring non-ridiculous ones, historians create the misleading impression that the silliness of historical account is a result of their reasoning rather than an unsupported presupposition.

Conclusion

Evidence-based history should provide an epistemic landscape model of the evidential-relation which should provide conditions necessary and sufficient for the truth of claims of the form: ‘E is evidence for H’ (where E is Evidence and H is history). This epistemic landscape model should be philosophically enriched in themes, inculcate statistical reasoning and different modes of measurement. It should have the capacity to address what it is for some evidences, E and what should constitute evidence for a historical proposition or knowledge, or facts; H. This epistemic landscape model should as well provide some classification of evidence, such that evidence could be categorized in terms of their displayed character. These categories could be in form of semi-probabilistic, and non-probabilistic or qualitative evidence. These categories are necessary to save EBH from practitioners of fake evidence, from cold readers who parade themselves as historians and bring solution to historical puzzles. Probabilistic categories of evidence are the so-called
increase-in-probability or positive-relevance account. The idea is simply that E is evidence for H if and only if E makes H more probable. In symbols, E is evidence for H if and only if: 

\[ P(H/E) > P(H) \]

(Where this is to be interpreted as saying that the probability of H given E is greater than the probability of H alone). There must be high probability an explanatory connection and positive relevance. That is to say evidence is a positive instance. Along similar lines, we can say that E is evidence against H if and only if:

\[ P(H/E) < P(H) \]

Again, we may say that E is neither evidence for, nor against, H if

\[ P(H/E) = P(H) \]

These may be seen as formal systems but there is deeper philosophical significance if we interpret the concept of probability employed especially taking recourse to logic. The probabilistic nature of historical evidence is the bane of multiplication of histories. There are different versions of the probabilistic nature which this research could not exhaust because of the constraints of space and as well it has opened a new dimension of research in history. Again, there are limitations of applying evidence-based history to modern day historical studies. It is a relatively new practice and the number of professional historians not familiar with such a routine is still fairly high. Furthermore, many of those who practiced long before the application of evidence-based history feel it undermines their historical expertise and the value of their experience to a degree. This is so because individual historians must have being familiar with or often have a preferred method for carrying out historical research and writing history. This raises the question of whether they are then obliged to change a habit of numerous years to fit in with modern, unfamiliar guidelines. As historians become accustomed to the system of evidence-based history, problems will increasingly be ironed out and skills to interpret and effectively utilize data and research will be honed. The principle of evidence-based history is founded on the ability to use systematic and technical research to provide optimum history and knowledge. The process of establishing the most effective historical evidence is divided into several key stages of testing, analysis, evaluation, presentation and valuation.

Lastly, evidence-based history (EBH) has a lot to do in terms of the conditionings of epistemic priority of evidence to history. When historians set a research model of categorizing, accepting and rejecting evidence, factors of disagreement among historians (such as personal bias, group prejudice, conflicting theories of historical interpretation and various underlying philosophical conflict) will be settled to a reasonable extent. More so, it is evidence that separates history from superstition, confabulation, hallucinations, placebos, sloppy thinking, mysterious explanations and myths. This will save history from ad hoc modifications of history and historical knowledge. Evidence moves history to a level of objectivity and integrity.
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References

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