



Notes on Ernest Nagel's Philosophy of History: Historical Determinism Revisited

Alexander Weller Maar^a

awmaar@gmail.com

<https://orcid.org/0000-0001-8336-7884> 

^a Instituto Federal de Educação, Ciência e Tecnologia do Pará, Departamento de Ensino, Pesquisa, Pós-graduação, Inovação e Extensão, Itaituba, PA, Brasil



Abstract

In this article, I analyse common arguments raised against historical determinism. I refer to the treatment given to the topic by Ernest Nagel in "Determinism in History" (1959). Nagel identifies five different arguments which allegedly show that history is not deterministic and argues that they fall short. I revisit, re-evaluate, and make amendments to these arguments. Special attention is given to one of them: The argument that the emergence of novelties in human affairs would be incompatible with the standard view of determinism. I use the theory of convergent evolution to clarify why novelties cannot be used against the deterministic assumption, especially if by determinism we mean only the ontological sense of the doctrine – which I call uniqueness of evolution – and not predictive determinism. I conclude that common attacks on the possibility of historical determinism are grounded on incomplete human knowledge of the historical world.

Keywords

Philosophy of history; Historical explanation; Positivist history.



Introduction

There is plenty of hostility against determinism in the human sciences. Such antagonism rests on several popular assumptions – for example: That universal determinism must be false; that the laws governing human behaviour, if there are any, cannot be deterministic because of the problem this would pose for free will; that human (historical) events cannot be explained in the same way as natural events; that prediction in human sciences usually fails; to mention just a few. For reasons such as these it is often concluded that historians should reject all varieties of determinism.

But if we agree that determinism is an ontological thesis (that a system evolves along a *uniquely possible trajectory* – no branching allowed), it follows that failing or succeeding in predicting or explaining does not prove or disprove the doctrine. By properly characterising and separating the ontological and epistemological thesis of determinism, we are in a better position to handle these issues. The arguments against the possibility of determinism in history we are going to discuss, have remained popular throughout the last five decades. For this reason, it is still important to provide new and better replies to each of them.

The primary objective of this article is to consider whether historical systems may be ontologically deterministic. The answer is a provisional yes, because so far there is no reason as to why one should reject it. Criticisms raised against determinism in historiography are usually a muddle, because of the confusion between causation, causal explanation, and determinism. Critics of “historical determinism” sometimes appeal to the fact that historical “explanations” do not conform to, say, the covering-laws model, that such explanations are always incomplete, that explanations of human behaviour resist capture under laws, among other claims.

These are all relevant issues indeed, but they do not give grounds for rejecting determinism as an ontological thesis; these are discussions about the ideal logical form of an explanation in history, an epistemic matter. It may be the case that the world is not entirely deterministic (ontological), and still the best explanations for some classes of phenomena (large-scale social events, such as migrations, for example) are provided according to a certain outlook on history which says that we are to look for regularities or patterns (but not precise deterministic *predictions*). Maybe this is so because some historical systems evolve deterministically, or approximately so, in sufficient isolation from the world’s indeterminacies. Determinism need not be an all or nothing affair. Deterministic systems may coexist with indeterministic systems if they are sufficiently isolated. Or we may have indeterminism at the level of, say, subatomic particles, but the laws operating at a higher level are adequately characterised as deterministic.



As J. R. Lucas pointed out, historians sometimes become “determinists” in the epistemic sense because “they are committed to explaining historical events, and explanation, they feel, involves determination. If a historian can explain why an event took place, he is explaining why it must have taken place” (LUCAS, 1970, p. 51). This kind of explanation is at times confused with historical *inevitability*, or fatalism. It is well known, at least among philosophers, that to provide a regularity kind of explanation, in the *Humean* sense, is quite different from fatalism.

My analysis of historical determinism starts with a description of the failed effort to identify laws of historical development. I claim that strictly historical laws do not exist – a fact which does not by itself undermine determinism. I then proceed to a famous analysis of the arguments against determinism in history by Ernest Nagel (1959) in a key paper on the subject. It is rather surprising that an article written more than 50 years ago is still a key paper on the defence of the idea that also history may be, in an ontological sense, deterministic. The reason why Nagel's paper is not an “old hat” is rather simple: the arguments against historical determinism have not changed much since then. In a popular book, Ferguson, for example, attacks some versions of historical determinism on the same old grounds that deterministic outlooks, such as the Hegelian and Marxist approach to history, would seem to deny the role of individual agents, and chance (FERGUSON, 1999, p. 20-90).

Once we settle for a purely ontological view of determinism, it shall be easier to re-examine each of the popular arguments raised against determinism in history. In this paper I will revisit the arguments analysed by Nagel, hoping to add some value to them, based on more recent philosophical discussions. There are some aspects I do not think have been satisfactorily explained, or sufficiently explored. Overall, Nagel's article is sound and convincing. But I do feel that Nagel's characterisation and defence of the possibility of determinism shifts throughout the essay, as we shall see. Particular attention will be given to the argument about *novelties* in history. I will also explain how the theory of convergent evolution may help illustrate how the emergence of novelties is perfectly compatible with determinism.

Laws in/of history

An important question is whether determinism as the doctrine of *uniqueness of evolution* can also apply in the case of the subject matter of the human sciences, especially that of history. Ontological determinism would seem to imply that laws, whatever they are, are non-stochastic or deterministic. It may seem problematic, however, that history should be subject to such laws, for two correlated reasons: (a) It is hard to come up with empirical generalisations



that might have the status of such laws, and (b) the uniqueness of historical events prohibits the corroboration of such laws.

Before proceeding, I need to make an important distinction between (1) laws *in* history and (2) laws *of* history. In the case of (1) we refer to any law which might be applicable to explain the causes of a historical event. As a matter of fact, many explanations in history appeal to well-known regularities; it is not precluded that laws may be used in historical explanations.

One of the best defences of the idea that historians should also look for general laws or hypotheses is to be found in Hempel's famous paper "The Function of General Laws in History" (1942). This article, which defended the idea that there is a *logical* similarity between explanation in the natural and human sciences, has often been misunderstood by historians and philosophers of history; it attracted back then, and still today, criticisms (LITTLE, 2012). William Dray, for example, believed that historical explanations are different from explanations in the physical sciences, and more akin to *rational* explanations of human behaviour,¹ and explanation focusing on offering a comprehensible understanding of why agents act as they do, and not law-like explanations. As an alternative, historians should simply attempt to identify or "trace out" causal chains, and explain the causal relations in place, without implying that causal explanations require general laws (DRAY, 1957).

We are not going to examine what the *Hempelian* logic of explanation is, and why historians, in general, reacted against it – there is vast literature on this topic already. For our purposes, it suffices to say that the kind of laws Hempel suggested historians should look for, are not laws *of* history; these are laws that may come from anywhere, such as physics, sociology, economics, and psychology. A similar position can be found in von Wright: "We should think of [laws in history] as instantiations of general laws of sociology, and perhaps of economics, than as 'laws of history' proper" (VON WRIGHT, 1976, p. 434).

