**A Dynamic B Theory of Time**

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Abstract. An adequate account of free will requires a robust powers ontology, but does it also require a “dynamic” A Theory of time? I argue that it is possible to construct a dynamic B Theory of time that is compatible with an Aristotelian ontology of causal powers and with free will. I conclude by considering whether extreme forms of A Theory, including a strict Presentism, are incompatible with a powers ontology.

1. **Free Will and Causal Powers**

I begin with the assumption, well-defended by Peter van Inwagen (1983), that free will is incompatible with determinism. For an act to be free, there must be more than one option potentially choosable by the free agent, which entails that there be multiple possible futures, each consistent with the conjunction of past facts with the causal laws of nature or the distribution of causal powers and potentialities.

Although necessary for free choice, such causal indeterminism is not sufficient. If we combine causal indeteminism with a neo-Humean theory of event causation, there is no room for the responsibility of the agent for his actions. The Humean tradition is replete with those (Hume himself, John Stuart Mill, and several authors published in Mind in the 1930’s—see Hobart 1934, van Inwagen 1983, pp. 142-50) who have argued that responsibility is incompatible with indeteminism, since in an indeterministic world it is chance, rather than the agent, that is responsible for the action actually taken.

The best response to this Humean challenge takes the form of *agent causation*, a rejection of the Humean focus on event-to-event causation. Instead, it is supposed to be the agent himself that causes the action freely taken. The main drawback to this response is that it seemed to open up a deep fissure between causation in the natural world and causation in the domain of free agents. The recent revival of the ontology of causal powers closes this fissure, making agent causation simply a special case of ubiquitous causation by powerful particulars (Lowe 2008, Swinburne 2013, Jacobs and O’Connor 2013).

In this paper, I will concentrate on an Aristotelian version of powers ontology. In this version, the world consists fundamentally of substances and their accidents and relations. Each substance has a kind-essence, from which its fundamental causal powers and potentialities, both active and passive, flow with metaphysical necessity. The exercise of a power is to be identified with the actualization of a certain joint potentiality involving both an agent and a patient.

In the metaphysical approach that I favor, both modality (possibility and necessity) and time are to be defined and explained in terms of causal powers. I follow Alexander Pruss’s advocacy of an Aristotelian conception of possibility (Pruss 2011). A state S is possible at time t just in case either S is already actual at t, or there exist at t substances with the power to be bring it about that S be actual (either directly or indirectly).[[1]](#footnote-1)

Similarly, I follow Aristotle in taking time to be the measure of change, and in taking change or motion to be the actualization of powers (potentialities) *as such*. Every power has its own intrinsic telos, and all change consists in a movement from actualization of a power toward that telos. Hence, each process and each interval of time has an intrinsic direction, a direction that does not depend on global patterns (like the increase of entropy) or asymmetries in the laws of nature.

1. **Does Free Will Require the A Theory of Time?**

J. M. E. McTaggart introduced in 1908 a distinction between two theories of time, the A and B Theories. The A Theory can be defined in either of two ways, one entailing the other. Hence, there is actually a trichotomy of theories of time: strict A, strict B, and intermediate theories.

The narrow or strict definition of A Theory requires that the theory designate a single moment of time as metaphysically privileged, as the absolute Present moment. The broader definition of A Theory requires only that there be a real passage of time: that is, that there exist some metaphysically fundamental Clock whose successive states mark out the passage of time. It is clear that any strict A Theory must also be a broad A Theory, since the movement of the absolute Present would be a metaphysical Clock of the kind required. However, as we shall see, there are alternative Clocks that could be posited.

Similarly, strict B Theory rules out the existence of a metaphysical Clock, while broad B Theory requires only that there be no metaphysically privileged Present. Hence, there are three possible positions: strict A Theory, strict B Theory, and the Intermediate Theory (which posits a metaphysical Clock but no privileged Present).

