Three Medieval Aristotelians on Numerical Identity and Time

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1. Introduction

There are at least two different puzzles about a person's identity over time. To help distinguish them, let's focus on a particular person: Peter. The first puzzle presupposes that Peter can be numerically identical through time, and asks why he can survive some changes, but not others. For example, it asks why he can survive a suntan and a haircut, but perhaps not the destruction of his body, the erasure of his memories, or the transformation of his personality. This puzzle relies on intuitions about the changes Peter can survive, and the challenge is to articulate a principle that explains them. This puzzle is frequently discussed by Aquinas, Ockham, Buridan, and other medieval Aristotelians.

The second puzzle is about how it is possible for *anything*, including Peter, to survive even the *slightest* change, even a suntan or haircut. Unlike the first puzzle, this puzzle does not rely on intuitions about specific changes. It relies on the Indiscernibility of Identicals, a general principle that many contemporary philosophers regard as an obvious truth,[1] if not a logical truth.[2] There are many formulations of the Indiscernibility of Identicals. I think the puzzle is clearest when it is formulated:

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[1] See, e.g., Theodore Sider, *Four-Dimensionalism: An Ontology of Persistence and Time* (Oxford: Clarendon Press, 2001), 4.

[2] See, e.g., Alfred Tarski, *Introduction to Logic and to the Methodology of the Deductive Sciences* (New York: Oxford University Press, 1994), 50 (first published in 1941).

A1. If x and y are numerically identical, and x instantiated a property at a time, there is no time at which y instantiated a contrary property.

Here is the puzzle: Suppose that Peter woke up pale in the morning, and went to sleep brown at night, thanks to a long day outside. Let *Morning Peter* be the person who was white, and let *Night Peter* be the person who was brown. The following claims seem mutually inconsistent with the Indiscernibility of Identicals:

B1. Morning Peter instantiated whiteness in the morning, and Night Peter instantiated a contrary property at night (namely: brownness).
C1. Morning Peter and Night Peter are numerically identical.

The challenge is to say which claim is false. Contemporary metaphysicians take this puzzle to have profound implications for our understanding of numerical identity, properties, instantiation, time, and change.[3]

Unlike the first puzzle, the medieval Aristotelians rarely, if ever, address this second puzzle. Still, it is worth considering how they would respond, given its implications for our understanding of their views of these other topics. So, how would they respond?

I will argue that Aquinas, Ockham, and Buridan would reject (A1), the Indiscernibility of Identicals. My conclusion should be of interest to both historians and contemporary metaphysicians. Let's start with historians. First, it would clarify some of these authors' most important claims about numerical identity, properties, etc., such as Buridan's claims about different kinds of numerical identity. Second, it would explain why these authors rarely, if ever, address the second puzzle. To them, it would not have seemed like a genuine puzzle. Perhaps this should not be too

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[3] For surveys, see Michael J. Loux, *Metaphysics: A Contemporary Introduction* (New York: Routledge, 1998), ch. 6; Sally Haslanger, "Persistence Through Time," in M. J. Loux and D. W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics* (Oxford: Oxford University Press, 2003), 315–54; Ryan Wasserman, "The Problem of Change," *Philosophy Compass* 1 (2006), 48–57; Roxanne Marie Kurtz, "Introduction to Persistence: What's the Problem?" in S. Haslanger and R. M. Kurtz (eds.), *Persistence: Contemporary Readings* (Cambridge, MA: MIT Press, 2006), 1–26; Theodore Sider, "Temporal Parts," in T. Sider, J. Hawthorne, and D. W. Zimmerman (eds.), *Contemporary Debates in Metaphysics* (Malden, MA: Blackwell, 2007), 241–62.

surprising. Whereas the first puzzle depends on intuitions about survival, the second puzzle depends on a principle about properties, instantiation, and time—notions that are incredibly abstract and about which there is considerable disagreement. Without philosophical training, it would be hard to even understand the Indiscernibility of Identicals. We thus shouldn't be surprised to discover philosophical traditions in which it did not seem true. Third, there are parallel principles involving other, related concepts, such as part and predication. Explaining why these authors might accept these other principles while rejecting the Indiscernibility of Identicals will clarify the interrelations between all these concepts. Fourth, historians of philosophy sometimes use 'Indiscernibility of Identicals' as a label for many different principles, and, perhaps as a result, sometimes lump together principles that should be distinguished.[4] By showing that these authors would accept some but not all of these principles, I hope to illustrate the importance of clarifying what one means by 'Indiscernibility of Identicals.'