Our focus in the section will be on the claim (2), the idea that history is governed by laws *of* historical development, i.e., laws that *only* apply to historical phenomena. The idea that there are all-encompassing laws of history is to be found in the so-called *substantive theories* of history. Daniel Little defines such theses as any approach aiming "to discern large, embracing patterns and directions in the unfolding of human history, persistent notwithstanding the erratic back-and-forth of particular historical developments" (LITTLE, 2012). Sometimes it is the view

¹ When we provide an explanation based on rational principles of behaviour, however, we may try to formulate such principles as generalisations, or theories.



that humankind evolves toward an ultimate end (history has "direction"), or it could be the view that there is a fixed order of change which has been repeatedly manifested in all human societies.

The philosophy of history of Hegel is one example of such a theory. In Hegel's *Phenomenology of Spirit* (1977), he advocates a particular view of determinism in history: he believed that something like *Divine Providence* was the determining force of all that occurs, and that history's evolutionary trajectory is predetermined by the "purposeful" movement of what he called the *Spirit*. Nagel identifies Hegel's position as originating from a theory of civilisation "which finds the causes of human progress or decline in the operations of impersonal factors such as geography, race, or economic organisation" (NAGEL, 1959, p. 291). The facts of history are immutable facts for Hegel. Either way, nowhere is there to be found a neat formulation of the law of history propounded by Hegel. In its place, he offered an explanation that the unfolding of history is caused by this obscure entity – the *Spirit* – who determines everything according to a Divine "purpose".

Another example of a substantive theory of history is Marxism: Marx did not postulate the existence of *supernatural* forces, but instead "a general law to which all social revolution (epochal transition, in his terms) conforms; a general law of the same sort as a natural scientist might propose to cover some uniformity in nature", but a law that "is not merely a statement of a regularity, but also a law of progressive development" (ENFIELD, 1976, p. 267).

Let us see how Marx "formulates" such law:

at a certain *stage* of their development the material productive forces of society come in conflict with the existing relations of production, or [...] with the property relations within which they have been at work hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an *epoch* of social revolution [...] No social order ever perishes before all the productive forces for which there is room in it have developed; and new, higher relations of production never appear before the material conditions of their existence have matured in the womb of the old society itself (MARX, 1859, p. 11-12).

It is easy to see that Marx's formulation of such a law is unsatisfactory.² One of the reasons is that he talks of a certain *stage*, or *epoch*, but does not say what these are. The laws of history,

² It is contentious whether Marx thought of himself as having found the laws of history; some argue that this was a later formulation/interpretation following Engels's attempt to make Marxism seem more "scientific".



according to the standard interpretation of Marx's views, are said to govern not all historical events, but the passage from one *stage* to the other. Little is said about the law itself, except that it is to be understood in materialistic terms. In other words, Marx's law of history is not formulated as a neat, testable statement. The famous prediction that a Revolution will occur, once society reaches a certain *stage*, whatever it is, is too vague to be either confirmed or refuted.

It is hard to offer examples of what a law *of* history would be. Maybe this is so because substantive theories patently failed in identifying any law of history. Ludwig von Mises was an early theorist to acknowledge that historians consistently failed in identifying laws of historical development:

The formulation of historical laws, i.e., laws of historical change, has repeatedly been designated as the task of history. Many even set out to formulate such laws. Of course, these laws did not meet the demands one must make of a scientific law. They lacked universal validity (VON MISES, 1933, p. 118).

Attempting to explain the past in the light of an a priori general theory, bypassing the search for empirical evidence, is wrong. I endorse Nagel's remark that *if* we could formulate such doctrines in terms of verifiable statements (and to a large extent we cannot), it would seem that "the available evidence supports neither the thesis that all human events illustrate a unitary [...] law of historical development, nor the thesis that individual [...] effort never operates as a decisive factor in the transformations of society" (NAGEL, 1959, p. 292).

It seems fair to say that all aspects of Hegel's doctrine, for example, are dismissible on the basis that such interpretative framework does not appeal to contemporary historiography. Historians are not any longer in the business of trying to discover the "meaning" of history, or identifying the vast, general "trends", but in the business of showing how the state of the present causally depends on the past – where causes are not the result of supernatural forces, but chains of events whose causal connections may be studied based on empirical evidence. So, let us settle for the position that there is no such thing as a law *of* history.

Nagel's definition of determinism

One of the reasons Nagel's paper gives clarification is precisely that Nagel defines determinism as a system which, according to the laws, has a *uniquely possible evolution*:



[...] if a deterministic system is in a definite state at a given time, the occurrence of that state at that time is determined - in the sense that the necessary and sufficient condition³ for the occurrence of that state at that time is that the system was in a certain state at a certain previous time (NAGEL, 1959, p. 294).

Nagel then illustrates the case of determinism with an example of a physiochemical system, taken from Lawrence J. Henderson (1937). The deterministic system is characterised like this:

[it] consists of a mixture of soda-water, whisky, and ice [...] completely isolated [...] The sole characteristics [...] of concern are [concentration, temperature, and pressure]. Under the stipulated conditions, and for a given temperature and pressure, each component will occur [...] in the various phases with definite concentrations; and conversely, if the concentrations are fixed, the temperature and pressure will have a unique set of values. Thus, if the pressure of the mixture were increased [...] the concentration of water in the gaseous phase would be reduced, and its concentration in the liquid phase would be increased [...] The value of a variable at any given time is determined by the values of the other variables at that time (NAGEL, 1959, p. 293-294).

In Henderson's example we are not concerned with the complete picture of the state of the system, but only with some specific variables (number of components, phases, etc.), and how their values relate to each other simultaneously. The system is said to be deterministic with respect to certain variables only, and it remains an open question whether for other variables (not the ones we are concerned with here) there can be indeterminism.

Three important remarks are made by Nagel:

(1) A system being [ontologically] deterministic "does not entail that the states of the system are [practically] predictable [...] a system may be a deterministic one, though we may not know that it is such; and it is a mistake to identify [...] the meaning of 'determinism' with the possibility of prediction with unlimited accuracy" (NAGEL, 1959, p. 295).

³ I do not see why the conditions must be necessary. Only sufficiency seems to be required by determinism. Otherwise we rule out that the same effect could be caused by different causes.



(2) We should strongly consider the case for *partial determinism*. If we claim that a system operates deterministically with respect to some set of magnitudes or variables, it may be the case that the same system (or a subsystem) operates indeterministically with respect to some other set of variables – provided that the indeterministic variables do not interfere with the deterministic evolution of the first set. If a system *S* does not appear to evolve deterministically, we should consider the case that either *S* is not sufficiently isolated or protected from “outside” disturbances.

(3) Determinism as uniqueness of evolution cannot be (a) conclusively established or proved, or (b) refuted or disproved, by means of empirical investigation. In the case of (a), this may be so because for some classes of events we simply do not *know* (yet) the determining conditions, whereas for other classes of events, it seems logically possible that no such conditions in fact exist. In the case of (b) this may be so because the failure in discovering determining conditions does not prove that there are not in fact such conditions – maybe the conditions exist but are not discoverable.