There is also a super-strict form of the A Theory, namely, Presentism, which proposes that the Present moment exhausts all of reality. For the Presentist, absolutely Everything exists in the Present (in every sense of ‘exists’). In the Past there *were* things that do not exist now and in the Future there *will be* such things, but Nothing has such merely-past or merely-future existence. Consequently, many truths about the past and future lack truthmakers. Truth does not supervene on Being.

I will argue that B Theory, even strict B Theory, is compatible with powers ontology and with free will. So far, I am in agreement with Benjamin Page in Chapter 10 and Andrea Roselli in Chapter 12 of this volume. However, in contrast to both Page and Roselli, I do not think that just any form of the strict B Theory is compatible with a powers ontology or with a powerist conception of free agency. In order to overcome the challenge of McTaggart’s arguments, the Aristotelian B Theorist must posit a plurality of modes of existence, following Aristotle’s dictum that ‘being’ is said in many ways (*Metaphysics* Gamma 2, 1003b5). Although the dynamic B Theory does provide an adequate foundation for free will, I will propose an Intermediate Theory which better respects our experience of the fleetingness and inexorable motion of time. And I will argue that Presentism is compatible with powers ontology and with free will only if it also recognizes the existence of multiple modes of being.

1. **The Challenges of Logical Fatalism and the Unreality of Change**

There are two reasons for thinking that the B Theory might be incompatible with both a causal-powers ontology and free will. These are the challenge of logical fatalism, and McTaggart’s charge that the B Theory is inconsistent with a robust conception of change (of the kind required by Aristotelianism).

The *logical fatalist* challenge consists in pointing out that the B Theory entails that it is metaphysically necessary that the future be exactly as it is now. For B Theorists, the future is “out there,” existing in some fully determinate condition in the direction of later time. Hence, there can be no sense in which multiple, mutually inconsistent futures could all be (here and now) really possible. Consequently, all of our future supposedly free actions are pre-determined, and no one is free. Similarly, the causal powers account of modality collapses to triviality: whatever will be is necessarily so, and there never has or has been any contingency. But, in the absence of contingency, how could the exercise of power (understood as the actualization of potentiality as such) be possible?

The Aristotelian B Theorist can simply reject the inference from the fixity of the actual future to its necessity (as Benjamin Page also recognizes in Chapter 10). At each moment of time, reality consists of a branching tree, with a single trunk leading to the present moment (corresponding to the necessity of the past) but with multiple branches breaking off from the present moment and from many possible future events. These alternative branches represent alternative possibilities (potentialities). Potentiality is time-relative. Certain events are potential-relative-to-t1 but not-potential-relative-to-t2, where t2 is later than t1.

To be still more precise, we need to relativize potentiality to an event. One event E is potential relative to an event F just in case F includes substances with the power to actualize E (directly or indirectly). We can also define *relative actuality*: an event E is actual relative to event F just in case, for every actual event G, there is no potentiality-relative-to-G of the joint state of F and not E. In other words, the actuality of F necessitates the actuality of E.

Every possible state or event E is actual-at-E. An event E is also actual at all events later than E but may be merely-potential-at some events earlier than E. An event E is actual at time t iff there is an actual event F occurring entirely at t such that E is actual-relative-to F. An event E occurs entirely at t iff all standard clocks registering time later than t are potential relative to E.

A potentiality E *is actualized* at t if E is actual-at-t but not actual at all times earlier than t.

But, if *every* event E is actual-at-E, how can we differentiate between those potential future events that will in fact be actual from those that will not? We must remember that the Aristotelian B Theorists has, in addition to the event- and time-relative notions of actuality we just defined, a more fundamental, *absolute* notion of actuality. Crucially, we did not define *actual-relative-to-t* as *absolutely actual and occurring at t*. Something need not occur at t in order to be actual relative to t. We do get the following relationships between absolute and relative actuality:

(1) Event F is absolutely actual if there is some event E such that (i) E’s occurrence is absolutely actual, and (ii) F is actual relative to E.

