

Remarks on Foundationalism

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This essay discusses an alternative to foundationalism based on the representation of our world in terms of processes rather than static concepts and entities. I will limit myself to three things: a brief sketch that contrasts a foundationalist view of reality with a tentative process alternative to it; whether the difference in these two outlooks is comparable to the topological distinction between a point topology and a point-free topology; a look at the implications of this distinction for the issue of evidence in historiography.

None of these matters are here fully developed, but are intended as one side of a possible dialog and an invitation for critical commentary. I must emphasise three limitations here. First, the characterization of foundationalism is simplified and will not explore the subtle philosophical issues to which it gives rise. Second, the process view sketched here is rather adventurous and is necessarily more formally developed in a different venue. Third, the aim is not to reduce things to mathematics or suggest any exact correspondence between topology and historiography, but only to explore whether there might be a rough similarity.

1 Foundationalism

Foundationalism is a position in epistemology (in contrast with an ontological position) that seeks a way to justify a set of beliefs or to establish the truth of a body of knowledge without appealing to truths or beliefs outside that body of knowledge or set of beliefs.

In other words, to put it simply, this knowledge or set of beliefs rests on a foundation of primitive truths or beliefs that are internal and do not require any further proof or justification. For example, they may be intuitively valid or self-evidently true.

This contrasts with justifications that rely on something outside a given set of beliefs or body of knowledge. For example, justification can arise from the powers of the mind, such as our preference for what is logical, coherent or parsimonious as a measure of their justification. Justifications can be metaphysical in the sense that basic facts or beliefs derive from other bodies of knowledge or belief in which they find justification. Or the justification can be social in origin. For example, a theory is considered true if it has the support of a community of experts or reflects a cultural norm. Finally, justification can be inferred from success in practice, as in pragmatism or operationalism. The basic point is that foundationalists seek to justify the truth or validity of certain basics from within the same body of beliefs or knowledge they support.

However, foundationalists are not at all united on how one arrives at a justification of basic beliefs and facts. The approach is subject to so many philosophical difficulties that it is not widely accepted among philosophers. However it seems natural in practice, where we tend to focus on specific problems and take foundational issues for granted. That is, foundationalism is perhaps more important as a broad assumption in our practices than a cogent philosophical position. Because historians are inclined to take it for granted, its importance is greater than its philosophical status might suggest, and this is why we take it seriously here.

One problem is whether foundational beliefs are infallible. This comes up because foundationalism presumes a Cartesian mind-body ontological dualism. The idea is that the minds inferring knowledge from the evidence of the world introduces an element of uncertainty as does any inferential logic. However, this is not felt to be crippling because the raw data or hard facts represented by the evidence from which we draw those inferences imposes itself upon us without any intervention on our part. The evidence is therefore in some way true to the world.

However, this presumption has been decisively criticized as being naive: it is generally held that even our observations are theory laden and are socially constructed by our language and concepts, so that evidence becomes a function of historical circumstance and are not self-contained facts on which we might stand with any confidence. As one result, it is widely felt today that the truth or justification of a set of basic facts or beliefs depends on what lies outside a particular set of beliefs or body of knowledge. Here I would like to elaborate an approach that goes beyond the reification of inside-outside, self-other, and mind-matter binary categories.

2 Topology

Topology refers to the mathematical representation of the shape of our world, and significantly it arose in the context of the European Enlightenment. Simply, how do we represent concepts such as time, shape, dimension and transformation in mathematical terms?

Traditional topology is what is called a point-set topology, and it is familiar to any student of geometry. In the mathematics of topology, point-set topology presumes set theory, which posits self-contained objects grouped in general sets within a hierarchy of sets and conceptualized in terms of formal logic and number. What is concrete and particular are represented in thought as instances or manifestations (*topoi*) of abstractions. These instances or the value of their properties are located at points in a spacetime lattice.

There are many other fields in topology, but the one of interest here is called point-free or pointless topology. A pointless topological space (*locales*) challenges the timespace lattice structure as an unnecessary ontological presupposition, and it represents timespace in terms of extrinsic properties of things. For example, there is no (fourth) time dimension on which events are situated like beads along a string; there is no flow of time or even direction of time. Events have simply a relation of being a priori and a posteriori to one another. This removal of an ontologically independent time dimension is perhaps best articulated in philosophical terms by D. H. Mellor. As for the ontological independence of the three spatial dimensions, that has been challenged in part by the theory of relativity, in which space is a function of the properties of things (mass) rather than being a primitive.