I said that Nagel’s treatment of determinism shifts in his paper. This is because he later concludes that the doctrine of determinism can only be *partially* supported on the ground that it may be a true and general description of the world as we *know* it. Here his argument takes an objectionable move. Nagel says that determinism has a “heuristic function”.⁴ For example, the doctrine of universal determinism worked as a guiding principle for 19th century physicists and gave them some useful insights. In the case of social science and psychology, the gains were more limited, but some versions of determinism brought attention to the determining factors such as “heredity, attitudes acquired by training, repetition of exposure to stimuli, modes of economic production or social stratification and social mobility” (NAGEL, 1959, p. 297).

But a “guiding principle” is not a thesis about the world’s evolution, but only a set of recommendations as to how scientists should proceed. A guide is not true or false. Nagel correctly says that failing to find determining conditions does not disprove the doctrine of universal determinism, but then it is easy to see that success in finding them does not prove it true either.

So far, there is no good reason to reject the claim that determinism entails (and is best defined as) *uniqueness of evolution*. This is not to say that “there is” at least one system which perfectly fits the definition; it may well be the case that no system is deterministic after all, or is only approximately so. But as we mentioned, there is strong hostility to deterministic outlooks in history. Such hostility resulted in some flawed arguments against determinism. In the following

⁴ Nagel’s move is typical of logical positivists: The deterministic assumption is a “regulative principle”, a ‘motto’ which says “look for determining conditions”. He evades the question about the truth of determinism and replaces it with a heuristic view.



sections I will revisit such arguments, highlight their flaws, and demonstrate that determinism as an ontological tenet is not incompatible with the "facts of history".

Arguments against determinism in history

In Nagel's words, "critics of historical [determinism] who have argued for either a radical or a qualified indeterminism in human affairs, have rejected one extreme position only to adopt another one no less extreme and dubious" (1959, p. 293). This is not to say that human affairs cannot be inherently indeterministic (governed by probabilistic laws, for example), but to say that the ontological doctrine of determinism has not been proved false by any of the arguments we are going to review next.

There are mainly five different arguments against determinism in history worthy of our philosophical scrutiny.⁵ By revisiting such theses against historical determinism, I will try to clarify some obscurities, but most importantly, I will attempt to answer whether historical explanations (a) presuppose determinism to be false, or (b) require it to be true. The answer is neither.

Argument 1 – "there are no universal laws of historical development"

Some have tried to postulate testable claims about the laws of history, as was the case of Cheney, but the propounded generalisations turned out to be false, or weakly testable. In the case of Marxism, some claims seem to be testable, but only partly so, because the predictions are too vague. Although the Marxist outlook of history does offer an appealing framework for historians aiming to provide explanations of, say, economic changes, the division of labour, or the gradual implementation of labour laws, one would not feel at ease in saying that proper laws of history have been identified. The generalisations are too imprecise to be characterised in terms of law-like statements.

Substantive theses of history are, to a large extent, *untestable*, thus we may dismiss them as false or at least as speculations lacking empirical support. Hegelians and Marxists, for example, did not make predictions in terms of a timeframe, or a specific place, and a finite number of players. In order to "test" their theories the historian would have to deal with: (a) an indefinitely

⁵ Ferguson (1999) has raised what for some would count as a sixth argument against historical determinism – the idea that thinking counterfactually about history, or postulating historical "might have beens", would be inconsistent with universal determinism.



large class of human phenomena to contrast the theory with; (b) deal with an indefinitely large area of space to investigate human affairs; (c) deal with an indefinitely long period of time.

So, the quest for laws of history was not a fruitful enterprise. What implications does it have for causal determinism in history?

Explanations in any domain may depend on accepting "framing" interpretative principles that cannot be independently testable. The causal principle, for example, is one of these framing principles. Determinism is also, in a certain sense, framing. The failure in identifying laws of history is no reason to abandon causation and determinism as framing principles. We may provide causal explanation without reference to laws, and determinism as uniqueness of evolution may still hold, also in the case of history.

In general, proponents of substantive theories of history would appreciate it if we could indeed show that historical events also exhibit the same stability and periodicity we observe in the case of, say, planetary motions. But that is not the case, so they must assume that such periodicity and stability is of a hidden order, that there is an underlying deterministic pattern that, if discovered, would offer the ultimate framing for a causal explanation in history.

Critics of historical determinism, however, claim that because the general evolutionary trajectory of history does not exhibit a discernible pattern, it can only be so because there is none – there are no laws of history. But from the lack of a general discernible pattern of evolution they infer that historical determinism is always false, that events in history are not causally necessitated by their antecedents. This seems a mistake for two reasons.

(1) Let us accept that the whole of history does not exhibit a discernible pattern and consider particular historical phenomena. Does it follow that from the absence of a universal pattern of historical evolution, historical "local" systems will not exhibit discernible patterns of evolution? The inference seems wrong. We may have a subset of systems which are independently deterministic; but when we consider them all together, we fail to see any pattern.

(2) Clearly, we could have a case where a system does not exhibit *apparent* regular behaviour, but it conforms to a more complex pattern of changes. The case of deterministic chaos is a good representative of this view. A chaotic system evolves along a uniquely possible trajectory. But it is so sensitive to changes to the initial conditions, that predictability, in its ordinary (practical) sense, is not a possible task. We have determinism but not predictability. The swinging of the pendulum may be fully determined by the laws and the initial conditions, but we fail to 'see' the pattern, or to predict its future states. There are known *deterministic* systems in physics that exhibit no apparent pattern, the Lorenz model, for example (SMITH, 1998, p. 147-63). In other



words, they are deterministic simply because the laws that govern them are non-stochastic and do not allow for any evolutionary "branching". And yet when we try to identify their pattern of evolution we fail. It seems a bad move to characterise systems as deterministic or not based on the pattern they *apparently* present.

No argument has been presented against the possibility that some systems (also in history), especially when taken in isolation, may exhibit deterministic (i.e., uniquely possible) evolutionary histories, or approximately so. The lack of laws of historical evolution offers no support against the possibility of historical causal determinism.

Argument 2 – "human events are inexplicable and unpredictable"

This claim against determinism is rather odd. How is it possible to defeat the ontological view of determinism, on the basis that we cannot predict or explain the occurrence of certain historical events? The universe could be deterministic and yet we could be in no position of knowing it as such.

Let us see, however, in what the charge of inexplicability consists. This is an argument that drifts into the problem of explanation, and appeals to the fact that, in order to ultimately explain an historical event, historians would have to identify all its causes, and the causes of these causes, *ad infinitum*, falling into an endless causal regress. In the words of Charles Beard: "a search for the causes of [US's entry into WWI] leads into the causes of the war, into all the history that lies beyond 1914, and into the very nature of the universe of which history is a part; that is, unless we arbitrarily decide to cut the web and begin at some point that pleases us" (BEARD, 1936, p. 79).