(2) Event F is absolutely actual iff there is some time t such that F is actual relative to t.

But, absolute actuality cannot be defined in terms of either form of relative actuality. Instead, the definition runs in the opposite direction.

But how can a substance *actualize* a potential event E at t if that event is *already* (at t) either absolutely actual or absolutely non-actual? The answer, of course, is that merely potential future events that are absolutely actual are not *already* actual (that is, they are not actual relative to the present). The domain of absolutely actual events is partially ordered by time and causation. An absolutely actual event E that becomes actual at some point in time is absolutely actual *because* it was made actual by the exercise of some absolutely actual power, a power that was itself already actual at times and events prior to E. It is not the case that it is actual at that time *because* it was already absolutely actual.

But how can the same event be merely-potential-at-t while at the same time being absolutely actual? Aren’t mere potentiality and actuality contraries? Yes, but being-merely-potential-at-t is contrary to being-actual-at-t, not to being actual absolutely.

But how can it be true (at t and at all times) that event E is absolutely actual, while false that E is actual-at-t? Here we have to rely on Aristotle’s dictum that “being is said in many ways.” This entails that ‘actual being’ is also “said in many ways.” That is, there are multiple modes of actual being, one for each moment in B time, and another one for eternity. The time- and event-relative modes of actuality are derived and not fundamental, and so their behavior is determined by those definitions, which include a modal dimension. Consequently, being absolutely actual at time t need not entail being-actual-at-t.

McTaggart offered the second challenge to a B-Theoretic version of Aristotelianism. McTaggart argued that the B Theory is incompatible with the reality of change, as conceived of in classical or Aristotelian terms. The B Theory seems to be committed to Bertrand Russell’s At-At theory of change: a substance S undergoes change at time t iff there is are intervals of time I1 and I2 with I1 ending at t, and I2 beginning at t, and S has some property P throughout I2 and at no time in I1 (except for t itself). That is, something is undergoing change just in case it has some properties *at* certain times that it lacks *at* other times. The At-At theory is incompatible with Aristotelianism, since it implies that *time* is metaphysically prior to *change*, and not vice versa.

However, Aristotelian B Theorists need not embrace Russell’s theory. They can insist that change be identified with the exercise of causal powers. If a substance changes from cold to hot, there are B moments at which it is hot *because* some actual causal power was exercised. This differentiates real change from simple variation, like McTaggart’s rod, which is simultaneously hot on one end and cold on the other. If we say that McTaggart’s rod “changes” from being hot on the left to being cold on the right, we are merely speaking metaphorically (as McTaggart insisted upon). However, the Aristotelian B Theorist does not conceive of real change as being at all analogous to the rod. McTaggart’s rod is not hot on one end *because* some causal power as acted upon its cold end. However, a brick that changes from being cold to being hot is actually hot at the end *because* some causal power was exercised upon it in its cold state.

But isn’t there still something unacceptably static about the strict B Theory? I have some sympathy to this response, but as an objection to the strict B Theory, this disquietude has nothing to do with Aristotelianism or with free will. And, as I will argue in section 6, we can dispel this disquietude by embracing an intermediate theory of time, without going all the way to a strict A Theory.

1. **A Formal Model of Dynamic B Theory**

A formal theory of dynamic B Theory already exists—it is the Ockhamist branching time model created by Arthur Prior (Prior 1967) and further developed by Hans Kamp (1968), John Burgess (1980), and others (Reynolds 2002, Øhrstrøm 2009, Goranko and Rumberg 2020). (See also Plantinga 1986.) I am going to re-package the logic here, in order to make clearer its connections with an Aristotelian B Theory.

