

Miracles and Aliens: Problems with Unorthodox Historical Explanations

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Abstract: This paper presents an account of historical explanation based on the contrastive-contrafactual theory of causal explanation and ideas taken from mechanism-based philosophy of science. The presented account shows why historians cannot accept explanations that invoke unorthodox explanatory factors such as miracles or extra-terrestrial encounters. In a nutshell, the claim is that historians as historians should use only empirically established causal processes and actors in constructing their explanations whenever they can. Without such constraints, historical inquiry would become arbitrary.

Keywords: causal explanation, historical explanation, historical miracles, ancient astronaut hypothesis, type-token distinction, empirical possibility, epistemic possibility, historical possibility

1. Introduction: Unorthodox History

David Hume famously defined a miracle as “a violation of the laws of nature” and concluded that mere testimony could never serve as a sufficient justification for past miraculous events (Hume 2007, 83; Russell & Kraal 2017, 6). Some have praised Hume’s reasoning, while others claim his approach puts excessive constraints on historical research (see, e.g., Licona 2010).

Other proposals, which do not refer to violations of natural laws, nevertheless support Hume’s conclusion that miracles do not belong in history books. For instance, some have appealed to *methodological naturalism*. According to such views, historical research is confined only to human causation within the physical space-time universe (Webb 2011, 59, 78; Kemp 2000, 169, 188). This does not mean that historians must deny the existence of supernatural beings or events. On the contrary, methodological naturalists can foster theistic beliefs if they separate them from historical enquiry (Webb 2011, 82; Kemp 2000, 188). History is interested only in the natural realm, whereas the supernatural belongs to another discipline, theology (Webb 2011, 78).

Regardless of such views, the supporters of historical miracles are still alive and well—even within academia. Some New Testament scholars have promoted the idea that historical

research can justify belief in the resurrection of Jesus.¹ According to one study, Three of four scholars who had published on the resurrection's historicity defended it as an actual historical event. (Habermas 2005, 139–140.) However, it is good to note that historians are not so eager to advance positive attitudes toward historical miracles outside theology departments.

Let us turn to another phenomenon outside the universities that mainstream historians also frown upon. According to the ancient astronauts, ancient aliens, or paleocontact hypothesis, extra-terrestrials have visited Earth in antiquity and prehistoric times. The supporters of this view often give dubious interpretations of ancient religious texts, such as parts from the Ramayana or the Old Testament. They claim that when these documents mention supernatural beings or flying objects, they refer to extra-terrestrials and their spacecrafts (von Däniken 1975, Ch. 2). Another popular idea among those who take the paleocontact hypothesis seriously is that some ancient monuments and ruins—like the Moai statues of Easter Island, Great Pyramids of Giza, Machu Picchu, Stonehenge, or Nazca Lines—are constructed partly or entirely by aliens (von Däniken 1969, Ch. 8).

Although the ancient astronauts and the resurrection hypotheses differ in many respects, there are also significant similarities. These accounts explain texts and other historical data—like artefacts or the spread of Christianity—by appealing to agents and causal factors that many scholars and laypeople find questionable. However, it is crucial to note that the same arguments, which aim to exclude supernatural miracles from historical research, often do *not* work against the paleocontact hypothesis. This is because the arguments are usually targeted to tackle supernatural events and actors, whereas the ancient astronaut hypothesis does not appeal to anything of the kind.

Extra-terrestrials and their hypothetical technology fall within the naturalistic ontology. For instance, the paleocontact hypothesis does not require violating the laws of nature or rejecting methodological naturalism. An atheist might be inclined to say that Jesus' resurrection is impossible for ontological reasons. Still, most of us do not want to rule out alien contact as something that simply cannot happen—even if there is insufficient evidence

¹ Among the most influential supporters of such a view are Gary R. Habermas (2003), Michael R. Licona (2010), and N.T. Wright (2003).

to say it has already happened. Perhaps we have good reasons to think that the probability of such events is low, but general ontological commitments do not, as a rule, suffice to do this.²

Of course, it is easy to show that the ancient alien hypothesis is pseudohistory by looking at the specific claims that its supporters make and how they justify them. The promoters of paleocontact make highly speculative statements without genuine support. They also make several, possibly even intentional, mistakes regarding generally accepted and well-grounded historical facts. (Hines 2003, 304.) Nonetheless, it seems reasonable to be sceptical about the ancient alien hypothesis even before examining its arguments in detail—nor does such scepticism require one to be fully informed about the current state of proper historical research.