Beard's claim of arbitrariness is not well founded, as can be shown in several different ways. By providing an acceptable causal explanation we clearly need not fall into such regress, because to explain the occurrence of an event in a causal chain all we need to do is to focus on the two adjacent segments (*c* causes *e*). Of course, *c* has also one or more causes, but to explain the occurrence of *e*, it suffices to give some information about its causal history, and to do so we need not enquire into "the very nature of the universe". The selection of causes – or the selection of the area of the causal web relevant for the success of the explanation – is determined by the context of inquiry, it is a pragmatic matter related to our interests.

Another possible way out of the problem of the endless regress of causes was presented by James Sadowsky (2000), who argued that a solution would be to abandon the causal principle and accept that the first member of a causal series is not in *need* of a cause itself. It is arguably



a solution for the endless regress. But abandoning the causal principle and talking of uncaused events is a remedy many would find too bitter to swallow. Maybe we need not do so.

The argument of the endless regress of causes fails, since it implies that we could never satisfactorily explain any event's occurrence; and patently we can, as Nagel explains:

although C may be the cause or a determining condition for B, where B is a condition for the occurrence of A, B is nonetheless a determining factor for A; and in stating the determinants for B, we are answering a different question from the one we are seeking to resolve when we ask for the determinants of A [...] an explanation can be completely satisfactory, even though in offering it we are assuming something which has not in turn been also explained (NAGEL, 1959, p. 299).

Historians aim to answer "why questions" by identifying the most relevant causes of the events they explain. When they say that A determined the occurrence of B, it does not mean that A alone sufficiently does so. By cutting the web of causes and focusing on a single stretch of the causal chain (or web), historians do not do so "arbitrarily", as Beard says. There are pragmatic interest-based constraints which apply to the selection.

Van Fraassen (1980), for example, formulates a pragmatic view of explanation that seems compatible with David K. Lewis's account (1986). He believes an explanation is an answer to a particular contrastive why question – the contrast class would then determine what causal information is relevant when giving an answer. For Lewis, an explanation is simply the provision of information about the causal history leading up to some event. The use of contrastive why questions may be a helpful way to make clear what aspects of the question should be addressed. Consider the example: why did the First World War start in 1914? – rather than in some other year? Why did the First World War start in 1914? – rather than not starting at all? See Van Fraassen (1980, p. 134-52). The bottom line: explanations may be perfectly adequate, if the number of traits whose occurrence is to be explained is limited – and this is often the case.

It is legitimate to conclude that the length of the stretch of causal relations to be analysed is set by the "why question" itself. Indeed, a good and plausible "why question" in history would not require historians to go back all the way to the "Big Bang". Even though in some cases the stretch of the causal chain can be quite long, "explicability" in history does not require total explicability.

Let us now focus on the "unpredictability" argument. It basically says that failure to predict is a sign of the falsity of the thesis of determinism. I say failure of practical predictability is



not informative on matters to do with ontological determinism because it could be explained by our ignorance of all the relevant conditions & laws. Surely, however, prediction in humanities is not always a hopeless task. Every now and then, also in recent years, some social or political scientist will put his/her neck out and risk a prediction when this would seem to be sufficiently supported by empirical evidence. Sometimes they get it right.⁶ But in the case of history, prediction does not seem a possible task.

Predictions in social science do not foretell the future in a way that we eliminate open possibilities until only one plausible outcome remains. But such forecasts “do exclude an enormous number of logical possibilities [...]; and they do point up the fact that though the [agents] may have a considerable range of free choice in their actions, their actual choices and actions will fall within certain limits” (NAGEL, 1959, p. 301). What is logically possible might not be possible, which leads us to the “obvious interpretation [...] that there are determining conditions for both what has happened as well as what will happen [...]” (NAGEL, 1959, p. 301). The conclusion to be reached is that the incompleteness of causal explanations and difficulties involving prediction do not offer any support to the argument against the idea that the world evolves according to a uniquely possible path.

Argument 3 – “novelties in human affairs are incompatible with determinism”

There is another odd argument against the doctrine of historical determinism; it revolves around the idea that the *emergence*, in the world of human affairs, of new inventions, ideas, works of creativity, novel modes of behaviour, and so on, are incompatible with determinism. This is a view originated from those who believe that artistic creation, for instance, is the result of a *free spirit*, something which cannot be accounted for in terms of laws, causes and effects known prior to the emergence of the novelty. It also fuels the argument of the *unpredictability* of the course of human affairs, for obvious reasons.

The essence of *emergentism* is to argue for the unpredictability of novelties as being inconsistent with determinism. We have already contended that failure to “predict” tells us nothing about whether the ontological doctrine of determinism (**B**) holds of this world, for any given system, or not; thus, we could easily dismiss the present argument straight away. But because of its popularity, let us spend some time spelling it out.

This doctrine of “novelties” in human affairs presents itself in two different formats:

⁶ Recent examples can be found in Chenoweth (2013) and Regan (2002).



a) *The doctrine of emergent levels* – this is an atemporal doctrine which stipulates that some traits and modes of actions cannot be explained in terms of the properties exhibited by the component parts of complex systems to which these traits or actions belong.

b) *The doctrine of emergent evolution* – this is a temporal thesis which asserts that novelties (new traits, novel form of organisation or new activities) appear in time, and because they did not previously exist, they cannot be explained in terms of their historical antecedents.

But both forms of the doctrine are perfectly compatible with the doctrine of determinism, as we shall see next.

A common illustration of the case of (a) asks us to consider the case of a molecule of water. Many of the traits of the water molecule cannot be *predicted* from the properties of hydrogen and oxygen when they exist in isolation from other atoms, or even when combined, i.e., some of the traits of the combination represented as H_2O are novelties.

For Nagel such an illustration is misleading, because the (un)predictability of any trait is always *relative* to a certain theory. Some of the traits of the water molecule are emergents as relative to the atomic theory defended by Dalton, but the same traits are predictable according to quantum atomic theory. We have here an example where our lack of *knowledge* accounts for our “surprise” at the emergence of a novelty. It is essentially an epistemic matter, and as such it may be only temporary, and not absolute. Once a better theory is at hand, what *seemed* a novelty at the light of a previous theory ceases to be one (becomes predictable) in the light of the new theory.

Is it possible that the new theory can account for the emergence of the novelty and at the same time conforming to deterministic evolution? No reason has been presented as to why this should not be possible. Moreover, empirical evidence may suggest that even if a scientist is not in position to deduce the properties of the novelty from its components (because of the lack of an adequate theory), it seems reasonable to assume the possibility that the novelty itself only come into existence under *determinate conditions*.

Not only can determinism, in principle, accommodate the emergence of novelties, but the way the novelties “emerge” could even presuppose determinism, rather than reject it. Unless we consider the emergent traits to come to existence without a cause – which would seem a very daunting thing to say – clearly the causes of all novelties are to be found in the prior state of the world, but from an epistemic perspective, they are not expected to occur. If determinism holds, then the prior state of the world, together with the laws, causally necessitates the emergent new trait.

The situation is not very different for (b); it is true that agents are indeed the source of many temporal novelties, i.e., new traits which have no historical precedents and seem like a



"rupture" of current knowledge of the world. The question is, what constitutes a novelty and why would that be evidence against determinism?

