The minimal A-theory

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Abstract Timothy Williamson thinks that every object is a necessary, eternal existent. In defense of his view, Williamson appeals primarily to considerations from modal and tense logic. While I am uncertain about his modal claims, I think there are good *metaphysical* reasons to believe permanentism: the principle that everything always exists. B-theorists of time and change have long denied that objects change with respect to unqualified existence. But aside from Williamson, nearly all A-theorists defend temporaryism: the principle that there are temporary existents. I think A-theorists are better off without this added commitment, but I will not argue for that in any great detail here. Instead, I will contend that a very tempting argument for temporaryism is unsound. In the first half of the paper, I will develop the Moorean "common sense" argument for temporaryism and dispute its central premise, namely that temporaryism is the best generalization from our ordinary beliefs about creation, destruction, coming to be, and passing away. I will argue that given the pervasive vagueness in our ordinary beliefs and the background commitments of all A-theories, temporaryists cannot claim to have *the* common sense view because no party can accommodate most of our common sense beliefs. In the second half of the paper, I will propose a permanentist A-theory that explains all change over time as a species of property change. I call it the *minimal A-theory*, since it dispenses with the change in existence assumption. As we'll see, the permanentist alternative performs well enough in explaining our ordinary beliefs, and it has better prospects for answering three objections commonly levied against A-theories.

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1 Some theories of change

Here is a fun winter science and metaphysics experiment you can do with the kids. Make a small snowman in your yard. Name it "Frosty". Carry Frosty inside your house and observe. Now ask two questions. First, what seems to happen to Frosty? This is the science part. (Hint: If you've been paying your heating bill, he should start to melt). Second, what is it fundamentally for an object like Frosty to melt? This is the metaphysics part.

Some philosophers (and some particularly cynical children) think this second question is misguided. There are many ways to describe how a snowman melts, and none are philosophically better than any other. Call this the *deflationist* theory of change. Deflationists think philosophers who debate the nature of change are often talking past one another. Eli Hirsch and Thomas Hofweber defend such a line.[1] In contrast, *anti-deflationists* think that there are highly general facts about change, that these facts can be captured in a logically perspicuous language like predicate logic or tense logic, and that debates about change are substantive, at least when they are regimented in the right language. The debate between deflationists and anti-deflationists is an interesting one, but I won't consider it in this paper. Instead, I will just assume with many other metaphysicians that there is an answer to the question of what change is fundamentally. Indeed, I will make a somewhat more specific assumption. Along with many metaphysicians, I will add to this:

> UNIVOCAL EXISTENCE: There is a single, fundamental sense of "exists" of interest to metaphysics, and it is denoted by the existential quantifier.[2]

The view is sometimes known as *neo-Quineanism*. According to neo-Quineans, the debate about change is substantive if we can translate different theories of change into logic-ese and show that they must quantify over different domains. That's what it is to have a debate about ontology, at least on the anti-deflationist picture I'm assuming.

Within the anti-deflationist/neo-Quinean camp, another debate rages between *A-theorists* and *B-theorists*. A-theorists are metaphysicians who think that there is an important distinction between the present and other times that a theory of change should reflect.[3] There are usually two related components to an A-theory:

> FUNDAMENTAL TENSE: There is a fundamental distinction between the present and other times, and expressing this distinction requires primitive tense operators like "it was the case that…"(usually abbreviated with $\mathcal{P}$), "it will be the case that…" ($\mathcal{F}$) or "it is always the case that…"(which I will abbreviate with $\square$).

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[1] Hirsch (2009) and Hofweber (2009b).

[2] Quine exegesis is no easy matter, but van Inwagen (1998) does an able job linking this methodological principle back to Quinean doctrines. Sider (2009) gives updated arguments for the principle. In the change debate, we see it explicitly assumed by A-theorists—Zimmerman (1998, p. 210) and Crisp (2004, pp. 16–17)—as well as B-theorists—Sider (2001, p. 17).

[3] Examples of A-theories can be found in Prior (1998), Zimmerman (1998), Crisp (2003), Markosian (2004), Merricks (2007), Broad (1923), Adams (1989), Forrest (2006), and Williamson (2002).

A-PROPERTY CHANGE: Objects do not require temporal parts or time-relational properties to undergo change. Some objects have temporary non-relational properties and endure through change. Using the "always" tense operator, we can express the view most perspicuously: For some property $C, \exists x(C(x) \land \neg \Box C(x))$.

Here's what many A-theorists say about Frosty as he's melting. Frosty *was* frozen and man-shaped *simpliciter*. Now, Frosty—numerically the very same object—lacks both of these properties. The two A-theoretic principles are related because it seems that you cannot consistently express facts about A-property change without some kind of primitive tense. I suspect A-theorists can get by without the first assumption, but that too is a battle for another day.[4]

B-theorists deny both components of the A-theory. They think of spacetime as a single, spread-out manifold and change as nothing more than variation across the manifold. Consider a common analogy. The Union Jack is blue in some places, red and white in others. We can say it "changes" colors *at* its different regions, but it would be incorrect to say the flag gains or loses colors *simpliciter*. The flag simply varies across spatial dimensions. B-theorists think the manifold varies likewise along spatiotemporal dimensions. There are two related components to a B-theory of change:

NO FUNDAMENTAL TENSE: All fundamental facts about change can be expressed without tense operators. Expressing facts about change merely requires predicates and quantification over objects and regions of spacetime.

B-PROPERTY CHANGE: Either all objects persist through change by having multiple temporal parts in the manifold or all objects change merely by instantiating varying relations to regions of spacetime. Nothing changes without temporal parts or varying spatiotemporal relations.

There are two predominant varieties of B-theory, depending on how you cash out the disjunction in B-property change. *Temporal parts* B-theorists think Frosty melts because he has temporal parts (or stage-theoretic counterparts) such that one is man-shaped and frozen *simpliciter* and another is not.[5] *Relational* B-theorists think Frosty melts because he has varying relations to different regions of spacetime—he is man-shaped *at* a region of spacetime t_1 and it is not the case that he is man-shaped *at* region t_2.[6] Relationalists think nothing just is man-shaped or frozen—changing properties must be held relative to a time. This debate between A-theorists and B-theorists is also very interesting, but I won't consider it much in this paper. Instead, I will just assume the A-theory. What I wonder is, should A-theorists think

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[4] In Chapt. 4 of Sullivan ((2011), I develop an A-theory that dispenses with tense operators in favor of tensed predicates. But the operator-free A-theory is irrelevant to the arguments of this paper since it presupposes permanentism.

[5] We find versions of the temporal parts theory in Russell (1915), Quine (1950), Smart (1963), Lewis (1986), Price (1996), and Sider (2001). The view is sometimes called "four-dimensionalism."

[6] Thomson (1983), van Inwagen (1990), and Gibson and Pooley (2006). Gibson and Pooley give a relativistic gloss on what it is for an object to have a time-relational property. The views are sometimes called "endurantist B-theories."

that their view (as stated) is a *complete* account of change? If we have the fundamental tense and A-property change principles, do we have all we need to theorize about the kinds of change that occur in our world?