The same holds with historical miracles. The defenders of the historicity of the resurrection have produced a body work of considerably higher academic quality than the supporters of ancient astronauts. Nevertheless, it would seem intuitive that our approach towards historical miracles—regardless of our worldview—should be at least more cautious than towards non-miraculous claims concerning the past. Of course, this might turn out to be a mere unfounded intuition, which is the case with many other intuitions. However, before making such hasty judgments, let us first look at the historical method and what lessons it can teach us regarding miraculous and otherwise unorthodox history.

Historical Explanation: A Contrastive-Counterfactual Account

The term 'history' is ambiguous. Similarly, to many other names of the sciences, such as chemistry or semantics, history can either refer to a form of inquiry, namely, the thing that historians do, or to an object of study. Historians study the past, that is, past phenomena and

² In fact, Carl Sagan (1979) suggested the boom of ancient astronaut-themed literature in the 1970s was caused by the book *Intelligent Life in the Universe* (1966), which he co-wrote with Iosif Shklovsky. In it, Sagan and Shklovsky open the possibility of alien contact in recorded history and recommend that historians examine this option seriously. Nevertheless, the writers emphasised that these ideas are theoretical without sufficient support. (Shklovsky & Sagan 1966, Ch. 33.) Hence, the ancient alien hypothesis has been introduced as a serious scientific hypothesis that should be appropriately tested. The difference between this approach and the pseudoscientific one is that Shklovsky and Sagan considered the hypothesis improbable and unproven (ibid; Sagan 1979).

events (Seppälä 2018, 219). To avoid confusion, henceforth, the term ‘history’ is used to denote historical research and the word ‘past’ when referring to the target of historical inquiry.

As empirical researchers, historians use evidence to reconstruct the past (Seppälä 2018, 219). Their primary evidence consists of *traces* remaining from past events. The connection between the now-bygone incidents and the traces we are left with is causal. (Seppälä 2012, 11.) Someone or some people causally produced the artefacts, ruins, manuscripts, and customs we now have. Hence, the historian’s task is to develop causal explanations of traces, which tell us what the past was like, at least in certain respects.

In this paper, the contrastive counterfactual theory of causal explanation developed by James Woodward (2003)³ is adopted in analysing historical research. According to the Woodward’s account, explanations answer *why* and *how* questions (Hedström & Ylikoski 2010, 52). Even though these questions might not appear so at first blush, they are contrastive. In other words, when someone asks: “Why or how is this trace like this?” they are asking: “Why or how is this trace like this and not like something else?” (See, e.g., Ylikoski 2001, 8).

In addition to the questions, the explanations are also contrastive. As Woodward states:

“[A]n explanation ought to be such that it can be used to answer what I call a *what-if-things-had-been-different question*: the explanation must enable us to see what sort of difference it would have made for the explanandum if the factors cited in the explanans had been different in various possible ways” (Woodward 2003, 11).

In Woodward’s view, the relationship between a cause and an effect must be *invariant* because changes in the cause also bring about changes in the effect (Seppälä 2012, 30–31). So, for instance, if the manipulation of the proposed cause does not make any difference in the effect, then there is no actual causal link between them.⁴ The more profound knowledge

³ Judea Pearl (2000) and Petri Ylikoski (2001) proposed a similar account before Woodward published his seminal book *Making Things Happen* (2003). Nevertheless, Woodward’s work has become the *locus classicus* for the contrastive counterfactual theory.

⁴ It is good to note that causal relations do not have to satisfy the traditional criteria of laws (Woodward 2003, Ch. 6).

of relevant causal processes one possesses, the better one understands how the traces came about. The better is one's position to answer Woodward's *what-if-things-had-been-different* questions or *what-if* questions for short (see, e.g., Ylikoski 2009).