To do so, I first draw on Storrs McCall’s falling branches version of A Theory (McCall 1976). McCall’s theory fits very well with Pruss’s Aristotelian theory of modality. At each moment of time, McCall models reality as a branching tree, with a single trunk. The trunk represents the past, and the present moment is the first point in the trunk from which two or more paths branch. Possible future events occur on the branches. As real (A) time passes, the future moves out to later points in time, and as the present moves, paths that branch from the trunk at earlier times disappear (“fall off the tree”). We will need two pairs of tense operators: potentially-past and actually-past, and potentially-future and actually-future. The branching structure of time will guarantee that the potentially-past events will coincide exactly with the actually-past ones.

In my B-theoretic version of this model, we will have to evaluate tensed propositions relative to three parameters: a model $M$ (representing the actual world as a whole), a tree *T* (representing an actual moment in B time, past, present or future), and a time *t* (representing a possible moment in the A future, relative to a tree). Tensed propositions are evaluated according to Arthur Prior’s semantics:

$$M, T, t ⊢P\_{pot}\left(ϕ\right)⇔ ∃s s \in T, s≺t : M,T,s ⊢ ϕ$$

$$M, T, t ⊢F\_{pot}\left(ϕ\right)⇔ ∃s s \in T, t≺s : M,T,s ⊢ ϕ$$

$$M, T, t ⊢P\_{act}\left(ϕ\right)⇔ ∃S\in M T ⊂S : M,S, N(S) ⊢ ϕ$$

$$M, T, t ⊢F\_{act}\left(ϕ\right)⇔ ∃S\in M S ⊂T : M,S, N(S) ⊢ ϕ$$

The N(S) term refers to the present moment of tree S, that is, the latest moment prior to which there are no branches in S.

The resulting model is simply a B-Theoretic version of McCall’s. Instead of having a single, changing tree, the model consists of an infinite number of trees, each tree representing a single moment of B time. We stipulate that the trees in a given model fall into a unique linear ordering of time. One tree T1 is earlier than another tree T2 just in T2 is a proper sub-graph of T1 (i.e., T2 results from pruning off some of T1’s branches), or, equivalently, the present time of T2 corresponds to some possible future time of T1. Thus, we get two temporal dimensions, one within each B moment (as a counterpart to A time), and one that orders all of the B moments into a B series. This is equivalent to the Ockhamist branching-time model.

The model theory will guarantee that Ppot and Pact will necessarily coincide, since trees branch toward the future and not toward the past. The definition of precedence between trees ensures that the interpretation of Fact is a subset of Fpot, i.e., that the actual future is among the potential futures. The Fact operator will rigidly refer to what actually will follow the present time, and so PpotFactϕwill be equivalent to the disjunction (Factϕ∨ ϕ ∨ Ppotϕ) (Kamp 1971). This captures the linearity of B time—its non-branching character. It would be possible to add a linear ordering of trees to each node of each tree, which would give us a Stalnaker-like logic for counterfactual conditionals, but this would be metaphysically dubious. Consequently, I will stick with the simpler model, consisting of a linear ordering of McCall trees.

As is generally the case with the B Theory, it is easy to adapt this model for consistency with the special theory of relativity. Instead of having a tree for each instant of time, we will need to have one for each point in spacetime. The branching futures in each tree will represent every future that is contained within the forward time cone of the spacetime point. We can use the same definition of ‘later than’, which will now hold of two trees when the first lies within the forward time cone of the first. The trees will no longer be in a linear ordering in the model, but they will have a strict partial ordering that corresponds to the earlier/later relation between time-like separated events. And we can assume that any two trees (even space-like separated ones) have both a common tree in the past and a common tree in the future.

1. **McTaggart’s Challenge to the A Theory Applied to Dynamic B Theory**

J. M. E. McTaggart argued in 1908 that the A Theory is inconsistent, since it entails that each event and each moment of time have contradictory properties—namely, the properties of pastness, presentness, and futurity. McTaggart argued that the obvious A Theoretic response, pointing out that each event has these properties at different times, involved a vicious circularity since the distinction between different times depended on the coherency of the A Theory.