2 Temporaryism and permanentism

Here is a reason to think not. If you let the experiment with Frosty go on long enough, two things will happen: (1) you'll find yourself with an ever-growing mess on the floor, and (2) Frosty will be destroyed. How do we understand this last kind of change, Frosty's destruction? It seems like a change in existence. But given the univocal existence assumption, we can't describe change in existence just as a kind of A-property change. The metaphysically interesting sense of "existence" is denoted by quantifiers, not an existence predicate. So to capture changes likes creation, destruction, coming to be, and passing away, it seems A-theorists need to add a third principle to their theory of change:

> TEMPORARY EXISTENCE: Some objects change with respect to existence. In logic-ese we express this using what I will call a *bare existential sentence*: $\exists x \neg \Box \exists y (x = y)$. The sentence is bare because the only predicate it uses is absolute identity.

Call defenders of this principle *temporaryists*.[7] It should be clear that all of the B-theorists deny the temporary existence principle. If an object is in the manifold, it never changes with respect to being in that region of the manifold. So in the fundamental, unqualified sense of "exists", everything exists eternally. For B-theorists, our beliefs about temporary existence are really beliefs about temporary location in the manifold. Many B-theorists will go even further, insisting that the temporary existence principle is incoherent, because it makes use of a fundamental tense operator, and there are no fundamental tense operators.[8] But we are assuming the A-theory for present purposes, so we won't worry about this.

Consider the opposing view:

> PERMANENT EXISTENCE: Everything always exists: $\forall x \Box \exists y (x = y)$.

Defenders of this principle are *permanentists*. Permanentism strikes most philosophers with A-theoretic sensibilities as completely insane. But recently there have been some strange ideas coming out of Oxford. Timothy Williamson argues in a series of papers that the best tense and modal logics commit us to both a kind of

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[7] Williamson coins the terms "temporaryism" and "permanentism" in forthcoming work. I learned them at his 2010 Mesthene Lecture at Rutgers, "Actualism Versus Possibilism, Contingentism Versus Necessitism." We can imagine an (albeit strange) A-theorist who thinks that temporarily there are only permanent existents. He might prefer temporary existence to be expressed as $\neg \Box \forall x \Box \exists y (x = y)$. With minor amendments, all of the arguments to come should work equally well against this weaker form of the principle, and for ease of exposition, I will use the form above.

[8] Frege and Russell seem to be the founders of this camp, because they argue that the content of a "tensed" sentence or thought must refer to a proposition with an explicit time reference. See Frege (1997, pp. 331–333) and Russell (1978, p. 32).

permanentism and necessitism, the view that everything necessarily exists.[9] Many read Williamson's arguments and conclude so much the worse for his preferred tense and modal logics. No considerations from *logic* (disparaging emphasis) could ever move them to such wild ontological views. This is a kind of Moorean defense—some views are so antecedently plausible that no specialized philosophical considerations could displace them.

Moorean defenses are commonplace in a related, but harder to formalize debate in philosophy of time: the debate between presentists and eternalists. Most presentists are temporaryists who enhance the view by adding that all temporary existents are located in at most one region of spacetime, the present. Eternalists typically deny both presentist assumptions. In defending his presentism, Dean Zimmerman insists that both components are data from common sense:

> (1) Are there objective differences between what is past, present, and future?
> (2) Are present events and things somehow more "real" than those wholly in the past or future? I should like to respond "Yes," to both questions. Affirmative answers sound obvious and commonsensical, at least to me. Indeed, I suspect that, for many of us, a belief in a deep distinction between past, present, and future can be given up briefly, if at all; and then only with a mighty effort of will![10]

Ned Markosian similarly asserts a Moorean advantage for presentism:

> According to Non-presentism... non-present objects like Socrates and my future grandchildren exist right now, even though they are not currently present... I endorse Presentism, which, it seems to me is the "common sense" view, i.e. the one the average person on the street would accept.[11]

Note that presentism entails temporary existence but not vice versa.[12] There are non-presentist temporaryists as well. For example, some philosophers subscribe to the "growing block" ontology: objects and regions of spacetime come to exist, but never cease to exist.[13] If temporary existence fails, presentism and growing block are equally threatened. I am interested in the more basic debate between temporaryists and permanentists. Moorean presentists and growing blockers had better be Moorean temporaryists. But is temporary existence a Moorean fact?

3 The Moorean argument for temporaryism

When you think a philosophical view is so obviously supported by common sense that only a madman would deny it, you ought to be able to give a Moorean *argument* for the position. The argument should show that a significant body of common sense

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[9] For example: Williamson (1998, 2000b, 2002, 2010).

[10] Zimmerman (2008, p. 211).

[11] Markosian (2004, p. 48).

[12] At least neo-Quinean formulations of presentism entail the temporary existence principle.

[13] For example, Broad (1923), Adams (1989), Tooley (1997) and Forrest (2006).

beliefs favor a particular philosophical principle over its denial. A good Moorean argument for some principle P follows this four-premise recipe:

(M1) Entailment: Highly plausible, common sense beliefs entail P. More specifically: There is a set of natural language sentences M_E that express highly plausible beliefs about a certain domain, there is a set of sentences M_L that are appropriate logical paraphrases of M_E, and M_L entails P.

(M2) No Competition: The common sense beliefs are not misleadingly ambiguous (as some "common sense" tends to be). More specifically: There is no alternative set of logical paraphrases of M_E, C_L, such that C_L is at least as appropriate as M_L, and C_L doesn't entail P.

(M3) No Defeat: The common sense that supports P isn't defeated by other plausible beliefs. More specifically: There is no set of natural language sentences, D_E, such that D_E expresses beliefs at least as plausible as M_E, and the most appropriate logical paraphrase of D_E entails $\neg P$.

(M4) Mooreanism: If a philosophical principle is entailed by sentences expressing highly plausible beliefs, the principle is undefeated, and it is not threatened by competing explanations, then it is very likely true. (At least, it is irrational to believe M_E but deny P once the relevant entailments are pointed out).

(C) So P is very likely true. (Or at least it is irrational to deny it).[14]

The recipe produces desirable results when used against thoroughgoing skeptical hypotheses in epistemology. Consider a toy example:

(M1-S) Here are two articles of common sense about hands:

$$M_E \begin{cases} \textit{Sullivan knows she has hands.} \\ \textit{No mere brain in vat knows she has hands.} \end{cases}$$

Here is a plausible logical paraphrase of M_E. Let α be the proposition that Sullivan has hands:

$$M_L \begin{cases} K(s, \alpha). \\ \forall x(B(x) \rightarrow \neg K(x, \alpha)). \end{cases}$$

By contraposition, M_L entails $\neg B(s)$. So common sense about hands entails that I am not a mere brain in a vat.[15]

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[14] Lycan calls arguments of roughly this form *plausibility comparison arguments* and argues that they are the most charitable interpretation of the original Moore. See Lycan (2001). Like Lycan, I take "common sense" to mean (roughly) highly plausible for many people.

[15] If you think "no brain in vat knows she has hands" is not commonsensical enough, we can break down the assumptions even further, perhaps: "Brains in vats don't have hands" and "If Sullivan knows she has hands, then Sullivan has hands."

(M2-S) There is no more plausible way to capture the common sense about hands than M_L—at least no way that makes a difference to disproving skepticism.[16]

(M3-S) Common sense about hands is not defeated by other plausible beliefs. In particular, no epistemological principle about evidence or justification is both as plausible as common sense about hands and entails that I am a brain in a vat.

(M4-S) Assume Mooreanism (as above).

(C) It is very likely that I am not a brain in a vat. (Or at least it is irrational to believe I am a brain in a vat and maintain common sense about hands.)

This kind of argument against skepticism strikes me as convincing, and I certainly wouldn't deny the weak epistemic principle that drives it. The argument succeeds by convincing us that anti-skepticism is a component of the most plausible, consistent and complete package of beliefs we might adopt.