By having spacetime refer to extrinsic properties of things, we appear to reverse the relation of abstract and concrete, or universal and particular. However, this is not the intent here, for in addi-

tion to these opposite conceptual poles, there can be a challenge to their ontological independence by seeing them as merely aspects of one thing, such as the specificity and the universality aspects of a thing. I get the impression that point-free topology is agnostic concerning this difference, but I would like to hear from those who are mathematically inclined.

3 Process

Like Saint Augustine on time, process is one of those things we recognize when we see it, but have a difficult time expressing through words and concepts. The reason is simple enough: our concepts tend to be abstract and static because of the exigencies of daily life and the limitations of mind. In daily life, we prioritize persistence over innovative adventures, and that became absolutized at a time when it was thought that human potentials reduced to their possession of private productive property. In communicating with each other, we rely primarily on abstract categories based on the qualities of things that happen to be persistent.

We can only define process here in terms the mind can grasp that is, one-sidedly. We can think of process as the unity of two aspects, the particularity of a process and its universality, its intrinsic properties and its extrinsic properties. These represent a way the mind can grasp something that exceeds its powers of comprehension.

Without here implying their reification, we can think of reality as consisting of a hierarchy of emergent levels in which each level represents a constraint or specification of a more universal level. This is a fairly conventional way of seeing things except for the reification part. That is, while there are emergent properties, they do not constitute or define a given level, but serve only to individuate it. To separate these emergent properties out in thought imposes an artificial and one-sided view on a process that is only provisional, only one step in the direction of conceptualizing a process.

The other aspect of a process is its universal aspect or extrinsic properties, which I believe amount simply to its causal relation with other processes in its environment. That is, this universality does not refer to the universe as a whole or to some abstract reality, but remains physical.

While the unity of these intelligible aspects in process may elude our grasp, we can at least define some of its parameters.

First of all, the reconciliation of particular and universal implies a probabilistic causality. One way to put this is to suggest that the causal effect of one process on another cannot be unequivocally determinant, but must be fuzzy (ontic fuzziness, not the epistemic vagueness usually discussed in philosophical circles). This is conveyed by saying that one level constrains another level by narrowing its probability distribution, but not determining it unequivocally.

In the literature on emergent levels such as that between the level of mind and a base level of matter (such as neurons), evidently an unequivocally deterministic relation of these levels eludes us. We can say that the mind supervenes on the neurons of the brain, but this only says they have a necessary relation, not what that relation is. The only way around this, in support of a reductionist explanation of an emergent level such as mind, is to redefine the base in terms of unobservable properties (such as is argued by Jaegwon Kim). In fact, this will be attempted here.

4 Example of a die and the issue of realism

Another parameter that seems relevant is that among the properties of any level are its real possibilities. For example, without presuming timespace dimensions, the orientation of a single die is meaningless. That is, until it has a causal relation with something else in its world, until it is indexed or framed, there is no property of orientation. When we establish with it the causal relation of observation, only then can we specify its having an orientation in space in relation to our own timespace framework. Our observation has given the die an extrinsic property, which until now in hypothetical terms it did not have.

But the possible values this now real orientation are limitless because there is no constraint on the die except our timespace. Nevertheless, the possibilities for any orientation are real. That is, if I posit a hypothetical die floating before your gaze, you have no reason to assume it will have one orientation in relation to you than any other. But an actual die will have a particular orientation, its actual orientation, but all the others remain real possibilities. These real possibilities exist in relation to our spatial point of observation, for it just happens that at the moment you observe the die, it has a specific orientation.

Of course, this no longer hypothetical die cant have more than one orientation at a time in relation to our temporal framework. When we look at it in a particular instant of time it has a specific orientation. It may in fact be spinning, but property is not conveyed to us in the present, in a temporal instant of observation. This is the case even if we observe it in successive moments and observe there has been a change in its orientation. We infer that change has occurred, but that is only an inference based on comparing static points in spacetime, only one of which, the present, is actual. So we dont represent the spinning die as a process but as a succession of its static states.