Regardless of whether this argument is successful against the A Theory, a version of it can be deployed against my dynamic B Theory with some real force. Each event belongs to infinitely many trees: in one it occurs at the present moment, in some it is in the past, and in others it is among the possible futures. But, as McTaggart pointed out, presentness, pastness, and futurity are contrary properties. So, for that matter, are actuality and mere potentiality, or necessity and possible non-existence. How can the same event bear such contraries?

The Aristotelian cannot give the standard reply given by A Theorists, namely, that the contrary properties are had “at” different times, because all of the B moments eternally co-exist according to B Theory. If we suppose that presentness, pastness, and futurity are binary relations between events and B moments, then we would have to give an account of the nature and identity of B moments that is prior to the modalities of tense (which was the gist of McTaggart’s charge of vicious circularity). However, dynamic B Theorists cannot posit B times as existing prior to causation and change, since this would be to embrace an unacceptably static and spatialized conception of time, as if time were a metaphysically prior framework into which events can be placed. For similar reasons, dynamic B Theorists cannot resort to events’ having disjoint temporal parts, as if the death of Julius Caesar had a part that has futurity in 100 B.C. and another part that has pastness in 100 A.D.

There is a plausible response to this circularity objection. Instead of relativizing presentness, futurity (potentiality), and pastness to *moments* of B time, we could instead make them relative to *events*. One event is potential relative to another just in case the second involves the appropriate causal powers. Moments of B time could be identified with classes of events—maximal classes such that no member is potential relative to the other.

This raises a question for the Aristotelian: what are events? Obviously, it would be problematic to identify events with triples of entities, properties, and times, since this would re-introduce B times into the picture at a more fundamental level. We could identify events with substances and accidents: the substance Socrates corresponding to the “event” of Socrates’ existing, and the accident of Socrates’ paleness corresponding to the “event” of Socrates’ being pale. This will work so long as accidents are not repeatable. Suppose, for example, that Socrates was pale every winter and ruddy every summer. There are clearly distinct episodes of Socrates’ paleness, so we could not identify one of these events with the accident of Socrates’ paleness if that accident recurred (i.e., if it had intermittent existence). So, Aristotelians should deny that accidents can recur, positing that the origin of each accident is essential to it.

Nonetheless, this notion of event-relative potentiality ultimately falls prey to a version of McTaggart’s objection. This version of the objection relies on simple observation: potentiality is a *monadic* property of events---it is not a relation *to* *anything*. I have been guilty so far of confusing two things: the fact that the potentiality of certain facts is grounded in the existence of causal powers, and the supposed fact that potentiality is a relation between one fact and another. An event is either potential or it is not—it makes no sense to ask whether it is potential or not *in relation to some other event*, just as it is nonsense to ask whether an event is *future in relation to* another event (as opposed to *later than* that event).

What options then would the dynamic B Theorists have? I think we must embrace the thesis that the copula itself must be tensed (Johnston 1987). As I mentioned above, ‘being’ is said in many ways. There are distinct modes of present/actual being, one for each B moment. Events (including substances and their accidents) have different modes of actual being, depending on when they exist. Pastness and futurity are modalized derivatives of these modes of being. Each B moment involves only a single mode of actual being, plus an infinite number of tensed derivatives. Consequently, if *m* is the mode of being corresponding to 100 B.C. and *n* the mode corresponding to 100 A.D., then the death of Caesar ism possible-in-the-future, and it isn necessary-in-the-past. If *o* is the mode corresponding to the moment of Caesar’s death, then that death iso simpliciter. In addition to such temporal modes, there is a single mode of eternal being, *e*. All substances and accidents aree simpliciter, but none aree past or future. Eternal being is the focal meaning of ‘being’.

There is now no contradiction in supposing that Caesar’s death ism possible-in-the-future but isn not possible-in-the-future, nor is*e* it possible-in-the-future, since distinct modes of being are involved.