Many temporaryists believe they are on the same footing with their metaphysics of change. The following argument seems appealing:

(M1-T) Consider a set of sentences expressing common sense about temporary objects:

$$M_E \begin{cases} \textit{The Sun came to be.} \\ \textit{Frosty is being destroyed.} \\ \textit{I am temporary.} \end{cases}$$

This is just a representative sample of a very large, very plausible set of beliefs we have about objects being created and destroyed, coming to be and passing away. Here is a plausible logical paraphrase for M_E:

$$M_L \begin{cases} \neg\Box\exists y(y = sun) \\ \neg\Box\exists y(y = frosty) \\ \neg\Box\exists y(y = sullivan) \end{cases}$$

By existential generalization, each sentence in M_L entails TEMPORARY EXISTENCE: $\exists x\neg\Box\exists y(y = x)$.[17]

Having established the entailment, the Moorean temporaryist then makes the two defensive moves, which usually provoke the most controversy. The temporaryist insists:

(M2-T) No other paraphrase of M_E is as plausible as M_L.

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[16] There is, of course, an equally good way of expressing "No mere brain in vat knows Sullivan has hands" as $\neg\exists x(B(x) \wedge K(x, \alpha))$.

[17] "Frosty will be destroyed." and "The Sun came to be." employ more fine-grained tense operators than $\Box$ but entail sentences that obey the more general schema.

Many B-theorists deny (M2-T). They think our common sense is merely about location change.[18] But the B-theoretic paraphrase seems initially somewhat worse than the temporaryist one. Suppose you say, "Elvis has ceased to be." If I interpret this as "Elvis is located at a different region of spacetime" or "Elvis has ceased to be located now", then it seems I have missed some important content that you meant to impart. The King hasn't merely "left the building." Elvis's death *annihilated* him. At least, that is what temporaryists will contend. They'll insist that our talk of such changes is most charitably interpreted as change in bare existence. (We'll return to this in Sect. 5.)

Further, the Moorean temporaryists insist on:

(M3-T) There are no philosophical principles that are as plausible as M_E and contradict the temporary existence principle.

B-theorists and Williamson also resist this premise, and here we get into the heavy-duty metaphysics. Critics of temporary existence will usually press specialized objections from logic, semantics or physics. The trouble with these usual counterarguments—at least as far as the temporaryists are concerned—is that they depend on philosophical principles that are not obviously as plausible as the beliefs which entail temporary existence. Further, the principles often have contentious interpretations, and there are usually nearby alternative views that don't directly contradict the temporary existence principle. Hence we find the current dialectical stalemate between traditional A-theorists and their critics. For example, when Williamson and B-theorists complain that temporaryist tense logic is highly convoluted, the temporaryists counter that we already need a complicated variable-domain logic to do modal metaphysics.[19] When Williamson and B-theorists point out that names for merely past objects still seem to refer, the temporaryists argue that past names really pick out essential properties or are really disguised descriptions or Fregean senses.[20] When B-theorists point out that presentist temporaryists cannot postulate enough regions of spacetime to do the physics of motion, the temporaryists insist that facts about acceleration are really facts about abstract trajectories or ersatz times.[21] Overall, temporaryists contend that it's okay to be surprised by your semantics, tense logic, or spacetime physics. Philosophy is

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[18] For example, see Sider (2001, pp. 212–215).

[19] For versions of the logic objections, see Williamson (1998) and Sider (2001, pp. 76–78). For an overview of options for handling the objection, see Sullivan (2012).

[20] Williamson gives this argument in Williamson (1998, p. 265), though the point has been in the literature since Prior. For replies to the problem of past singular terms, see Prior (2003, pp. 16–17) and Markosian (2004). Prior thinks names for merely past or future objects are tacit descriptions. Markosian treats them as Fregean senses. Another approach treats them as names for uninstantiated essences. Inspiration for versions of the essence semantics can be found in Plantinga (1974) and Adams (1989, pp. 29–31).

[21] Sider gives a nice presentation of this problem in Sider (2001, pp. 25–35). For an extended discussion of presentist answers to the motion problem, see Zimmerman (Forthcoming).

hard! But it is not okay to believe in indestructible snowmen. An overwhelming body of highly plausible beliefs about creation, destruction, coming to be, and passing away outweigh whatever evidence the more specialized philosophical arguments offer.

Having made the requisite defensive moves, temporaryists then apply a version of the Moorean principle:

> (M4-T) If the temporary existence principle is entailed by sentences expressing highly plausible beliefs, the principle is undefeated, and it is not threatened by competing explanations, then it is very likely true. (Or at the very least, it is irrational to believe common sense about temporary objects but deny the temporary existence principle once the entailment is pointed out.)

And they conclude from the four premises:

> (C) The temporary existence principle is very likely true. (Or at least it is irrational to deny the principle and maintain common sense about Frosty, the Sun, and our own mortality.)

Call this the *Moorean argument for temporaryism*. Though it is rarely put so explicitly, I think this kind of reasoning explains the reluctance of most A-theorists to sign on to the Williamsonian project. Most A-theorists bet that the specialized philosophical considerations will not be enough to outweigh the antecedent plausibility of temporaryism.

4 Who you callin' crazy?

So much for setting up the Moorean argument. I intend to break the stalemate. As noted, critics usually focus on only the defensive moves in the Moorean reasoning. But I will argue for a stronger than usual permanentist claim—temporaryists have no right to claim that their logical paraphrase strategy best captures common sense reasoning about creation, destruction, coming to be, and passing away. I will dispute the very first premise of the Moorean argument. And if the temporaryists have not succeeded in enshrining common sense, more specialized arguments from tense logic, semantics, and spacetime physics should carry much more weight in deciding the best theory of change. My argument against the temporaryist paraphrases will take advantage of the pervasive vagueness in our ordinary beliefs about change. In brief outline: neo-Quinean A-theorists are committed to interpreting change in existence as always, necessarily a determinate matter—objects that change with respect to existence never go through a penumbral state such that it is indeterminate whether the change has happened. But the way we ordinarily speak and reason about coming to be, passing away, creation and destruction entails that these changes *do* involve penumbral states. This is a good reason for neo-Quinean A-theorists to think that our ordinary beliefs are—at best—tracking something other than change in existence. This argument is admittedly very quick. Here are the details.

4.1 Against Moorean temporaryism

To warm up, compare three views an A-theorist might have on change with respect to redness:

TEMPORARY REDNESS: There is a temporarily red object. (In logic-ese: $\exists x(R(x) \land \neg \Box R(x))$.)

DETERMINATE TEMPORARY REDNESS: Determinately something is temporarily red. (In logic-ese: $\triangle \exists x(R(x) \land \neg \Box R(x))$, where $\triangle$ is the "it is determinate that…" operator.)

NON-DETERMINATE TEMPORARY REDNESS: It is not determinate that something is temporarily red. (In logic-ese: $\neg \triangle \exists x(R(x) \land \neg \Box R(x))$.)

It seems common sense about color change does not always entail determinate temporary redness. Why? Consider a thought experiment:

AN AUTUMN'S TALE: In August, a maple leaf—Leaf—is bright green. In September, Leaf's color has started to change. Casual observers describe it as "orangey-red." It is indeterminate whether Leaf is red. *A fortiori*, it is indeterminate whether Leaf is both red and not always red. But in September, red color change is occurring. A-theorists think facts about color change are best expressed with fundamental tense and non-relational properties, along the lines of $R(leaf) \land \neg \Box R(leaf)$. Leaf is evidence we live in a world of color change. But common sense about color change doesn't always entail that *determinately* something is temporarily red. It isn't yet determinate that Leaf is red and it may never be. At best, common sense about Leaf entails some kind of non-determinate color change. If A-theorists are right, it entails non-determinate temporary redness.