The Historian's Toolbox

The above gives a rough sketch of the Woodwardian theory of explanation. Next, some elements from mechanism-based approaches in the philosophy of science that have been particularly influential during the last two decades in the philosophy of biology and social sciences will be added (e.g., Bechtel & Richardson 2000; Craver 2007; Hedström & Ylikoski 2010, 51).

The complex causal process that produced the studied trace can be divided into sub-processes and examined separately. An explanation of a trace reveals the structure of the causal process that produced it by opening its so-called "black box" and showing how different entities, their properties, activities, and relations bring about the studied effect. This way, the initial explanation-seeking question can be broken into more minor questions about the causal process and its parts. The causal processes form a hierarchy. When one opens a "black box" to uncover the causal factors, one explains a higher-level process with lower-level processes. Different sciences can study the same causal process and its factors on different levels, but they are related to one another by the hierarchy they belong to. (Hedström & Ylikoski 2010, 50–52.)

To make this hierarchical study of different levels more precise, a conceptual distinction is made between two sorts of causal processes: (*particular*) *causal scenarios* and (*general*) *causal patterns*.⁵ A causal scenario is an explanation for a particular empirical fact. As such, it might consist of several different causal processes. On the other hand, causal patterns are not intended to explain any empirical facts. Instead, they explain simplified and idealised causal facts. A causal pattern is an abstract description of a causal process that can be filled with more specific information about its entities and activities (see, e.g., Darden 2006, 281). A

⁵ The distinction between causal scenarios and patterns corresponds to the distinction between causal scenarios and causal mechanism schemes made by Ylikoski and his co-authors (Hedström & Ylikoski 2010; Ylikoski & Aydinonat 2014). The term "causal scenario" has been directly borrowed from them.

causal pattern says that certain kinds of causes roughly have, or can have, certain kinds of effects.

The difference between causal patterns and scenarios can also be stated with the type-token distinction (Peirce 1906, 506). A causal scenario is a token explanation of a token fact. A causal pattern, in turn, is an explanation type that can be used to explain a certain type of phenomenon. For example, suppose someone is examining some tracks left in the mud. It can be deduced from the shape of the tracks that a bear probably made them. The reason for this is that bears usually make these types of tracks. So here we have a type of explanation for a type of historical trace or, in other words, a general causal pattern. However, based on the tracks and other information available, it can be concluded that a particular bear made these tracks at a particular time. Perhaps a bear is known to roam the area with one claw missing from one of its paws, and the tracks are consistent with this. Now, we have a token explanation (*this* bear made the tracks) of a token fact (*these* tracks) or a particular causal scenario.

Historians possess a “toolbox” of established causal patterns. We have adequate reasons to believe such causal patterns can or have been actualised. The established patterns are semi-general and serve as tools or building blocks for causal scenarios. (Hedström & Ylikoski 2010, 52, 61–62.) For instance, the previous example used an established causal pattern to formulate a causal scenario. It is well-known what type of tracks bears leave behind. The causal pattern was specified by a more detailed description of the traces (one specific claw is missing), which enabled one to construct a more detailed and specific explanation (a specific bear missing a claw and moving around nearby caused the traces at a specific time interval).

Most of the causal patterns can be used in many different causal scenarios. (Hedström & Ylikoski 2010, 52, 61–62.) Correspondingly, a causal scenario can contain several causal patterns (Ylikoski & Aydinonat 2014, 30). When constructing a causal scenario from causal patterns, one should keep certain factors in mind (Ylikoski & Aydinonat 2014, 28; Hedström & Ylikoski 2010, 52):

- (1) In principle, the same trace can be explained using different causal patterns.

- (2) The same causal patterns can be combined in various ways.
- (3) Information concerning the causal context and its initial conditions affect the causal scenario, and such information needs to be added.

Usually, we do not know beforehand what the correct explanation is when we start looking for an explanation. In such a situation, the causal scenarios and the causal patterns are both *how-possibly explanations*: they tell us what causes *could* produce some specific or more abstract facts. When explaining something with competing causal scenarios, there is, hopefully, among these how-possibly explanations, a *how-actually explanation*. The how-actually explanation is the correct explanation. It describes the actual causal processes that were responsible for the explained fact. (Ylikoski & Aydinonat 2014, 25.)