The various temporal modes of being are causally ordered, as mentioned above. If *m* is prior to *n*, then that things aren as they are is causally dependent on how things arem.

The principal objection to tensing the copula, pressed by David Lewis (2002), is the charge that it alienates bearers from their intrinsic properties, in much the same way as does treating tensed being as a binary relation between an entity and a time. If the rod ism hot, then it is not hot *simpliciter* but only in relation to the mode *m*. This seems inconsistent with heat being an intrinsic attribute of the rod.

However, it is a mistake to read *x ism* as involving a relation between *x* and some entity *m*. The index ‘m’ is merely being used to distinguish ‘ism’ from other modes of being. It is not in any sense a relational predicate. To say that *ism* is a *mode of being* is precisely to insist that it be non-alienating. To say that *x ism P* is to attribute *P* to *x* intrinsically.

There is an epistemological version of the alienation problem: what is the content of one’s thought when one thinks, *S is now P*? If, as in standard B Theory, we take the present tense and the now-adverb to be indexical in character, then we seem to be forced to suppose that we are thinking that S and P stand in some relation to *this* moment (i.e., the moment at which we are thinking). How, then, can we think that *S is* *P*, using a non-alienating copula?

The solution lies in an often-neglected suggestion of Gottlob Frege (1997), an idea that has been developed by Maxwell Goss in his 2006 dissertation (Goss 2006). When I think *S is now P*, I am using the only temporal mode of being that is directly accessible to my thought at this moment in time. At each moment in time, I am acquainted with only the mode of being corresponding to that moment. All other moments must be designated by description: as *the moment of time n seconds earlier (later) than now.* Hence, I never *relate* a predication to the present moment; instead, I simply *use* the relevant mode of being. Thus, the present tense involves no cognitive alienation of an entity from its intrinsic attributes (whether essential or accidental).

We can also grasp the eternal mode of being. We can assert, for example, that 2 + 2 ise 4. Similarly, we can assert that Bucephalus existse and even that Bucephalus ise a horse. We can say that Socrates’ musicality or his paleness aree, but we cannot say that Socrates ise pale. In this sense, there is a certain degree of alienation between a substance and its transient accidents.

1. **Moving from the Dynamic B Theory to the Intermediate Theory**

The dynamic B Theory developed in sections 3-5 suffices as a justification for the claim that Aristotelian powers ontology, the B Theory, and libertarian free will are mutually compatible. However, once we have the distinct modes of being in place, there is room for adding yet another dimension of dynamism to the account, moving from the strict B Theory to the Intermediate account. On the Intermediate account, there is no privileged Present but there is fundamentally moving metaphysical Clock.

Suppose that the modes of being are not permanently attached to B moments of time but are in continuous motion through the B series. In other words, the mode of being *m*, which is the mode associated with the present moment, was once associated with 100 B. C. and will one day be associated with 2100 A.D. A function that relates modes of being to the B moments to which they belong would then constitute a metaphysical Clock, keeping track of the real passage of time without introducing a uniquely privileged Present.

If we relate this to the Fregean idea of direct acquaintance with the present moment, we could imagine that all of my memories and all of my anticipations of the future involve the very same mode of being. I remember when this mode, say *m*, was associated with the year 1980, and I look forward to when it will be associated with the year 2030. Thus, the temporal phenomenology of the fleetingness of the present and of the inexorable forward motion of time would both be vindicated, if we think of my present consciousness as borne along by the same mode of being. This degree of dynamism can be squared with a rejection of strict A Theory, since there is a future self who remembers when he wasn a child, and a past self that looks forward to beingo a philosopher, where *n* and *o* are modes of being associated now with future and past times, modes with which I am not now acquainted. My present mode *m* is not metaphysically privileged, even though it does move through the B series.[[2]](#footnote-2)

Is the Intermediate Theory, like the strict B Theory, consistent with the standard interpretation of special relativity, that is, with the non-existence of absolute simultaneity? Yes, it can be. Instead of supposing that the real passage of time is globally synchronized, we could suppose that the passage at one point in space cannot be objectively coordinated with that at a different point. In other words, instead of introducing a single, global metaphysical Clock, we could introduce a multiplicity of such Clocks, one for each enduring entity (including substances and their integral parts and remnants). This would mean introducing a further multiplicity to the modes of being, with each enduring entity possessing its own private succession of modes.