In processes of property change, many objects go through a penumbral phase—a phase such that they have neither determinately acquired the new property nor do they determinately lack it. When something becomes red, it goes through such a phase.

Now consider three very similar theses about temporary existence:

TEMPORARY EXISTENCE: There is a temporary existent. (In logic-ese: $\exists x \neg \Box \exists y(x = y)$.)

DETERMINATE TEMPORARY EXISTENCE: Determinately, there is a temporary existent. (In logic-ese: $\triangle \exists x \neg \Box \exists y(x = y)$.)

NON-DETERMINATE TEMPORARY EXISTENCE: It is not determinate that there is a temporary existent. (In logic-ese: $\neg \triangle \exists x \neg \Box \exists y(x = y)$.)

It seems common sense about temporary objects does not always entail determinate temporary existence. Why? Consider another thought experiment:

A WINTER'S TALE: In February, a snowman—Frosty—exists. In March, Frosty has started to melt. Casual observers describe him as half-melted. It is

indeterminate whether Frosty is destroyed by this melting. *A fortiori*, it is indeterminate whether Frosty survives and is a temporary existent. But in March, destruction is occurring. Temporaryists think sentences about destruction are sentences about change in existence, along the lines of $\neg\Box\exists x(x = frosty)$. Frosty is evidence we live in a world of destruction. But common sense about destruction doesn't always entail that *determinately* something is destroyed or survives. It isn't yet determinate that Frosty has been destroyed and it may never be. At best, common sense about Frosty entails some kind of non-determinate destruction. If destruction is characterized by temporary existence, then common sense about Frosty entails non-determinate temporary existence.

As with color change, when something is destroyed, it seems to go through a penumbral phase—a phase such that it is neither determinate that it has been destroyed nor determinate that it survives.

Herein lies the problem for temporaryists. Non-determinate temporary redness is metaphysically possible. But given the two most common theories of vagueness and the assumptions that A-theorists already endorse, non-determinate temporary existence is not possible. All of which lays the foundation for an argument against the first premise of the Moorean argument for temporaryism:

(P1) Assume for reductio (M1-T) of the Moorean argument: a large, highly plausible body of beliefs about creation, destruction, coming to be, and passing away entail temporary existence. It is not possible that the beliefs are true and temporary existence is false.

(P2) Necessarily and always, temporary existence entails determinate temporary existence. (Given only the common assumptions in the debate and a widely held assumption about indeterminacy that I'll explain.)

(P3) There are worlds and times where objects undergo creation and destruction, come to be and pass away in just the way they do in our world. But in these worlds, determinate temporary existence is false because objects never exit the penumbral phase.

(P4) The temporaryist is committed to the common sense about creation, destruction, coming to be, and passing away necessarily and always entailing determinate temporary existence. (From P1 and P2.)

(P5) Given P3 and P4, there are worlds and times where determinate temporary existence is both true and false. Contradiction.

(C) (M1-T) is false.

We should doubt the Moorean story of what our ordinary beliefs logically entail. Or so I argue. But I must convince you of premises (P2) and (P3), which drive the objection. In Sect. 4.2, I will argue the for the necessary determinacy of temporary existence. Then in Sect. 4.3, I will describe a world where common sense about destruction is true, but determinate temporary existence is false. Some kinds of supervaluationists and epistemicists will believe they have a means for resisting my

objection at (P3). I will outline their position in Sect. 4.4. But this supervaluationist/
epistemicist "out" contradicts a package of highly plausible articles of common
sense about temporary objects. So the argument fails to establish the "no defeat"
premise.

4.2 On (P2): determinate bare existential sentences

As I have already noted, the temporary existence principle is captured with a bare
existential sentence. It has no names and no predicates besides identity. Those
who've reflected on neo-Quineanism (or, at least, have read their Sider) know that
such sentences are not susceptible of indeterminacy.[22] To see why, we must take a
closer look at the two most prominent theories of indeterminacy: supervaluationism
and epistemicism.

Supervaluationists think indeterminacy is a symptom of semantic indecision. A
term is vague when there are multiple eligible precise denotations for it and our
linguistic practices do not fix one particular denotation.[23] A sentence is indeter-
minate if and only if it has a vague term and the sentence is true on one
precisification and false on another. Suppose Homer has 1,000 hairs. Supervalu-
ationists insist that "Homer is bald" is indeterminate because the set of individuals
with at most 1,005 hairs is one candidate denotation for "bald," but so is the set of
individuals with at most 990 hairs. So the sentence is true on one precisification of
"bald" and false on the other. If a World Semantic Council were convened and
vested with the power to stipulate that "bald" denotes just one particular set of
objects, then "bald" would no longer be vague and "Homer is bald" would be either
determinately true or determinately false.

Epistemicists deny semantic indeterminacy, usually because they want to
preserve classical logic and semantics. Instead, they explain vagueness in terms of
epistemic inscrutability.[24] The denotations of *some* terms are fixed by stipulation or
in virtue of a term being highly natural (having no competing denotations). But,
according to epistemicists, the denotations of *all* other terms are fixed by exotic,
arbitrary features of our language. Because of this, speakers cannot always know the
precise denotations of their terms. On the epistemicist account, the predicate "bald"
picks out one set with a determinate extension fixed at some point in our linguistic
history. It was fixed in an arbitrary and highly contingent way. There are many
candidate denotations that easily could have been fixed, so we'll never discover the
exact boundaries. Hence "Homer is bald" has a determinate truth value, but it is one
we are not able to judge.

Critics gripe that epistemicists buy classical logic at the expense of what seems to
be an incredible semantic thesis. But this difference matters little for our purposes.

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[22] The argument of this section roughly follows a style of argument Sider uses on behalf of the temporal
parts theory of change in Sider (2001, pp. 120–139).

[23] Lewis and Fine are leading proponents of supervaluationism. See Fine (1975) and Lewis (1993). Most
supervaluationists concede that "candidate" is also vague, and so they adopt higher order supervaluations
as well. There are multiple precisifications for "candidate denotation" in a given context.

[24] See Williamson (1994).

Epistemicists and supervaluationists agree on very little, but they at least converge on a necessary condition for indeterminacy:

> MULTIPLE CANDIDATE DENOTATIONS: A sentence is indeterminate only if there are multiple candidate precise denotations for at least one of its terms and we cannot know which, if any, particular denotation is fixed by linguistic practice.

According to the two most prominent accounts, indeterminacy is partly an issue of too many options.

The temporaryist sentence doesn't meet this necessary condition, because each term has exactly one denotation. Consider each of the terms in $\exists x \neg \Box \exists y (x = y)$ in the order they appear. Neo-Quineans think existential quantifiers pick out the single, fundamental sense of "exists". Without this assumption, the change debate succumbs to deflationist objections. So there is no indeterminacy in the quantifier expressions or their attendant variables. Negation is a logical constant—no room for indeterminacy here. All A-theorists are fundamental tensers, so they think that tense operators like $\Box$ have a single denotation—no room for indeterminacy here. That leaves only identity. Is identity sometimes semantically or epistemically indeterminate? Proponents of relative identity think our *ordinary* identity predicates are highly ambiguous. But this is only because they reject any denotation for an absolute identity predicate. Fans of relative identity would be forced to reject the formulation of the A-property change principle and the usual characterizations of endurantism, both of which rely on absolute, numerical identity. So relative identity is no friend to A-theories.[25] And this exhausts the options for explaining any indeterminacy in temporary existence by appeal to multiple candidate denotations for a term.