So far we are only observing the die and not impinging significantly upon it. However, even our passive observation has constrained the die by imposing on it a quality of orientation, albeit a quality so far without any assigned value. However, our intention is to throw the die onto a flat surface under the influence of gravity. These circumstances impose yet further constraints on the possibilities for the die beyond that of orientation per se. That is, we know that because of the relation of the structure of the die and the structure representing the circumstances of the throw (their real dispositions or propensities), the possibilities for orientation are reduced from being virtually limitless to only six: the die must come to rest on one of its six flat surfaces.

The point is that we can infer this probability distribution even before the die is thrown. We dont have to infer it from the observation of repeated throws. but can do it directly from our knowledge of the structures of the die and that represented by the circumstances of the throw. This probability distribution for the chances for the outcome of the throw in a final orientation is real and determined by the structure of the die and the structure of the context into which the throw actualizes one of the possibilities.

In conventional terms, this means that we must presume a scientific realism in the sense that theoretical objects are presumed to be real in that they do affect future actualizations. I should note, however, that the definition of this theoretical property or object that is called an unobservable is ambivalent. Sometimes and traditionally it applied to Humes hidden variables or to properties beyond the range of our observation. Sometimes it is ontological, but remains a function of the methodology in a particular science. Here, however, unobservables refer to the fact that they lack localization in timespace and therefore cannot be indexed by an observer.

Alright, lets get to the actual throw of this die. The throw establishes a necessary relation

between the die and the circumstances of the throw, and this relation causes a further collapse of possibilities to just one: the actual outcome. In other words, it is a causal relation that actualizes a probability distribution by collapsing it into an unequivocal outcome. What was real now becomes also actual.

What happens to these possibilities, for they are real and so can't simply disappear? One response that is increasingly popular is that these real possibilities now exist in other real worlds, and only the possibility that we index in our own world is actual. Despite its peculiarity, this perspective is taken increasingly seriously of late. However, because we have rejected point-set topology, the problem becomes much easier to resolve. That is, while what is real is necessarily fuzzy, what is actual is not. A process implies continual change; it is a representation of things as becoming rather than as being. This makes a point-set topology self-contradictory. For example, at an instant of time, something exists at a point in space or it does not; a property has a specific value in phase-space or it does not. The way to reconcile real becoming with point-set topology is to break up process and displace its non-actual real aspects into a real but not actual time (to speak of a probability space tends to beg the question here). Process is deconstructed into its aspects, so that structure loses its possibilities and is displaced in time into what we call the past where it remains real but not actual. The unactualized possibilities of the present get displaced into what we call the future.

5 A world of processes

Let me step back and summarize what is implied by a world consisting entirely of processes.

We represent all things as processes. That everything is in principle a process is not an issue, for this seems to be the scientific consensus today. The problem is rather how we are to represent this fact in thought to make it operational as we investigate our world, represent it adequately in thought and then communicate this knowledge to others.

Given the limitations of mind, such as depositing structures in memory and embedding real possibilities of the present as intentions, we can represent process in thought only in terms of the relation of these two aspects, in terms of the two one-sided views arising from our localization in spacetime.

One aspect is that of structure, which is usually taken to mean a system, which includes a set of system constituents, their causal relations (while a causal relation implies a necessary relation, it is here probabilistic, not unequivocally deterministic), the properties or behaviors probabilistically emerging from the causal relation of constituents and a conceptual or real boundary that in principle is a constrained relation of the system to its environment (typically spoken of as an emergent whole, a container, wall, membrane, transducer or mediation). When seen from the outside, a structure is a set of observables that constrains possibilities to make them into a probability distribution.

There is good philosophical reason not to hypostatize possibilities, any more than structures, by representing them as ontologically self-sufficient. Rather, for the notion of process being presented here, possibilities are merely an aspect of a process that is never free of structural constraints and therefore only really exists as a probability distribution. Not only are neither aspect hypostatized as ontologically independent, but it makes no sense to assign either one an ontological or logical priority, as in foundationalism.

When we index a process, we impose on it our present and therefore we necessarily collapse

it as a process and reduce it to those aspects which are intelligible in terms of our spatio-temporal localization: structure and possibilities, its intrinsic and its extrinsic aspects.