A novelty is essentially characterised as an event that is said or believed to be temporally unprecedented (i.e., never arose before in history) and unpredictable considering theoretical knowledge current at the time it "emerges". To characterise any novelty as unprecedented, the historian would need to possess an incredibly enlarged knowledge of the past to show that an event is of a kind that has not occurred before. In addition, one must show that such novelties could not have been predicted. But even if so, what is the relevance of this? If by novelty we refer to the unpredictable, then it shall be clear that ontological determinism can handle the emergence of novelties.

We need a proper definition of what is to count as a "prediction". Some would certainly regard magnificent achievements such as the moon landing, or the invention of the internet, or the development of nuclear power as "novelties" – because they have no precedents in history. And yet, such achievements were in some way "predicted", or deemed quite possible, by science fiction writers who thought that the internet, for example, was possible.⁷ So *unprecedented* in history seems to work well as a definition of a novelty, while *unpredictable* seems to be more challenging, as it is relative to theories, and it is not always easy to identify the scope of scientific theories.

Even if sufficient evidence is shown to support the claims that a certain novelty was unpredictable, such unpredictability is solely a problem of formal logic: "for to predict an event, the traits of that event must be formulated in a statement; and unless the predicates describing those traits occur in the premises of the predictive argument, that statement can follow from the premises neither deductively nor [probabilistically]" (NAGEL, 1959, p. 307). As a matter of fact, if such an emergent novelty is "radically" different from our knowledge of the past, then no regularity or law would be known to make a proper prediction possible.

It is only once the novelty becomes known and well established that we are in position of making adequate inquiries concerning regularities or laws. We might, after further scrutiny, identify the initial conditions a novelty's occurrence is contingent upon. Furthermore, scientists usually start their inquiries by assuming as a heuristic principle that a novel system is deterministic.

Nagel's argument in (a) is centred on the idea that unpredictability need not be absolute – an unnecessary move to dismiss the argument, but sound, nevertheless. In (b) his move is to

⁷ Mark Twain wrote a short science fiction story entitled *From the 'London Times'* (1898), in which he predicted the creation of the internet – called by him the teleelectroscope – a device hooked up to the existing phone system.



show that the very idea of a law or regularity is formally incompatible with the idea of predicting a 'novelty,' because any applicable laws would not have been known prior to the emergence of the novel trait. Again, this move is unnecessary, as unpredictability – regardless of how we define it – is only a problem for the epistemic layer of determinism. Although emergentism seems flawed from the very beginning, it is rather entertaining that Nagel makes certain concessions to “emergentists” only to defeat their arguments in their own terms. Also, in the case of (a), we could also suggest that ultimately *emergentism* does not even defeat entirely the idea of predictability as, from an idealised perspective, the infinite, ideal knower should see such novelties as no surprise, entirely deducible from the prior state of the world, and the laws.

Little has been said, however, about how novelties are consistent with ontological determinism. Nagel has heavily focused on logical and practical matters to do with predictability. I undertake to set out the argument against *emergentism* in simpler terms. Let us say that a world (w) evolves from $S_{(t_1)}$ to $S_{(t_2)}$ where it produces a novelty (N). Now, N is a novelty because it is unprecedented in the evolution of w , i.e., N is absent at any moment prior to t_2 . We then “run” world w again, starting from $S_{(t_1)}$ to $S_{(t_2)}$, and once again, it produces N . If determinism holds, i.e., if the evolution of S is uniquely fixed, then whenever we run w again, N is produced at t_2 . We have a case of determinism *and* the emergence of N .

One can argue that, despite the world w being deterministic, all the inhabitants of the world were unable to predict or foresee N . It may well be so. But this is clearly not an argument against the ontological layer of determinism, it only says that the inhabitants of w had inadequate knowledge of how w runs or evolves. It suffices for determinism to hold that every time we run w , we get N at time t_2 , whereby we conclude that the emergence of N is determined to occur. Determinism as uniqueness of evolution fits perfectly together with the emergence of N . Of course, should we run w again and observe that N does not occur at t_2 , then w is said to be indeterministic.

We may also think of w being only partially deterministic and still account for N . Let us say that some magnitudes associated with N are determined, while others are not. So, when we run w from $S_{(t_1)}$ to $S_{(t_2)}$ we get N , and when we run w again, we get N' which is different but still similar in kind to N – N *and* N' have identical values for the deterministic subset of magnitudes, but differ with respect to the indeterministic subset. Also, in this case, N seems to fit with some version of ontological determinism. Perhaps an example may help our treatment of the occurrence of novelties.



Exemplifying deterministic novelties: the case of convergent evolution

Stephen Jay Gould (1989) is a scientist who believes the world to be indeterministic, at least with respect to evolutionary processes. Let us say that N stands for "life", which first occurs in the actual world w at time t_2 . Now, let us assume that we could rewind the evolution of w to a previous time t_1 ; once w is played back, Gould believes "life" (N') would have then taken a very different course.

Simon Conway Morris (2005) has a different view on this; he endorses the theory of convergent evolution⁸, a theory which I believe fits best with the notion of partial determinism. Morris believes that "convergence" is the dominant force of evolution; by rewinding the world and assuming the same environmental and physical constraints would still operate, the same *kind* of novelties will occur, at the same (or approximately so) times they did the first time the world evolved from t_1 to t_2 .

Morris is sceptical, however, when asked if the novelty of life would *inevitably* occur elsewhere – it may be the case that there is only one way of generating life, and the case that other Earth-like (with the same physical constraints) planets are improbable.⁹ But his thesis is that once "life" is generated, the novelty of "intelligent life", for instance, would inevitably occur (the case of primates, corvids, and cetaceans). It is a case of "wait and see": "once life started [...] nothing could have stopped it from evolving to produce us, or something very similar" (SZATHMÁRY, 2005, p. 850).

But let us assume that there can be other Earth-like planets, with the same physical and environmental constraints.¹⁰ If there are thousand Earth-like planets, how many of them will produce: (N_1) life; (N_2) life with the genetic code; (N_3) life based on complex cells (eukaryotic); (N_4) intelligence capable of natural language?

We may reply by saying that:

⁸ "Convergent evolution" is the name given to the acquisition of the same trait in unrelated lineages. A good example is the wing. Birds and bats are unrelated, but their wings are similar because of the physical constraints imposed upon wing shapes.

⁹ Dawkins (1986) says that what appears to be unlikely in the lab in, say, 2 or even 20 years may become probable or even likely to occur in dimensions of 200 million years. If the structure of the universe is infinite, then any low-probability novelty will be repeated many times. Gould (1989) believes that chance may be a very important factor, while changing fluctuation of genes and natural selection are less important factors. See also Sterelny (2007, p. 3-14).