If a sentence does not meet the necessary condition for indeterminacy, we should conclude that it is determinate. So given the most prominent accounts of indeterminacy, if temporary existence is true, it is determinately true. And A-theorists must think that the univocal existence and fundamental tense principles are necessarily true, if true. Neo-Quineans do not think existence is fundamental merely at our world—existence is fundamental at every (non-empty) world and time. A-theorists do not think it is an accident of our world that change cannot always be expressed with quantification over times—tense is an indispensable component to any way of describing a dynamic spacetime system. In any world in which temporary existence is true, this elimination argument could be run to show that it is also determinately true. Necessarily, if our Moorean beliefs about change entail temporary existence, then they entail determinate temporary existence as well.

So far I have merely taken assumptions that all A-theorists already endorse and added the multiple candidate denotations principle. Perhaps some temporaryists will try to resist this step in my argument by rejecting this necessary condition. Some philosophers believe there is a kind of vagueness that doesn't depend on multiple candidate denotations. Sojourners on this less-travelled route to indeterminacy maintain that a semantically determinate and epistemically scrutable sentence can nevertheless pick out a state of affairs such that it is indeterminate whether that state

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[25] See also Evans (2002).

of affairs obtains. Call this the theory of *ontic vagueness*.[26] Should neo-Quineans believe that $\exists x \neg \Box \exists y (x = y)$ is one of the rare and elusive cases of ontic vagueness? Here I have little to offer beyond noting that I don't see how. On certain abundant theories of properties, I grasp what it would be for a state of affairs to be indeterminate. Perhaps some non-fundamental properties like *is a snowman* have fuzzy extensions or instantiation conditions, and this means facts about snowmen are sometimes metaphysically indeterminate. But purely fundamental facts either obtain or they do not—that's just part of what it is to be a fundamental fact. Neo-Quineans think existence is fundamental. A-theorists think tense captures a fundamental aspect of change over time. So neo-Quinean A-theorists should think facts about *bare* temporary existence are fundamental. The temporary existence principle makes a kind of bare existential claim. Even if there are some sentences that express indeterminate states of affairs, neo-Quineans should not think the temporaryist principle is one of them. Perhaps the best defense of bare existential indeterminacy would claim some kind of fundamental ontic indeterminacy in temporary quantum objects. But even if it turns out we can make sense of such a proposal, our beliefs about quantum objects (or waves or fields) are certainly not the stuff of common sense.[27] These beliefs wouldn't be appropriate inputs to a Moorean argument. Thus I doubt even the limited prospects for ontic vagueness will be of any help to temporaryists who think their view is common sense. Serious advocates of ontic vagueness will find this reasoning admittedly question-begging. But I also doubt that many traditional A-theorists would welcome being forced to develop a theory of ontic vagueness to justify their views. So much for motivating premise (P2).

4.3 On (P3): common sense and indeterminacy

My defense of (P3) happily requires far less setup. We often speak and reason about processes of creation and destruction as though they are gradual and gradable, rather than sharp and binary. And because of this, there are worlds where we judge changes like creation and destruction to be occurring, but we'd never judge determinate temporary existence to be true. Consider another snowman possibility:

> *MUSHY'S TALE*: There is a world where every object of common sense is an eternal being except for a lone snowman, Mushy. Mushy determinately exists at the first moment of time (January). But in March, he begins a gradual process of melting—just like the process Frosty undergoes in March of *A WINTER'S TALE*. The world ends half-way through the melting.

Here are three natural inferences to draw from *MUSHY'S TALE*:

1. If Frosty is being destroyed in March of *A WINTER'S TALE*, then Mushy is also being destroyed in *MUSHY'S TALE*. By hypothesis, they are undergoing the *same* process.

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[26] See Barnes (2010) and Baker (2007, pp. 121–141).

[27] It isn't even clear we should quantify over quantum "objects." We've yet to settle the category for waves and fields.

2. Like Frosty's world, Mushy's world is a world where something undergoes destruction. But in the last moments of Mushy's world, it is indeterminate that Mushy is destroyed.

3. Determinate temporary existence is false for every common sense object in Mushy's world. Whatever process of change Mushy is undergoing, the change is in a penumbral phase. And by hypothesis, every other object of common sense belief always exists.

Whatever we are willing to say about Frosty's destruction, we should say about Mushy's destruction. If common sense about Mushy entails temporary existence, then it entails determinate temporary existence. In this world, common sense about Mushy's destruction is true. Determinate temporary existence is false. So common sense about Mushy cannot entail temporary existence. So common sense about Frosty cannot entail temporary existence either. And a similar objection can be given for any article of common sense about creation, destruction, coming to be and passing away. Find the object's counterpart in one of these penumbral worlds. In the penumbral world, the common sense holds true, determinate temporary existence is false, so the common sense cannot entail temporary existence. (M1-T) is false.

4.4 Precise existents and common sense about persistence

My argument against Moorean temporary existence assumes we agree that determinate temporary existence fails in Mushy's world. But perhaps the temporaryist could resist my argument by rejecting this assumption. Perhaps it is not so strange to think the indeterminate sentences which express our ordinary beliefs about Frosty and Mushy entail that there are objects with shockingly determinate creation and persistence conditions. Some temporaryists will be tempted by this line:

> *MUSHY'S TALE RETOLD*: "Mushy is temporary" and "Mushy will be destroyed" are best regimented as $\neg\Box\exists x(x = mushy)$, just as the traditional A-theorists contend. But the name "Mushy" has many very precise candidate denotations. Though we don't often acknowledge this. "Mushy" is just like "is bald." One candidate denotation—$Mushy_1$—is an object composed of exactly 10^{28} water molecules arranged in a certain pattern. $Mushy_1$ has determinate persistence conditions of some sort: perhaps there is a precise number of water molecules and precise arrangement such that loss of these molecules or slight rearrangement would cause $Mushy_1$ to cease to exist. No matter what, it is always a determinate matter whether $Mushy_1$ exists. Another candidate denotation— $Mushy_2$—is composed of exactly $10^{28} - 1$ water molecules arranged in a certain pattern. $Mushy_2$ likewise has determinate persistence conditions. Common sense about Mushy is indeterminate because we cannot know which (if any) of the candidates is the *single* denotation of "Mushy." That much of our ordinary reasoning is right. But we know at least one of the precise Mushys exists and is a denotation for "Mushy." Otherwise the common sense would be determinately false. This precise snowman has determinate persistence conditions. So we must conclude that the indeterminate common sense about Mushy entails that it is determinate that something temporarily exists, because it is determinate that one

of the precisifications of Mushy exists and either hasn't always existed or won't
always exist. (Just assume all of the candidate denotations must be temporary
objects to count as candidates). So as long as we insist on a supervaluational or
epistemicist semantics for ordinary names, we see that common sense entails
some very determinate generalizations.

The supervaluationists and epistemicists I envision think that (P3) of my argument
against the Moorean can be resisted by showing that our common sense beliefs are
really about very precise objects, though in our ordinary reasoning we gloss over this.
With the appropriate semantics in the background, the sentences expressing ordinary
beliefs entail both temporary existence *and* determinate temporary existence.