How-possibly explanations are often evaluated comparatively:

“Explanatory hypotheses are not only evaluated by finding supporting or undermining evidence, but also by comparatively studying (and ruling out) competing hypotheses. In this process the alternative causal scenarios play an important role. As the aim of the research is to find evidence that discriminates between competing scenarios, knowledge about the scenarios and their presuppositions guides the search for new evidence. A well-specified causal scenario tells us what kinds of traces of its behavior should be found in the evidence. It is precisely this kind of evidence that is relevant for the process of cutting down the number of possible causal scenarios.” (Ylikoski & Aydinonat 2014, 30.)

The aim is to gather evidence that renders all the how-possibly explanations impossible except for one. Due to this, a causal scenario needs to be specific enough to tell us what type of evidence would support or undermine it. In addition, the causal scenario should be clear about those aspects that distinguish it from its competitors. (Ylikoski & Aydinonat 2014, 26.) It is easier to look for the required evidence when it is evident how the how-possibly explanations differ and what sort of evidence would discriminate between them.

The difference between genuine causal explanations and mere causal storytelling is that the latter consists of vague, just-so stories. A proper explanation must be checkable, explicit, detailed, and supported by empirical evidence. It cannot, for instance, be an *ad hoc* addition compatible with any set of empirical observations. (Hedström and Ylikoski 2010, 53–54, 58,

64.) The uncheckable just-so narratives are problematic because they do not allow us to make correct counterfactual inferences such as: What would have happened if certain things had been different? Therefore, they cannot tell us how to answer more diverse explanation-seeking questions successfully, that is, counterfactual how and why questions or how to control or manipulate something. (Ylikoski 2009, 101–102.)

To get to the how-actually explanation, we must rule out all the faulty how-possibly ones. This happens by eliminative induction or inference to the only explanation (Ylikoski & Aydinonat 2014, 30, 34n5; Bird 2005; 2007; 2010). One major problem with inference to the only explanation is the one that also plagues inference to the best explanation (e.g., Lipton 2004). For either of these inferences to work, we must be sure that all viable alternative causal scenarios have been accumulated. Otherwise, we cannot be sure that the explanation we end up with is not merely the best of a bad lot or, in the case of eliminative induction, the only one of a bad lot that we are unable to exclude for some contingent reason (van Fraassen 1989, 143). To avoid this, we should develop as many viable how-possibly explanations as possible. This will make it more probable that the how-actually explanation is included within our set of possible causal scenarios. For these reasons, it is crucial that our list of causal patterns is extensive and that we update it with new ones as we go. (Ylikoski & Aydinonat 2014, 30.) Our toolbox should have as many tools as possible, and we should keep it up to date.

To explain an *actual* fact, the entities, properties, activities, and relations of a causal explanation need to exist. Moreover, they need to be empirically established and compatible with the results of other disciplines. (Hedström & Ylikoski 2010, 52, 61, 64.) Causal scenarios offered as explanations for actual facts have to be realistic in this sense. This also applies to the causal patterns from which the scenarios are built. After all, otherwise, the scenarios would not be realistic.

Mapping the Possibilities

At this point, we need to take a slight detour. The problem with unorthodox history is that it often evokes explanations that are not sufficiently *restricted*. However, to see this, it is helpful to introduce some dimensions of possibility. All the presented possibilities are types of

relative modality. In other words, they are possible relative to something else that is kept fixed (see, e.g., Quine 1982, 121; Williamson 2007, 164, 170; Hirvonen et al. 2021, 13832–13833). What this means will become clearer when the types of possibility are discussed in more detail.

The first type of possibility is commonly called *logical possibility*. Something is logically possible if it does not lead to a contradiction according to (some) logic (Mallozzi et al. 2022; Hirvonen et al. 2021).⁶ So, for instance, it is not logically possible, according to classical logic, that it is raining, and it is not raining. Here, the axioms of some logic are kept fixed, and something is possible or impossible relative to them.

Another related type of possibility is *conceptual possibility* (Mallozzi et al. 2022). In conceptual possibility, the meanings of (some) concepts are kept fixed. For example, a round cube is a conceptual impossibility due to what the concepts “round” and “cube” mean. On the other hand, a red cube or a flying cow are conceptually possible since these concepts do not contradict one another.