¹⁰ Simplified from Szathmáry (2005, p. 850-851).



a) If the planets are deterministic systems, governed by the same laws, and the initial conditions are the same, or very similar, then each kind of novelty (N_1 ... N_4) will be produced at the same times t_1 ... t_4 for all the Earth-like planets.

b) If the worlds are *partially deterministic*, then it is hard to say what minor variations to some of the (indeterministic) magnitudes may signify for the occurrence of each of the novelties. Perhaps all worlds would probably start with life, quite possibly life with something similar to the genetic code, but then some would produce complex cells and generate, at some point, intelligence; while others would not, or would take much longer to do so. But we might expect that some of the Earth-like planets would very much resemble each other with respect to the occurrence of (N_1 ... N_4).

c) If the worlds are *indeterministic*, then the occurrence of the novelties (N_1 ... N_4) is not inevitable, convergence of evolution is false, and Stephen Jay Gould could be right in saying that nature would have taken a very different course should we "rewind" any planet back and "play" it again.

One must conclude that if convergent evolution holds true of these worlds, i.e., convergence is indeed a dominant force of evolution, then this also testifies to the idea that the "algorithm of evolution" is to some extent "robust". Some of the products (novelties) of evolution are sensitive, others are not. Therefore, the truth of the theory of convergent evolution seems to require that at least partial determinism holds true of the relevant system or world. We have here a clear example taken from biology of a case in which determinism – or partial determinism – can account for novelties.

Argument 4 – "chance events are incompatible with determinism"

Nagel identifies four meanings for chance.

a) Chance is only how we name the absence of a "unifying plan" for historical evolution, where every single historical event is shown to be according to some "timeless Reason" – such as we find in Hegel.

b) Chance is sometimes equated with an event being *unforeseen* or *unexpected*. Because we sometimes fail in predicting the outcomes of some event, and even our own actions, we sometimes *surprise* ourselves with such occurrences, and label such events as "accidents". For instance: "The disappearance of slave economy in the United States, which seemed to many southern landowners to be part of the permanent social order, was not



foreseen by most of them even as late as 1859" (NAGEL, 1959, p. 309). Our failure to predict is an epistemic matter, a sign of our *ignorance* of how the world evolves – determinism as an ontological doctrine remains unscathed.

c) Sometimes an event is described as a chance event because it involves the intersection or collision of two independent causal chains or systems. Because two altogether independent causal chains of causes and effects collide, and we fail to predict the consequence of such a collision, we say that the product of the collision is chancy – although the effect is clearly caused by the determining conditions specified at the point of the intersection of the independent causal chains.

Clearly, if there is only one possible path of evolution after the collision, the system is deterministic. Chance so defined is not incompatible with determinism. With regards to the predictability of such an event, even if in some cases it does seem difficult to foresee the kind of event that is about to occur, in other cases prediction could perhaps be possible – perhaps we know the independent systems sufficiently well to predict when they shall collide, and what will be the consequences of the collision.

d) The final sense of chance identified by Nagel is that of an event which occurs in the absolute absence of any determining conditions or causes. This is a trickier case, and Nagel's treatment of the case is not entirely satisfactory.

He says that "if there are such events [...], they are not merely unexpected and unforeseen, but are inherently unforeseeable; and their occurrence could not be explained, even after they had happened, no matter how extensive our knowledge may become" (NAGEL, 1959, p. 310). The conditional form of the claim is important, because Nagel want to leave as undecided whether some events may occur without determining conditions:

[...] despite the well-known rumour that it has been affirmatively settled by modern physics [I argue that] such a question cannot [...] be answered definitively, since even repeated failure to find any causal conditions for some type of event can always be construed as evidence for human stupidity (NAGEL, 1959, p. 311).

An event occurring without any determining condition could mean two different things: the occurrence of an *uncaused* event, or more plausibly, an event which may be subsumed under *probabilistic laws*. In the former case there are no, strictly speaking, 'determining conditions' for the occurrence of a "chancy" event. In the latter, we say that an event, in the presence of certain



conditions and according to probabilistic laws has, say, 80% of chance of occurring, and 20% of chance of not occurring – there is more than one uniquely possible path for the evolution of such a system, i.e., no *uniqueness of evolution* (**B**). There can be determining conditions which *probabilify* rather than *necessitate*; and there will be always some degree of probability that a certain kind of event will occur under any (sufficiently determinate) initial conditions.

It seems more plausible, in the case of history at least, to attribute the lack of determining conditions not to the nature of the applicable laws, but to the lack of knowledge on the part of the historian. Nagel asks: “would we not ordinarily interpret a competent historian’s readiness to label as *chance event* an occurrence which he is unable to explain [...] an expression of his weariness or despair?” Nagel (1959, p. 311) also concludes that “if there are [...] chance events [...], there certainly is a definite limit to what can be explained. But since we cannot be sure for which specific events this limit is in force [we do not] have an impregnable excuse for stopping our inquiries into their determinants” .

If some events seem to occur indeterministically, there is no reason to claim that no systems can behave deterministically, or that we should abandon the deterministic assumption. If some event *e* occurs indeterministically, we still want to identify the conditions under which the occurrence of *e* becomes more likely as *e*’s causes – all we need is to identify a suitable definition of *causation*. Indeterminism in this sense does not entail that there are *uncaused* events, and even the “causal principle” could still hold.

In the presence of genuine objective chance, we must conclude that some systems do not evolve according to a uniquely possible trajectory. We must also consider that if an indeterministic system collides with other otherwise deterministic systems, this could certainly spread some level of indeterminacy: the thesis of universal determinism would crumble if just one non-isolated system exhibits objective chance. But it is still unclear whether there are indeed any genuinely indeterministic systems (EARMAN, 1986), so this argument takes a conditional form: *if* objective chance is real, *then* universal determinism is false. But I shall add that even in the presence of objective chance, *partial determinism* could survive.

Argument 5 – “determinism is incompatible with free will”

This issue emerges from a certain tendency among historians (and laymen in general), to perceive determinism as a potential threat to free will. This comes as no surprise, given the fact that the notion of determinism (and that of freedom) is usually not well understood, and different definitions are available. In the case of historiography, it is claimed that if determinism holds, then



humankind is unfree, and judgements of moral responsibility – an essential part of the historian's work, according to Berlin (2002 [1955]) – become meaningless.

Unless the libertarian can show that free will requires indeterminism, and that we are *in fact* free in the libertarian sense, we have no grounds to refute ontological determinism. How are the actions of human agents different from those of a sunflower turning its "face" to the sun? (EARMAN, 1986, p. 239). If the thesis of universal determinism is true, is it not the case that all events (including actions) are produced by forces or circumstances beyond human control? There is an obvious relation between the free will problem with the mind-body problem – which in turn has also divided philosophers into positions of mutual incomprehension. We usually believe that actions are mediated by mental states such as beliefs and desires. A mental state is either "parasite" on physical states or not. Earman's notion of parasitism is defined as: "for any possible worlds w_1 and w_2 , if w_1 and w_2 agree on all physical attributes, then they agree on all mental attributes as well" (1986, p. 240). Parasitism (P) will be the case if we can identify mental states with physical states – whether we can do this is an important point of contention.