Supervaluationism or epistemicism may very well guide our semantics for names.
And it is fine for common sense, combined with logic and metaphysics, to lead us to
surprising and previously unconsidered philosophical conclusions. But the reply misses
the important point of my argument. The trouble with Mushy's world is that common
sense dictates that there are times when the change goes indeterminate. Just as there are
times when we think that a leaf is changing color but no determinate color change occurs,
so there are times when objects melt, fade, decompose, and otherwise undergo
destruction but no determinate destruction occurs. Common sense dictates that whatever
kind of change produces stars or destroys snowmen, the change is *gradual*. But
supervalutionists do not think any existing thing came to be or ceased to be gradually.
The supervaluationist and epistemicist conclusions run up against another, highly
plausible domain of common sense—the common sense about how objects come to be
and persist. For example, here are some other articles of common sense about change:

$$D_E \begin{cases} \textit{Every star came to be gradually.} \\ \textit{One snowman was gradually destroyed.} \end{cases}$$

Most of us think it foolhardy to believe that any star had precise times when it
emerged from the cosmic miasma. No snowman has a precise number of molecules
such that loss of just one more destroys him. When we speak and reason about
changes like melting and stellar accretion, we always speak and reason as if they
occur over indeterminate ranges of time. We may not think the sentences in D_E are
determinately true (afterall, the predicates "is a star" and "is a snowman" are
hopelessly vague). But the common sense claims should at least be true on some
precisifications. Here is the seemingly plausible logical paraphrase of D_E:

$$D_L \begin{cases} \forall x(Star(x) \rightarrow \neg\Box\triangle(\exists y(y = x) \vee \neg\exists y(y = x))). \\ \exists x(Snowman(x) \wedge \neg\Box\triangle(\exists y(y = x) \vee \neg\exists y(y = x))). \end{cases}$$

Again, we have just followed the temporaryist in interpreting coming to be and
destruction as pure changes in existence.[28] But supervaluationists and epistemicists

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[28] Compare to the paraphrases that would seem appropriate for "All stars gradually redden" and "One
snowman will gradually yellow." We'd regiment these as:

$$D_L \begin{cases} \forall x(Star(x) \rightarrow \neg\Box\triangle(Rx \vee \neg Rx)). \\ \exists x(Snowman(x) \wedge \neg\Box\triangle(Yx \vee \neg Yx)). \end{cases}$$

must deny these sentences. On the proposed metaphysics and semantics, *every* value for the *x* variable in every admissible extension of *Star* and *Snowman* has determinate creation and persistence conditions. So the common sense about gradual coming to be and destruction is superfalse. I submit that the common sense about stellar accretion and snowman destruction is just as plausible as the common sense about temporary objects running the original Moorean argument. We are as likely to assent to sentences like D_E as we are to M_E. So even if temporaryists use supervaluationism for names to "save" (M1-T) of the Moorean argument, they will still be forced to reject a huge swath of common sense beliefs about how objects come to be and persist. Even with a supervaluationist or epistemicist semantics for names, temporaryism has no legitimate claim to being *the* common sense view.

What is the upshot of all of this? The temporaryists contend that we should add the temporary existence principle to the A-theory because unlike permanentism, it is supported by an overwhelming body of common sense about change. But the beliefs that they appeal to all track processes of change that display indeterminacy. And once we try to account for this vagueness, we realize that many of these beliefs do not entail the proposed A-theory. Temporaryism is just another specialized philosophical principle, not a distillation from common sense. As such, it must stand or fall primarily on the philosophical advantages it confers to A-theorists. And to judge these advantages, we ought to look more closely at the permanentist alternative.

5 The minimal A-theory

I suspect that temporaryist A-theories have held their popular advantage because permanentism is improperly understood. So in these final two sections, I will lay out an alternative proposal—a way for A-theorists to explain coming to be, passing away, creation and destruction without appeal to the temporary existence principle. I call this alternative the *minimal A-theory*, because it explains all change with only appeal to property change. I will not attempt to give a Moorean argument for this proposal. I doubt any theory of change and existence enjoys a significant Moorean advantage. But I will argue that the minimal A-theory is not as crazy as you might initially suppose. And it has attractive prospects for dodging the specialized philosophical objections that have plagued more traditional A-theories.

Recall that B-theorists often explain our beliefs about temporary existence as beliefs about a kind of property change, namely change in spatiotemporal location. Relational B-theorists think objects come to be and pass away simply by having and lacking particular spatiotemporal locations. Frosty is destroyed because he has location relations with respect to February but lacks them with respect to June. Temporal parts B-theorists explain temporary existence using locations of temporal parts. An object changes with respect to existence just by having temporal parts at some regions of spacetime but lacking them at others. Frosty is destroyed because he has temporal parts at February and he lacks temporal parts in June. Both kinds of B-theory are examples of a "hidden-predicate" account of temporary existence. They insist our ordinary descriptions of objects coming to be or passing away often elide a location relation.

Minimal A-theorists take their cue from B-theorists. Most A-theorists ought to agree to the following principle of temporary location:

A-LOCATION CHANGE: Something is temporarily located at some region of spacetime. (In logic-ese: $\exists x \exists r_1 (LOC(x, r_1) \wedge \neg \Box \exists r_2 LOC(x, r_2))$.)

The principle follows the structure of the A-property change principle introduced in Sect. 1. If having location requires existence (and surely it must), temporary existence entails A-location change. But if objects can persist through the loss of all location relations, then A-location change does not entail temporary existence. The minimal A-theory I prefer endorses A-location change and permanent existence. Here is how minimal A-theorists tell the story of Frosty's demise: he first loses the property *is frozen*, then loses the property *is man-shaped*, then loses the property *is located somewhere*. He never ceases to exist.

I think our beliefs about creation, destruction, coming to be, and passing away can be adequately characterized on this model. And temporary location *is* susceptible to indeterminacy because the location relation is vague. An object is (partially) spatiotemporally located in all and only those regions in which it has a part. I assume that the objects we ordinarily believe in have vague boundaries and vague parthood relations. How are sentences like "Frosty temporarily has part A" indeterminate? Another upshot of my proposal is we need not settle the question before we move forward. It may be a kind of supervaluational indeterminacy—there are many admissible precisifications of "Frosty," "part" and/or "A" and our language has not selected any particular one. It may be a kind of epistemic indeterminacy—there is a precise but arbitrary and inscrutable denotation for at least one of these terms. Heck, it might even be ontically indeterminate. Perhaps some facts about parthood neither obtain nor fail to obtain. No matter. On any of these ways of characterizing the vagueness (or on other ways we have yet to cook up), vague parthood entails vague location. And note that all of the ways ordinary objects are created or destroyed involve making location and parthood relations more and less vague. When we judge it indeterminate whether melting Frosty has been destroyed, we judge his location relations to be vague. When we judge Frosty to have determinately ceased existing, we judge that he determinately lacks any location relations. Like other property change principles, the A-location change principle is susceptible to vagueness in just the way our ordinary beliefs would predict.

Will there still be precise cutoffs for objects being located somewhere or having parts? There might be if we understand the vagueness either supervaluationally or epistemically. Epistemicism entails that there are precise, inscrutable extensions for the relations "is part of" and "is located at." And supervaluationists will still be saddled with explaining strange generalizations like "every object has precise persistence conditions." These results still contradict our ordinary, vague beliefs about persistence, and minimal A-theorists have nothing new to add here. Depending on how we ultimately explain the phenomenon of vagueness, we must jettison some of our ordinary beliefs about change. But this also is no cause for deep concern. The argument in Sect. 4 is meant to show that temporaryists do not enjoy any *special* advantage in explaining our ordinary beliefs about change. And that case has been established.