One last advantage to the Intermediate Theory: it can offer a principled answer to J. C. C. Smart’s challenge (Smart 1949), how fast does time flow? We can measure the speed of the flow of time for a substance at a point in B time by comparing its motion with the flow of time for that same substance at other B moments. It is possible for one of my modes m to travel x seconds (currently at 1980) for every y seconds traveled by a different mode n (located in 1990). If so, my proper time at 1980 would be flowing at x/y 1980-seconds/1990-second. A particular mode can accelerate or decelerate in its velocity through time (as measured by the movement of a different mode), moving at different relative velocities at different moments in A time (as registered by the enduring entity’s metaphysical Clock).

1. **Problems for Aristotelian A Theory**

The most plausible version of strict A Theory is the super-strict version, Presentism. Presentism provides A Theorists with its best solution to the problem of intrinsic change. According to Presentism, if a thing *x* is now *P*, then *x* is *P simpliciter*. To have been *P* or to be going to be *P*, in contrast, involve the application of non-factive modal operators. These non-factive operators could be expressed as counterfactual conditionals. E.g.: *x was P n seconds ago* means *x would be P if n seconds ago were now*.

Presentism is typically combined with Actualism, the view that everything exists in actuality. Actualists refuse to countenance non-existing things within their domain of quantification. The combination of Actualism and Presentism banishes all merely past or merely future things from being values of quantified variable. We cannot say that some things exist only in the past. Instead, we have to say that *in the past there were* things that don’t exist now (embedding the quantifier within the tense operator). In fact, even this is problematic, since it seems to involve attributing the impossible attribute of non-existence to presently-existing things within the scope of the past operator. We would have to follow Robert Adams (1981) in distinguishing between not-existing-*in* a time (which is impossible) and not-existing-*at* a time (which is possible).

There is a problem about combining Actualist-Presentism with an Aristotelian account of causal powers. A powers account of causation must suppose that temporally extended processes (*kineses*) are at least as fundamental as their instantaneous parts. Anti-powers theorists can embrace a Russellian At-At account of motion and change, and so they may say that the instantaneous states of being are prior to the whole process, since the laws of nature determine the character of each such instantaneous state. However, a powers theorist cannot suppose that the process is a result of a non-denumerable infinity of power-exercises, one for each instant, since the aggregate of such instantaneous exercises would leave the diachronic character of the whole process unexplained.

Instead, powers theorists must suppose that the exercise of a causal power initiates a process or enduring state, whose existence and character are *more* fundamental than those of its constituent instantaneous states. There must be a top-down, whole-to-part direction of explanation. This is also necessary to avoid Zeno-like paradoxes and paradoxical super-tasks (like Thomson’s lamp). (See Chapter 9 of Koons and Pickavance 2015, and Chapter 28 of Koons and Pickavance 2018.)

If reality consists fundamentally, at least in part, in temporally extended things (processes, motions, activities), then it cannot be the case that everything that exists exists now *and at no other time*. If an ongoing process does not consist in a mere aggregation of instants, then it cannot exist simply by virtue of the existence of the part of the process that corresponds to the present moment. The whole, temporally extended process must exist in actuality, and that means that it must actually exist at other times as well. If the process existed only in the instantaneous present, then it wouldn’t be temporally extended, at least not fundamentally. The only kind of temporal extension that is possible under Presentism is a kind of modalized extension. So, I could say that Homer’s present activity of walking across the stadium is temporally extended in the sense that there *were* times in the past at which it existed, and there *will be* times in the future at which it will exist. However, this kind of temporal extension depends on the process being entirely composed, over time, of instantaneous parts, each of which exists for just a moment (when it is present).