Some philosophers do not consider there to be a crucial distinction between logical and conceptual possibility, and they commonly place both under logical possibility (see, e.g., Chalmers 1996, 35–38). Because of the close relationship between these two types of possibility, they are sometimes collectively called *logical-conceptual possibility* (Mallozzi et al. 2022). This practice is also followed in this article.

The Third (or second) dimension is *natural or empirical possibility*. It encompasses everything possible in the actual, empirically accessible world. In other words, anything that could actualise in the universe is naturally or empirically possible. (Chalmers 1996, 36.) So, flying cows might be physically and, therefore, empirically impossible, even if they are logically and

⁶ One might be concerned about whether this way of defining logical possibility gives certain kinds of logic a fundamental role since it is based on the concept of contradiction. After all, it seems to imply that *dialetheias* or true contradictions are impossible. However, there is no need to worry about this. The concept of contradiction is merely used as a convenient metalinguistic tool, and it can be defined differently, if needed, or replaced with some other concept. For more on this, see Hirvonen et al. (2021, 13837).

conceptually possible. Henceforth, for simplicity, this type of possibility is called empirical possibility.

The fourth (or third) modal concept is a *historical possibility* (e.g., Ben-Menahem 2009; Placek & Müller 2007). Even though some are suspicious about historical modalities, it seems plausible that some counterfactual claims are historically possible while others are not. For instance, many would be ready to accept that Napoleon could have won at Waterloo. Nevertheless, most of us would agree that using nuclear weapons was impossible during that battle. To justify the claim that Napoleon's victory at Waterloo was possible, we need to allow at least some changes to the past. If we do not alter certain historical factors such as the number of troops or weather conditions, but allow that Napoleon could have, for example, anticipated Blücher's actions better, commenced the battle earlier, and instructed Marshal Grouchy more effectively, he could have won the battle. (Schom 1992, 266–267; Hirvonen et al. 2021, 13835.)

The alterations that would allow the usage of nuclear weaponry at Waterloo would need to be considerably more drastic. For example, radioactivity, the theory of relativity, quantum mechanics, and tremendous material technology advancements would have had to happen decades earlier. Historians—or ordinary folk for that matter—are usually unwilling to make such changes to history. This is because the amendments require future events to have happened sooner than they did. Hence, when discussing a historical possibility, we mean things that could have occurred at a specific time and place, given that the general temporal order of previous events and the general situation are fixed. (Hirvonen et al. 2021, 13835–13836.)⁷

Logical-conceptual, empirical, and historical possibility form a nesting relation in the sense that everything that is historically possible is also empirically possible, and everything that is empirically possible is also logically and conceptually possible. However, the opposite does not hold. This is because in logical-conceptual modality, less is kept fixed than in empirical

⁷ The distinction between empirical and historical possibility is roughly equivalent to Ylikoski and Aydinonat's (2014, 26) separation of causal and factual possibility and Forber's (2010, 33) distinction between global and local possibility.

modality, and more things are kept fixed in historical modality than in empirical modality. So, more things are logically and conceptually possible than empirically, and more things are empirically possible than historically.