Let us assume, for the sake of the argument, that physical determinism holds. We then "rewind" the world from our time t_r , back to a remote past time t_0 , a time before evolution accounted for the emergence of the first, so to say, "mind". In other words, the state of the world at t_0 , and even a libertarian will agree, is completely describable in physical terms only. If P fails then the (physical) state of the world at t_0 does not uniquely determine the state of the world at t_r , because mental state such as beliefs and desires would not be subsumed under the laws governing the evolution of the physical world. In other words, universal determinism fails.

If physical determinism holds, however, and P fails, then we must conclude that an autonomous mental life must be completely inefficacious when it comes to bringing about any event in the physical world – mental states cannot cause anything but other mental states. Alternatively, if both physical determinism and P hold, then we say that the state of the world at t_2 (including the mental states reduced to physical states) are determined by the state of the world at t_0 , together with the laws. In other words, actions would seem to be determined by circumstances that existed before the agent was born, and therefore conditions *beyond* the agent's control. The idea that the causes of action are not under the agent's control is not palatable for the libertarian.

We may offer a different characterisation of such conditions. Again, Earman offers a useful remark: "all human actions, in so far as they are physically characterisable, are deterministically explained by *exactly* the same factors that explain [...] everything else in the physical realm" (1986, p. 241). If P holds then mental states are causes, if P fails, mental states are causally inefficacious.



Now we may properly characterise what the libertarian's position is. The libertarian wants to add to the previous exposition that if determinism holds and P holds, i.e., mental states are determined by the same factors that explain all physical events, then human agents are not 'free' to decide as they "want". Deliberating becomes a deceptive activity, as agents do not really have any choices. And indeed, if by freedom we mean being capable of acting differently from what the physical conditions and laws determine ("doing otherwise") then the libertarian's point is perfectly sound – if physical determinism and parasitism hold, we are "unfree".

Where things go terribly wrong is when (and this is not the case of Berlin) libertarians want to argue by modus tollens and say that since determinism implies unfreedom [premise 1] and since we are free [premise 2], determinism ought to be false [conclusion]. The argument is valid, but we have no way of knowing whether "premise 2" is true or false (or what it means) – and this fact alone offers sufficient justification, I think, to dismiss the argument that free will requires indeterminism. But I said I would consider the case for libertarianism, so let us go a little bit further.

How is it that the libertarian, granting that mental states are in fact not reducible to physical states, provides explanations of actions? Are actions uncaused? Most libertarians (including Berlin) would say that actions are caused, but not in the same way as physical events; and that it is wrong to explain the current state of the world by means of the state of the world at t_0 together with the laws. Actions are partly explained by the state of the world at t_0 , but also by later states – those states in which we have the "emergence" of autonomous mental states such as beliefs and desires (note that there is an overlap of the libertarian's position with some theses on emergentism). The libertarian also needs to add another premise, that those mental states that occur at times later than t_0 but earlier than t_1 have the capacity of pre-empting some causal chains originating from the state of the world at t_0 – otherwise agents would be 'free' but causally inefficacious.

Where exactly do these mental states emerge from? What causes them? Berlin, among other libertarians, defended a version of the theory of *agent-causation*. This theory may be defined as the idea that agents may start new causal chains which in turn are not determined by the prior (physical) state of the world together with the laws. In the case of Berlin, mental states are caused by a special property which is only possessed by intelligent beings (beings capable of deliberation), the *self*. In other words, free choices are made (caused) by the *self*.

We may now turn to the criticism made by Nagel against Berlin. Nagel's point is not to dismiss "premise 2" ('we are free') as just explained, but to say that Berlin did not offer an adequate characterisation of the *self*. In Berlin's view, the *self* is to be distinguished not only from the body, but also from the "free" choices an agent makes. And this may seem problematic because:



[...] when I [...] choose between alternatives, I am usually not aware that the choice may be the expression of a set of more or less stable dispositions [...] should I become aware of these things [...] does my choice or my heart cease to be mine? [...] Berlin [...] appears to have an irresolvable puzzle [...] that arises from his [notion of self where] any trait or action which stands in relations of causal dependence [...] is automatically cut off from being a genuine phase of the self. It is as if a physicist in analysing the performance of a baseball, and noting that [its] shape, the surface quality, and the elastic properties [...] are partly determinative of its behaviour when it is struck by a bat, were to declare that these traits do not properly belong to the ball, but are as much external to it as the impulse imparted by the bat (NAGEL, 1959, p. 312-313).

The result of Berlin's characterisation of the *self* is that, ultimately, "nothing" can be identified as being the (or of the) *self*: "we conceive ourselves to be acting freely, even though we may recognise that some of our choices are the products of our dispositions, our past actions, and our present impulses" (NAGEL, 1959, p. 313). Berlin not only makes it difficult to define the *self* in the context of our action but makes it very difficult for any historian to provide a causal explanation of human behaviour, as it would require knowledge of what the *self* is, and how it brings about events in the physical world.

I have here presented two approaches to the problem of free will. Earman (1986) showed that one of the premises libertarianism is based on cannot be shown to be true. Nagel (1959) offered a limited retort, as it focused more specifically on the case of Berlin. Either way, we have sufficient grounds to conclude that libertarians have not satisfactorily demonstrated that (1) freedom is to be characterised as "being capable of doing otherwise", (2) physical determinism does not hold, (3) parasitism does not hold.

Berlin is aware that ontological determinism has not been proven false. He articulates his argument differently from the usual *modus tollens* argument. He claims that if determinism is true the "language" we use to communicate moral distinctions would have to be revised, for such language presupposes free agency, in the libertarian sense, i.e., being free to choose and act differently from how one acts. Thus, if the doctrine of determinism holds, all our moral experience would be unintelligible and incoherent. Berlin is therefore committed to the view that, insofar as we are committed to retaining the language of moral responsibility, we are committed to rejecting determinism.



And Berlin now adds another premise; that the work of historians requires moral judgements, and consequently requires that they must retain the language of moral responsibility (premise 3). Historians are usually divided in their positions on the importance of making moral judgments. But if we state, as previously done, that explanation in history is all about providing information about the causal history of events, and that our choices of what causes to prioritise when providing an explanation are pragmatic, it is easy to see that historians could “choose” to explain any event without ever making moral judgments. We may explain Hitler’s or Stalin’s actions based on our knowledge of their beliefs and desires, and other relevant historical circumstances, without ever characterising the actions themselves as “evil” or “blameworthy”. I do not imply that this is what historians *should* do, but they could, and patently *can* provide explanation free from value-judgements. And this seems to render premise 3, and consequently Berlin’s argument, false.

Final remark

In the previous section I readdressed some claims which are believed to be incompatible with the doctrine of determinism, in particular historical determinism. The five arguments we considered are not an exhaustive list. More recently Ferguson (1999) argued against some theories he confusingly placed under the same label of “historical determinism”, such as Marxism, Hegelianism, scientific determinism, and some narratives styles in which the end is somehow “predictable”. Ferguson believes that *counterfactual history* provides epistemic gains and is incompatible with historical determinism. Such a claim is also ill-founded, but it shall not be examined here.