Here is an argument for the falsity of Presentism on Aristotelian grounds:

1. Some things (i.e., processes) are fundamentally extended in time.
2. If something that exists is fundamentally extended in time, then it does not exist at a time simply by virtue of having an instantaneous part that exists then.
3. If Presentism is true, then any process can exist at a time only by virtue of having an instantaneous part that exists then.
4. So, Presentism is false.

The best response by an Aristotelian A Theorist would be to turn once again to the thesis that ‘being’ is said in many ways. The A Theorist can adopt Thomas Aquinas’s four-way distinction from his commentary on Aristotle’s *Metaphysics*. Thomas Aquinas theorizes four levels or degrees of being: substances, accidents, motions (processes), and negations (*In Meta IV*, lesson 1, 540-3).

We could precisify the definition of Presentism to make clear that we should limit it to the existence of substances (existence1) and accidents (existence2), excluding motions (existence3) and privations (existence4):

**Presentism.** Everything that actually exists1 or exists2 exists (1 or 2) in the present, and nothing exists1 or exists2 (in actuality) at any other time.

The Aristotelian A Theorist can now challenge premise (c) of my first argument:

(c) If Presentism is true, then any process can exist at a time only by virtue of having an instantaneous part that exists then.

Our modified version of Presentism allows processes to exist3 over a period of time, without fundamentally existing (1 or 2) at the intervening instants of time. Modified Presentism simply doesn’t apply to processes at all: they are free to exist in part in the past or future, as well as the present, since they never *exist* in either of the two most fundamental ways (existence1 or existence2). Presumably this can be done without compromising Presentism’s explanation of the possibility of intrinsic change, since processes do not undergo the same kind of intrinsic change that substances do. For processes, an At-At theory of change seems appropriate.

1. **Conclusion**

Aristotelian powers ontology provides the best basis for libertarian free will. Such an ontology is compatible with the B Theory of time, so long as the latter takes a sufficiently dynamic form. This requires a real and irreducible notion of event-relative potentiality, which is, in turn, defined in terms of the existence of appropriate causal powers. The dynamic B Theory rejects the spatializing of time and Russell’s At-At theory of change in favor of an account in which powers and change are metaphysically prior to time.

In order to overcome the challenge that McTaggart lodged against the A Theory, dynamic B theory must posit a plurality of modes of being. These temporal modes of being must be thought of as tensed copulas and not as relations to moments of time. Once modes of being are in place, it becomes possible to move from a dynamic B Theory to a still more dynamic Intermediate theory, with real passage of time but no privileged Present.

The compatibility of Presentism, the most plausible version of the A Theory, with Aristotelian powers ontology faces the challenge of metaphysically fundamental, temporally extended processes, processes which cannot persist by virtue of wholly existing at each instant of time. Overcoming this challenge requires the A Theorist to acknowledge multiple modes of being, with a special mode reserved for processes. This fact strengthens the dynamic B Theory and the Intermediate Theory, since the multiplicity of modes of being is common ground for all versions of Aristotelian powers ontology.

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1. In the Aristotelian framework, a chance event is a compound event that is the result of the exercise of two independent causal powers. So, for example, if a creditor and debtor meet by chance in the marketplace, each component of the meeting is the result of the exercise of certain locomotive powers. Thus, the meeting is in one sense fully explained in causal terms, even if there is no explanation of the coincidence as such. (Thanks to an anonymous reviewer for pressing this point.) [↑](#footnote-ref-1)
2. My talk of ‘past selves’ and ‘future selves’ shouldn’t be taken too literally. I do not want to deny that substances endure through time. If there is some tension between this commitment to persisting substances and instantaneous modes of being, I could instead suppose that modes of being correspond to *periods* of time, rather than to instants. [↑](#footnote-ref-2)