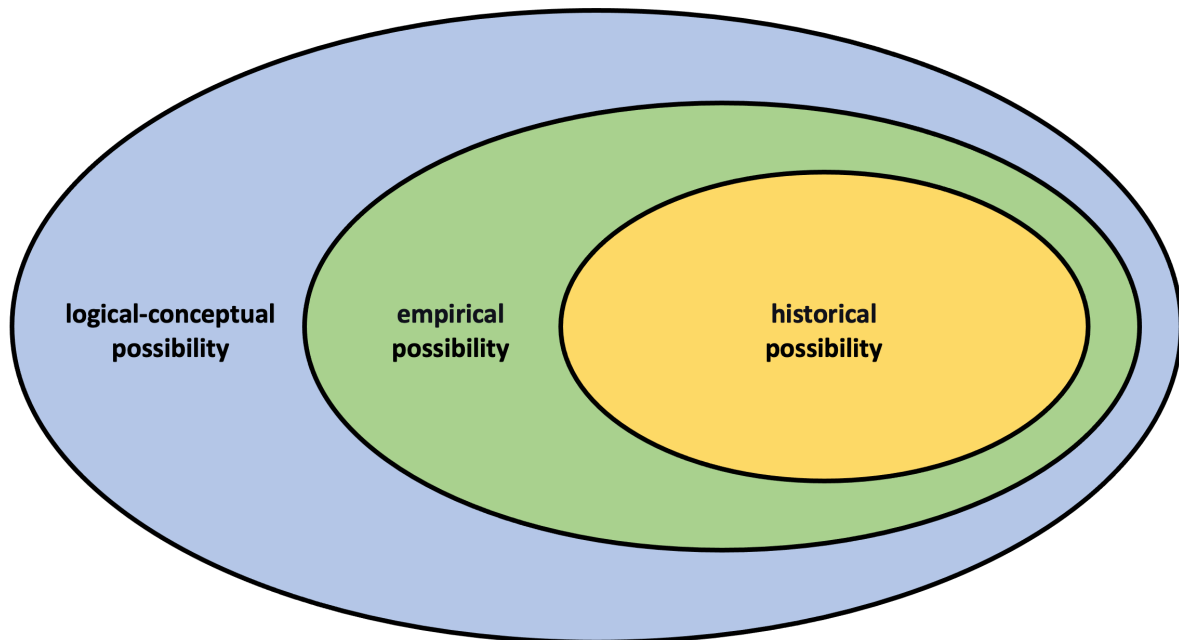


Fig. 1 Nesting model of possibility

One more type of possibility is crucial to our task at hand, and that is *epistemic possibility*. Epistemic modalities are about what can and cannot be excluded based on some epistemic situation or perspective. (Hirvonen et al. 13836.) One way to cash out this idea is to state that P is epistemically possible for an agent A just in case the evidence A possesses does not contradict P (Kment 2021). So, in epistemic possibility, some evidence or information is fixed. For example, squaring the circle was epistemically possible before 1882, when Ferdinand von Lindemann had not yet proven that π is a transcendental number (Fritsch 1984, 165, 172). Von Lindemann's proof finally showed that constructing a square with a circle's area in finite steps merely using a compass and a ruler is impossible.

Epistemic possibility, unfortunately, does not neatly fit into the nesting model. The reason for this is simple. In epistemic possibility, some epistemic perspective is fixed. It involves an agent—an individual or a group—and its evidence. Now, it is logically and conceptually

possible that this body of evidence or even the agent itself would not exist. In this sense, epistemic possibility should be a subset of logical possibility.

Still, some things are epistemically possible even though they might be logically impossible. For instance, it is currently epistemically possible that Goldbach's conjecture is true or false. However, it might be that only one of these epistemic possibilities is mathematically possible. The other one might even be mathematically impossible. Our epistemic situation with Goldbach's conjecture is like the epistemic situation mathematicians had with the squaring of the circle in 1882. This, in turn, seems to indicate that logical possibility would, at least sometimes, be a subset of epistemic possibility. The most reasonable interpretation of this situation is that the identification of epistemic and, in some sense, objective modalities is a categorical error. Therefore, epistemic modalities cannot be directly counted as a subset of objective modalities or vice versa.

The Problems with Unorthodox Explanations

The biggest problem with ancient astronauts and miracles is that such explanations are constructed partly from causal patterns that might not be empirically or historically possible. However, they are still logically and conceptually possible. Our current evidence cannot exclude with infallible certainty the possibility of aliens aiding with the construction of Stonehenge or that Jesus rose from the dead due to divine intervention. Therefore, they are also, in this way, epistemically possible.

Still, in science—be it human or natural science—more is usually required than merely having a coherent how-possibly explanation. This is because coherence is cheap (der Merwe 2022). An explanation is not automatically correct because it does not contradict the laws of nature, our previous experiences, or our current evidence. Moreover, the situation with unorthodox explanations is even worse than this. If evidence emerges against such explanations, they can be amended to be compatible with the new evidence. Quine famously stated that any belief could be held, come what may, if one is ready to make drastic enough adjustments elsewhere in one's belief system (Quine 1961, 43). These changes do not need to include replacing old beliefs with new ones. Adding new beliefs can work equally well, given that they are

extravagant enough. For example, extra-terrestrials equipped with alien technology or an all-powerful God could have practically produced any trace. Therefore, almost anything can be made coherent with natural laws or our epistemic situation if (wild) enough additional assumptions are postulated.