The minimal A-theory handles common sense well enough, and on the three issues that often inspire counterarguments from B-theorists and Williamson, the minimal A-theory fares much better than presentism and growing block. There is no problem stating A-location change consistently in a standard, straightforward quantified tense logic. Nothing in our theory of singular terms entails facts about the location of the referent. And as everything permanently exists, all regions of spacetime permanently exist. So there are ample regions of spacetime to serve as the cross-time relata in theories of inertial motion and acceleration. Presentists and growing block A-theorists typically assume that time "flows" because regions of spacetime change with respect to existence. How do we account for the "flow of time" on the new theory? One and only one region of spacetime has a special, complex temporary property—it is the only region that figures in any (untensed) location relations. Other times were locations of objects or will be locations of objects, but temporarily are not locations of anything. The spirit of the old A-theories is preserved, with new tools for addressing longstanding objections.

6 Objections to the minimal A-theory

I think A-theorists have a lot to gain by going permanentist. Will more traditional A-theorists respond by paring down their account of change? Once we've dismissed the Moorean argument, the second biggest challenge facing minimal A-theorists is refuting principles that existence entails location. Many philosophers assume that if an object is ever spatiotemporally located, then it is essentially spatiotemporally located. Likewise, if an object is not spatiotemporally located, then it is essentially not spatiotemporally located.[29] These principles are what minimal A-theorists mean to resist. In this concluding section, I anticipate four objections in this spirit and argue that they are misguided. I'll present them in order of least to most complex.

6.1 "But loss of spatiotemporal location is incoherent"

OBJECTION: To account for our beliefs about change in existence, the minimal A-theorist treats spatiotemporal location as if it is just another property of objects. But it isn't. To even make sense of property change, we must presuppose that the object undergoing the change remains in spacetime. Change occurs over at least two distinct times. If an object loses spatiotemporal location, then it is no longer in time. So it cannot complete the change. So change with respect to the property *is located at some spatiotemporal region* is impossible.

REPLY: The argument is unsound. Compare it to a parody argument against temporary existence. Change occurs over at least two distinct times. If an object ceases to exist, then it is no longer in time. So it cannot complete the change. So change with respect to existence is impossible. The faulty assumption in each case is that for there to be a fact about change, there must be an object before *and* after that

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[29] Some physicalists go even further, assuming unconditionally that everything is essentially spatiotemporally located.

change that is located in spacetime. No temporaryist should grant that assumption, and no minimal A-theorist will either. All that matters for property change is that there be an object that has a certain property and that object either lacked or will lack it. Tense is not to be reduced to spatiotemporal location.

6.2 "But I don't always exist"

OBJECTION: How do we account for the original beliefs that seem to support change in *existence*? The sentence "Elvis does not exist" obviously expresses a truth. On the minimal A-theory, if an object exists, ever existed or ever will exist then it always exists. Elvis exist*ed*, but he does not always exist, no matter what his diehard fans would lead you to believe. In the same vein, I think someday I will die. When this happens, I will cease to exist. When I dwell on this fact, I feel somber. Sounds like the minimal A-theorists think I should buck up. According to the view, I am indestructible! The minimal A-theory fails to capture how important change in existence is to our ordinary beliefs. Location change is not even close to a suitable replacement.[30]

REPLY: Here I side with a common B-theorist line. Before we do much speculative metaphysics or semantics, I doubt our ordinary reasoning about "existence" locks onto the wholly unrestricted, neo-Quinean sense of the term. When we consider the sentence "Elvis does not exist," we think of it expressing the equivalent of a more qualified existence claim, something like "Elvis does not exist now." This smuggles in a temporary location relation. It expresses something equivalent to "It is not the case that Elvis exists and is located in the 2011 spacetime region." And minimal A-theorists think *this* sentence expresses a truth. Elvis is not spatiotemporally located anywhere. So he is not here now. I think this is enough to save the core of your ordinary beliefs about Elvis. It is certainly enough to ensure you won't bump into him in the supermarket.

And though you might be delighted to learn of your permanent existence, you may rightly suspect that the minimal A-theory's guarantee of survival of death is shallow. Here is how minimal A-theorists explain your attitudes toward death and other alleged "big" changes. All such attitudes are directed toward some kind of important property change: you simply don't care about bare survival. When you fear your death, you fear lacking the property *is alive*. You fear losing the properties *is able to converse with loved ones*, *is able to drink cold beer*, and *is able to view mountain sunsets*. Existence is cheap if it doesn't guarantee these other properties. *Whether* your existence metaphysically guarantees any interesting properties is another matter—one to which I now turn.

6.3 "But objects have essential properties"

OBJECTION: A location in some spacetime region or other is an essential property of many objects. Objects have other natural essential properties as well—some objects are essentially human, essentially physical, etc. Given these essences, the

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[30] An objection in this spirit (directed at B-theorists) can be found in Yourgrau (1987).

radical property change minimal A-theorists postulate is impossible for most, if not all, objects.

REPLY: We often see such essentialist assumptions at work in the objections offered against more Meinongian views of change (views that postulate two senses of "exist"). Zimmerman complains about a pseudo-Meinongian permanentist A-theory: "The... objects (the view) posits are too ghostly to be real. A painful headache cannot exist without being painful, a tanker explosion cannot exist without being violent and loud. Plato cannot exist while having neither body nor soul."[31] Prior complains about Meinongians' very thin view of existence: "this way of conceiving the relation between the real and unreal is profoundly misleading... it minimizes, or makes a perfectly arbitrary matter, the vast and stark difference that there is between the real and every form of unreality."[32] Likewise many B-theorists adopt a kind of spatiotemporal essentialism. In an early critique of Meinong, Russell writes: "We tend to ascribe existence only to whatever is intimately related to particular parts of space and time... for my part, inspection would seem to lead to the conclusion that, except for space and time themselves, only those objects exist which have to particular parts of space and time the special relation of occupying them. On a question of this kind argument seems scarcely possible."[33]

There are several responses available to minimal A-theorists. First, note that some metaphysicians don't share these essentialist sympathies, and so they simply deny the objection.[34] It is hard to find uncontroversial examples of essences. You may think a certain retriever, Ginger, is essentially a canine. I believe Ginger was once a cluster of undifferentiated cells. I believe no cluster of undifferentiated cells can instantiate the property *is a canine* with any modicum of determinacy. So Ginger was not a canine whenever she existed. Ordinary "essences" of dynamic objects like *is a canine* or *is rational* are properties that emerge from gradual processes like every other kind of property change we ordinarily encounter. If existence depends on their instantiation, we face a variant of the problem that motivates the minimal A-theory: change in existence must be sharp and determinate, but change in these properties is susceptible to vagueness. I suspect all ordinary essences face a version of this objection.

Second, there is a way to accommodate some quasi-essentialist intuitions within the framework of a minimal A-theory. Say you have strong beliefs about essentiality of origins or kind membership, and this motivates your resistance to radical property change. Or say you are skeptical of bare particulars (objects with no intrinsic properties). You think Dean is a human with certain parents who could never become a poached egg and could never exist without any intrinsic properties. There is at least one way to accommodate your belief that is consistent with a minimal A-theory. Assume that besides temporary present properties like *is a man* and *is an*

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[31] Zimmerman (1998, p. 212).

[32] Prior (1998, p. 80).