We can apply the label probability distribution to refer to the unity of these two aspects, but such a notion cannot be adequately represented in terms of a timespace localization, in terms of concepts and words. But it is not clear that this limitation is crippling, and this brings up its application in historiography.

6 Historical evidence

We are assuming the reality of possibilities, and although such a belief is not foundational in the usual sense, it nevertheless probably deserves justification. It is not the point here to develop such a justification, but worth mentioning is that the reality of possibilities is a respectable and common position in the natural sciences (initially in terms of Darwinian evolution). So not only can it therefore be inferred from action in the world such as in science, but a knowledge of the world with some truth value and a belief in open possibilities seem a necessary precondition for any activity. That is, it may be our action in the world that is foundational. Furthermore, the approach here can be methodologically useful, and I will now try to illustrate this by looking at the troubling issue of historical evidence.

Historians have traditionally taken as evidence artifacts, traces, source texts, and anything else that can offer a foundation on which to build a truthful account of the past. However, this simple (positivist) presumption has fallen on hard times. For example, it is clear that the historian actively intervenes to select and develop evidence to make it suit historiography (as discussed by E. H. Carr, for example). Given Cartesian mind-body dualism, this raised doubts about how to reconcile the subjective and the objective contributions in an historical account. In recent decades this doubt has engendered a radical skepticism that reduces the past to semantics or logic. Nevertheless, because historical accounts nevertheless strike us as convincing representations of the past, most historians continue with their foundationalist belief that the facts have some truth value, but they do so without any sure footing or confidence.

In terms of a conceptual framework based on processes, historical evidence is originally the structural aspect of past processes that necessarily became displaced in time because it ceased being actual. When this structure ceased to represent an aspect of process, it became a relatively persistent structure because of its loss of the original extrinsic properties. These bits of evidence are fully determined by the probable causal relations of their constituents (this represents a causal theory of persistence that I'll not elaborate here).

Now, this description is not entirely accurate, for if structures disappeared into time past, they would no longer exist as potential evidence today. However, traces of the past do exist today. That is because they are no longer the structural aspect of some past reality, but independent persistent objects that continually restructure their relation with their environment. They are the structural aspect of new processes. That is, traces of a past don't survive into the present, they are part of the structural aspect of the present process in which we live, and they are explained as an aspect of the deconstructed past (in mathematical terms, they represent a Markov process). Detached from the original process, they acquire a destiny of their own as a new process that continually evolves in relation to circumstances.

As this ever renewed process is constrained by circumstance and therefore the surviving traces

represent a broadening probability distribution. That is, through the wear and tear of time, the evidence makes us less certain about the past of which they were once an aspect. This is a complicated way of saying that our evidence tends to become contaminated in time, but does not for that reason cease to be possible evidence.

Now, the possibilities offered by this evidence, just as in our example above of the die, has no reality until we index that evidence, until we represent and develop it as historical evidence. When we establish such a causal relation between ourselves and potential evidence, we constrain its possibilities in terms of our mental powers so that it becomes not just accidental features of our environment, but intelligible evidence of the distant past. These mental powers are in part genetic, in part individual, and also social. Our placing them in relation to possible evidence makes them actual evidence and develops them to serve explanation, a reconstruction of the past in thought that is constrained by other dimensions of our mental life to become an extension of ourselves.

When these structures become historical evidence, they become intelligible. That is, There is a necessary probabilistic relation between the evidence and the mental process that represents our conception of the past. This representation is constrained, not by the past, but by the deconstructed past, and by our social and mental capacities. Thus our representation of the past in thought reduces to neither an objective correspondence on one hand nor to a mere social construction on the other.

The result is a conception of the past in terms of its limits and possibilities, a probability distribution. Our creation of a past in such terms is the same as our representation of the present in like manner, for we are not speaking here of two separate processes, one in the present and the other in the past, but two aspects of one process that unites present and past, the former being the creative aspect of

historiography, and the latter its given structural constraints. In this way, historic consciousness is liberating, for it brings out not only the limits of our situation, but the possibilities it offers for a struggle to shape the future.

It is not my purpose here to elaborate the methodological implications of seeing the past in terms of processes, but only to discuss the general status of our evidence for the effort. Your comments and criticisms of this essay would be much appreciated.