Moreover, epistemic possibility is particularly easy to achieve because, for all we know, our current knowledge can be incomplete and our prevailing perceptions incorrect. In other words, it is epistemically possible that the current scientific or historical view of things is mistaken. It follows from this that almost *anything* can be made epistemically possible.

This strongly indicates that logical-conceptual and epistemic possibility are too weak for respectable historical enquiry. Indeed, the logic used in unorthodox historical explanations resembles the logic of philosophical scepticism and conspiracy theories (Pritchard 2005, 39; Boudry 2022, 13–15). Unorthodox historical explanations are often formulated so that the available evidence becomes underdetermined with respect to orthodox and unorthodox causal scenarios. Still, at the same time, the causal patterns employed in formulating the causal scenarios of unorthodox explanations do not enjoy sufficient independent evidence. In other words, there is insufficient justification for thinking that their events could occur in our actual world or at a specific historical time, that is, that they are empirically or historically possible.

The supporters of such explanations are keen to take the traces themselves as evidence for the exceptional causal patterns' empirical and historical possibility—and actuality. However, causal patterns require empirical evidence independent of the traces one explains. Otherwise, one could arbitrarily postulate any outlandish causal scenario as long as they could, *in principle*, explain the traces. After that, one could claim that because the causal scenarios could explain the traces *if* the scenarios were factual, the traces in question serve as evidence for the causal patterns of the causal scenarios.

It seems that postulating explanations requires some constraints. We would not be happy with a history book that explains everything with divine action, magic, or currently unknown physical forces. When something is explained, it is connected to what is already known, not

the unknown. Moreover, since we are equipped with imagination, we can conceive causal patterns that are not—and could not be—realised in the actual world.

This way of thinking is already a part of prevailing historical inquiry. A good indication of this is experimental archaeology. In this field, researchers try to reconstruct, for instance, past artefacts by using tools and materials which are as similar as possible to the ones used in the past (Millson 2010, 3). Naturally, such endeavour aims to discover the most probable causal process that produced the artefact. We engage with such experimental, empirical work to precisely ensure that the causal scenarios and patterns are empirically possible.

Consider another example. Thompson (1966) and Hamblin and Pitcher (1980) have suggested that the decline of classic Mayan culture was due to peasant revolts. One way to evaluate such a claim is to check whether such revolts have caused sudden large-scale population loss, abandonment of cities and their surrounding areas, and degeneration of culture and government. Mere peasant revolts have not caused the co-occurrence of such events in any other known situation. Thus, although the actions of unsatisfied peasants could be one contributing causal factor to the fall of the Mayan empire, they probably were not its sole cause. (Martin 1989, 32, 37, 40, 43–45).

The defenders of the peasant revolt hypothesis could open this black box. They could try to show that it is possible to construct a causal scenario of the revolts that could produce the fall in this context. Still, if the supporters of the hypothesis can build their causal scenario by using established causal patterns, their case will be stronger than the promoters of a multifactor scenario. Assuming, of course, that more complex scenarios can explain the decline and that they are constructed from empirically possible causal patterns. These multifactor theories are currently more popular among historians and archaeologists precisely for the reasons mentioned above (Seppälä 2018, 216; for examples, see, e.g., Peterson & Haug 2005; Shaw 2003).

Explanations referring to ancient aliens or miracles are explicitly not explicit about everything. For example, the supporters of the paleocontact hypothesis do not know how alien technology works or how the physics we know relates to it. The only thing they can

confidently say about it is that it can produce the traces we have. The case is like past miracles: we do not understand their causal processes. Both cases are left with opaque and unopenable black boxes. Though, it must be admitted that historical inquiry does not demand all black boxes to be opened. Otherwise, we must know everything down to brute facts before studying history. However, our causal knowledge and understanding are limited when causal scenarios include unspecific causal patterns that cannot be examined further. Therefore, one cannot answer different or detailed counterfactual questions. Because of this, it is not easy to search for relevant evidence supporting or against the proposed causal scenario.