[33] Russell (1978, p. 29).

[34] For example Dorr argues for a "no brute necessities" principle—metaphysical theories should try to reduce or eliminate primitive necessity claims. Many essentialist claims are brute necessities. See Dorr (2004, 2008).

egg, there are past or future temporary properties like *was a man* and *will be an egg*. These are distinct properties that are picked out by predicates with tensed copulae.[35] We can group properties into classes. Perhaps there are classes of properties such that necessarily if an object has one of them, it has the others. One such class might be {*is human, is located in spacetime, is a non-egg*}. If Dean has the property *is human*, this entails that Dean is in spacetime and is not an egg. Another class might be {*was human, is a non-egg, will be a non-egg*}. If Dean was human, he is a non-egg and will be a non-egg. But Dean has none of these individual properties essentially. On the proposed view, ordinary "essential" properties are not properties that an object instantiates full stop whenever it exists. Rather they are properties whose instantiation are inextricably linked with other past, present and future properties. For lack of a better title, call this view *limited essentialism*.[36]

Limited essentialism preserves the core of the essentialist intuitions while remaining consistent with radical property change. The "essential" properties do not depend on existence, they depend on what other properties an object instantiates. Objects cannot change properties completely independently: property change happens all at once for entire classes. If property instantiation is vague, perhaps it is vague for the entire class. But objects are still able to persist through radical change so long as there aren't classes like {*was human, will be spatiotemporally located*}. What explains these brute connections between properties? Who knows! I leave it to those with better essentialist intuitions than mine to develop the view. All that matters is that many quasi-essentialist connections pose no threat to the theory of change on offer.

6.4 "But you said you were a Quinean!"

OBJECTION: This last objection is methodological. The minimal A-theory seems like easy ontology, where "easy" is meant as a pejorative. Easy ontologists are too permissive—they lack a principled way of reducing ontological commitments. What's the point of being an anti-deflationist or a neo-Quinean if you believe in all sorts of objects with no causally efficacious properties? An upshot of "thicker" approaches to ontological commitment is that they can sometimes enforce an intimate relationship between our metaphysics, a naturalist-friendly epistemology, and the logical structure of our best theories. The logical structure of a candidate metaphysical theory entails that a certain set of entities exist *and* have interesting properties like spatiotemporal location. We then investigate the theory by searching for independent evidence of these existents. This simple epistemology drops out of any theory that allows objects to persist without having any causally efficacious properties. But now how do we tell if our metaphysical theories are any good? Despite their professions of neo-Quineanism, minimal A-theorists sound downright Meinongian in what they suppose exists. To paraphrase Quine, the minimal A-theory leaves us wondering how many merely past fat men there are.[37]

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[35] For details on this proposal, see Sullivan (2011).

[36] I am grateful to Dean Zimmerman for suggesting the limited essentialist view and still uncertain as to whether he could become a poached egg.

[37] Quine (1953, p. 4).

REPLY: Some metaphysicians don't mind being easy. They admit a single, privileged denotation for quantifiers and agree to all or almost all of the methodological considerations that commonly motivate neo-Quineans. They just think our best theories entail there are many, many objects because (of course!) there are truths about tables, chairs, properties, simples, and fictional detectives. So Jonathan Schaffer urges, "contemporary metaphysics, insofar as it has been inspired by the Quinean task, has confused itself with trivialities. . . the deep questions about numbers, properties, and parts (inter alia) are not *whether* there are such things but *how*."[38] Fine and Hofweber are similarly deferential to our ordinary use of quantification, but they deny that questions of Quinean ontological commitment are of primary importance for metaphysics.[39] There are options here for advocates of the minimal A-theory.

Still, I think minimal A-theorists should be wary of running with the easy crowd. And it is a mistake to think we must, merely because we deny that existence entails location. The minimal A-theory suffers unjustly from guilt by association. As far as I can tell, until now only Williamson comes close to proposing a minimal A-theory, and Williamson always presents his views on time alongside his account of necessary existents.[40] For Williamson, respect for the simplest, strongest modal logic requires holding that for every possible object the world could contain, there is an object with a corresponding modal property. If there could be a talking alligator, then something is possibly a talking alligator. Williamson's modal metaphysics seems suspiciously easy because we tend to be quite lenient with possible properties and objects.

But debates about time and tense logic are often too closely linked with debates about modality and modal logic. The epistemology of alternate possibilities is woolly and controversial. The epistemology of other times (at least past ones) is familiar and secure. We know what past times were like, and we know that we live in a world with some kind of change. It is not so transparent what modal structure the world has, if any. Which is to say, minimal A-theorists need not *automatically* endorse a certain modal metaphysics. And we need not be lenient with dynamic properties and objects. All the minimal A-theory requires is that whatever existed, exists, or will exist be admitted to always exist. It is still an open question whether dinosaurs ever existed or whether there were merely simples arranged dinosaur-wise. Questions of mereology may still be "hard." And it is still an open question what the changing properties are. True, the epistemology of these questions is more difficult than it may have been under the more naturalist variants of Quineanism. But nobody ever said this job was easy.

There is one way a minimal A-theorist may be forced to take on at least some of Williamson's possibilia. Suppose a minimal A-theorist wanted to combine her view with an open-future theory. At present, it is possible that in 2012 Barack and Michelle Obama will have a third daughter and name her "Lisa." And it is possible they won't. If Lisa Obama does not determinately exist in 2011, then it is impossible that she will

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[38] Schaffer (2009, p. 362). Emphasis is mine.

[39] Fine (2009) and Hofweber (2009a).

[40] The account is developed most fully in a trilogy of papers: Williamson (1998, 2000a, 2002).

exist in 2012, given the minimal A-theory. So Lisa Obama determinately exists (albeit minimally) in 2011. But imagine 2012 comes and goes and the Obamas decide that Sasha and Malia are enough. If this possibility is realized, then Lisa Obama always was, is, and will be a merely possible girl. So open-future minimal A-theorists need mere possibilia corresponding to the objects on any unrealized branches that they countenance. Open-future minimal A-theorists must be more permissive than their determinist counterparts. All this shows is what we'd expect: our ontological commitments get messy depending on what assumptions about temporal structure we add to our A-theory. Don't like mere possibilia? Find a new understanding of the openness of the future. And mere possibilia aren't obviously worse than the possible branches some open future A-theorists already endorse.

One further issue, admittedly, will be surprisingly easy. Given the minimal A-theory, there is no perfectly general, metaphysically interesting issue of persistence. There is no point in continuing to search for perfectly general persistence conditions for objects. Any object that ever exists is guaranteed to persist. For some, this might seem like grounds for criticizing the minimal A-theory. To me, it seems more an occasion for celebration. We've had a terribly difficult time specifying persistence conditions for objects. These difficulties have lead some to a kind of identity mysticism—the view that there simply are no informative criteria for diachronic identity.[41] But if the minimal A-theory is right, there is no deep mystery to persistence as such. All along we should have been restricting our attention to issues surrounding property supervenience or framing persistence debates as epistemological puzzles. The really hard questions are rather whether a ship can gradually lose its proper parts while continuously instantiating the property *is a ship*. And though we may see a ship before us, we might legitimately be confused as to whether it is the same ship that sailed centuries ago or whether it is a different one. Finding principled answers to these more restricted questions of persistence is challenge enough for A-theorists.

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[41] For example, Lowe and Merricks think that objects come into and out of existence, but it is a primitive matter when they begin and when they end. See Merricks (1998) and Lowe (1996, pp. 41–43).

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