But it shall now be clear that common attacks on the possibility of historical determinism are grounded on incomplete human knowledge of the laws governing the evolution of the world – and therefore on our incapacity to predict the future states of the world. Determinism (as an ontological doctrine) may yet hold true of the actual world and of human affairs. None of the counterarguments we have examined is sound. At best, these objections show only epistemic (predictive) determinism to be practically unattainable. It may be that after all things are considered, we are incapable of identifying any single historical system which behaves deterministically – so there is indeterminism. So be it. But we cannot say with certainty that such failure is not simply the result of our cognitive limitations.



References

- BEARD, Charles A. **The Discussion of Human Affairs**. New York: Macmillan, 1936.
- BERLIN, Isaiah. Historical Inevitability. In: HARDY, Henry (ed.). **Liberty**. Vol. 1. Oxford: University Press, 2002 [1955]. p. 94-166.
- BIEBER, Ralph P. Review of 'Law in History and Other Essays' by Edward Cheney. **St. Louis Law Review**, St. Louis, v. 13, n. 2, p. 164, 1928.
- CHENEY, Edward P. **Law in History and Other Essays**. New York: Knopf, 1927.
- CHENOWETH, E. Do Military Interventions Hasten the End of Civil Wars? **The Monkey Cage**, 28 Aug 2013. Disponível em: <https://bit.ly/3K9SBK9>. Acesso em: 12 out. 2013.
- DAWKINS, Richard. **The Blind Watchmaker: why the evidence of evolution reveals a universe without design**. New York: Norton, 1986.
- DAWSON, Christopher. Review of 'Historical Inevitability' by Isaiah Berlin. **Harvard Law Review**, Cambridge, v. 70, n. 3, p. 584-548, 1957.
- DRAY, William H. **Laws and Explanation in History**. Oxford: University Press, 1957.
- EARMAN, John. **A Primer on Determinism**. Dordrecht: Reidel, v. 32, 1986.
- ENFIELD, Roy. Marx and Historical Laws. **History and Theory**, Middletown, v. 15, p. 267-77, 1976.
- FERGUSON, Niall. Virtual History: Towards a chaotic theory of the past. In: FERGUSON, N. **Virtual History: alternatives and counterfactuals**. New York: Basic Books, 1999. p. 1-90.
- GOULD, S. J. **Wonderful Life: the Burgess shale and the nature of history**. New York: Norton, 1989.
- HEGEL, G. W. F. **Phenomenology of Spirit**. Traduzido por Arnold Miller. Oxford: Clarendon Press, 1977 [1807].
- HEMPEL, C. The function of General Laws in History. **The Journal of Philosophy**, New York, v. 39, n. 2, p. 35-48, 1942.
- HENDERSON, L. J. **Pareto's General Sociology: a physiologist's interpretation**. Harvard: University Press, 1937.
- LEWIS, David K. Causal Explanation. In: LEWIS, D. K. **Philosophical Papers**. Oxford: Oxford University Press, 1986. p. 214-240. Vol. II.
- LITTLE, Daniel. Philosophy of History. **Stanford Encyclopaedia of Philosophy**, Stanford, Winter 2012 Edition. Disponível em: <https://stanford.io/3cba0Wn>. Acesso em: 01 abr. 2013.
- LUCAS, John R. **General Arguments for and against Determinism**. Oxford: Clarendon Press, 1970.
- MARX, K. **A Contribution to the Critique of Political Economy**. Traduzido por Nahum I. Stone. Chicago: Kerr, 1904 [1859].
- MORRIS, Simon C. **Life's solution: inevitable humans in a lonely universe**. Cambridge: Cambridge University Press, 2005.
- NAGEL, E. Determinism in History. **Philosophy and Phenomenological Research**, Providence, v. 20, n. 3, p. 291-317, 1959.
- REGAN, Patrick M. Third-party Interventions and the Duration of Intrastate Conflicts. **Journal of Conflict Resolution**, New York, v. 46, n. 1, p. 55-73, 2002.
- SADOWSKY, James. Can There Be an Endless Regress of Causes? In: DAVIS, Brian (ed.) **Philosophy of Religion**. Oxford: Oxford University Press, 2000. p. 239-241.
- SMITH, Peter. **Explaining Chaos**. Cambridge: Cambridge: University Press, 1998.
- STERELNY, Kim. **Dawkins vs Gould: survival of the fittest**. Cambridge: Icon Books, 2007.
- SZATHMÁRY, Eörs. Life's Solution: Inevitable humans in a lonely universe – Simon Conway Morris. **Biology and Philosophy**, Dordrecht, v. 20, n. 4, p. 849-857, 2005.
- TWAIN, Mark. **From the London Times of 1904**. New York: The Century Company, 1898.
- VON MISES, L. **Epistemological Problems of Economics**. Traduzido por George Reisman. New York: NY University Press, 1978 [1933].
- VON WRIGHT, G. H. Determinism and the Study of Man. In: MANNINEN, Juha; TUOMELA, Raimo (ed.). **Essays on Explanation and Understanding: studies in the Foundations of Humanities and Social Sciences**. Dordrecht: Springer, 1976. p. 415-35.



Additional information

Academic biography

Alexander Weller Maar holds a PhD in philosophy from the University of Auckland (New Zealand), with a thesis on the application of counterfactual reasoning to solving problems in philosophy of history. His thesis was selected by the International Commission for the History and Theory of Historiography - Doctoral Dissertation Prize for the History and Theory of Historiography - as one of the three best in the 2015-17 triennium. He holds a Master's in philosophy from the Federal University of Santa Catarina, a degree in philosophy from the University of Trento (Italy), and a degree in history from the University of the State of Santa Catarina. He does research in philosophy and theory of history, and philosophy of science. Nowadays he is a professor and researcher at the Federal Institute of Education, Science and Technology of Pará (IFPA).

Correspondence address

Departamento de Ensino, Pesquisa, Pós-graduação, Inovação e Extensão, R. Universitário, s/n – Maria Magdalena, Itaituba – PA, 68183-300, Brasil.

Funding

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, processo 0413-10-0.

Competing interests

No conflict of interest has been declared.

Ethics Committee approval

Not applicable.

Research context

The article derives from the thesis Cause, Chance, Determinism and Counterfactuals in History, supervised by Robert Nola, at the University of Auckland, PhD in Philosophy program, concluded in 2015. The article presented here has been substantially edited and improved. The thesis is deposited in the university's theses repository: <https://researchspace.auckland.ac.nz/bitstream/handle/2292/24950/whole.pdf?sequence=2>.

Evaluation method

Double-Blind Peer Review.

Preprints

The article is not a preprint.

Availability of research data and other materials

Not applicable.

Editors

Flávia Varella – Editor-in-chief

María Inés Mudrovic – Handling editor



Peer review dates

Submission date: August 24, 2021.
Modification date: December 17, 2021
Approval date: February 15, 2022

Copyright

Copyright © 2022 Alexander Weller Maar.

License

This is an article distributed in Open Access under the terms of the [License Creative Commons Attribution 4.0 International](#).