Irrelevance of Supernaturalism

An interesting consequence of adopting the suggested approach of causal explanation to unorthodox history is that the debate on whether historians should endorse methodological naturalism becomes unnecessary. Miracles are not excluded from history because they are supernatural. Instead, the problem with miraculous explanations is using unknown causal patterns, which might be empirically impossible.

Due to this, there is no distinctly historical problem with miracles. There might be several theological and philosophical questions related to miracles, but the historian need not concern herself with them. The distinction between the natural and the supernatural serves no purpose in history. Whatever such a distinction could accomplish, that work is done by separating established and unestablished causal processes.

The problem here is not that miraculous causal scenarios are false, for they could be true. The problem is that without empirical constraints, the postulation of the causal scenarios and patterns would be arbitrary. In practice, the only constraint for a potential causal scenario would be that it could explain the traces in question. This does not suffice to exclude outlandish explanations that, most likely, even the promoters of more speculative history would scorn. However, if miraculous events would occur in similar circumstances and as often as they occurred to the witnesses in religious texts, then most likely, the scientific community would accept them as established causal patterns to the historian's toolbox, even if they would be unopenable black boxes.

Degrees of Evidence and Taking Speculative Hypotheses Seriously

If historical explanations are causal scenarios that should be empirically possible, how do we determine what is empirically possible? The adherents of unorthodox history might claim that scriptures or ancient structures provide evidence for the empirical possibility of causal scenarios and their causal patterns. This is an important point, and it deserves to be answered. It seems credible that our evidence for the empirical possibility of something comes in degrees, and perhaps testimony and reports could be among the lowest. However, even if creating such hierarchies of evidence could be helpful, it does not seem necessary in these cases.

The resurrection and the ancient astronaut hypothesis compete with orthodox causal scenarios. The orthodox scenarios are constructed of causal patterns that are more likely empirically possible. Moreover, they are testable and explicit about the evidence that would count for and against them. This enables historians and archaeologists to determine the empirical possibility of causal patterns.

Since this account relies on empirical possibility, there is no a priori way to tell whether a causal scenario should be taken seriously. Some empirical information is always required. It also means there could be traces that combinations of established causal patterns cannot explain. Here, the formation of the competing causal scenarios must start from causal patterns that are not established as empirically possible. Therefore, more speculative causal patterns could, in principle, be used. However, even speculative hypotheses should be testable. Otherwise, the choice between them would be, yet again, arbitrary.

Conclusions

This paper claims that historians aim to explain traces of past events by constructing causal scenarios that describe the relevant parts of complex causal processes that produced the traces. The causal scenarios are formed from causal patterns that are more abstract and simplified than explanations of actual facts. The causal patterns state that certain kinds of causes roughly have or can have certain effects.

Different causal scenarios for the same trace are competing how-possibly explanations. To find the how-actually explanation, historians must distinguish between them and pick the one that best fits their evidence. This requires the causal scenarios to state how things would be different if they were correct and incorrect, what sort of traces we could expect if the explanation is true, and what if it is false. The more explicit and detailed the causal scenarios, the easier to evaluate them. Explanations that rely on supernatural agents, alien technology, or other unestablished causal factors are typically unable to give detailed enough descriptions of the causal scenarios that would enable this kind of evaluation.

Unorthodox causal scenarios are also problematic because we do not have sufficient reasons to think their causal patterns can occur in the real world. However, our current evidence cannot rule the causal patterns as impossible in some sense. This, however, does not mean that they are empirically possible. We do not have good reasons to think they are or could be realised in our world. After all, people are capable of conceiving non-existent causal processes and actors.

Hence, whenever two causal scenarios compete, one of them contains unestablished and uncheckable causal patterns. In contrast, the other does not, and we should opt for the causal scenario with the established patterns for that reason alone. Usually, divergent scenarios have competing causal scenarios with known or at least checkable causal patterns. For instance, instead of extra-terrestrials, perhaps human beings build the pyramids. Even if the known causal patterns would be vague, they can be made more detailed and tested afterwards. This is often impossible with more speculative explanations. Due to this, our initial intuition against more fanciful historical explanations is justified.

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