My conclusion should also interest contemporary metaphysicians. First, some contemporary metaphysicians believe that numerical identity is so straightforward that there can be *no* intelligible disagreements about it. As Lewis puts it, "identity is utterly simple and unproblematic."[5] These philosophers grant that there can be intelligible disagreements about which things are numerically identical, at least when those things are described in ways that do not indicate whether they are identical. For example, there can be an intelligible disagreement about whether the author of *Romeo and Juliet* is identical to William Shakespeare of Stratford-upon-Avon. But these are not disagreements about numerical identity itself. There is a helpful contrast with beauty, truth, justice, and

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[4] This is true even of the very best historians. For example, Pasnau sometimes uses 'Indiscernibility of Identicals' for a principle about properties, such as (A1), and other times for a principle about parts, such as what I'll label (A5). Contrast p. 697 with pp. 62, 139, 143, 274 of *Metaphysical Themes 1274–1671* (Oxford: Clarendon Press, 2011). Andrew Arlig seems to lump together a principle about properties, similar to (A1), and a principle about predicates, such as what I will label (A3). See "Identity and Sameness," in R. Cross and J. T. Paasch (eds.), *The Routledge Companion to Medieval Philosophy* (New York: Routledge, 2021), 127. I will argue that commitments to (A3) and (A5) do not commit one to (A1).

[5] David Lewis, *On the Plurality of Worlds* (Oxford: Blackwell, 1986), 192. See also p. 99 of John Hawthorne, "Identity," in M. J. Loux and D. W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics* (Oxford: Oxford University Press, 2003), 99–130.

God. There are not only disagreements about which items are beautiful, which claims are true, which laws are just, and whether God exists, but also about the nature of beauty, truth, justice, and God. Many contemporary metaphysicians believe that numerical identity is different, in that we can disagree only about which things are identical, not about identity itself. My conclusion challenges this belief, because, if I am right, they disagree with contemporary metaphysicians not only about identity itself, but about one of the principles that is said to be obviously true.

Second, my conclusion would help motivate similar responses by contemporary metaphysicians. I am aware of only five contemporary metaphysicians who respond to the puzzle by rejecting the Indiscernibility of Identicals.[6] Most regard it as so obvious that it does not even require justification. But if prominent medieval Aristotelians would have rejected it, perhaps contemporary philosophers should pay more attention to it. At the very least, they should be asked to justify their reliance on it.

Finally, by clarifying how the views of Aquinas, Ockham, and Buridan differ from the views of contemporary metaphysicians, I hope to provide a more systematic understanding of both traditions, as well as an outside perspective to assess their strengths and weaknesses. That should interest historians as well as contemporary metaphysicians.

I am focusing on Aquinas, Ockham, and Buridan because they are three of the most prominent medieval Aristotelians. I am excluding Scotus because his views on properties (as *universals*) and individuation (as involving *haecceities*) make it hard to group him together with the others at several key junctures in my argument. I will return to him at the end of the paper, because there is especially compelling textual evidence that he would reject the Indiscernibility of Identicals, in part because of his views about properties and individuation. While I believe that my conclusion extends to most other philosophers working in this tradition, that is too ambitious a claim to establish here.

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[6] In particular, see George Myro, "Identity and Time," in R. E. Grandy and R. Warner (eds.), *Philosophical Grounds of Rationality: Intentions, Categories, Ends* (Oxford: Clarendon Press, 1986), 383–409; Donald L. M. Baxter, "The Discernibility of Identicals," *Journal of Philosophical Research* 24 (1999), 37–55; Tobias Hansson, "The Problem(s) of Change Revisited," *Dialectica* 61 (2007), 265–74; Pablo Rychter, "There Is No Puzzle About Change," *Dialectica* 63 (2009), 7–22; Thomas Hofweber, "The Meta-Problem of Change," *Noûs* 43 (2009), 286–314.

I am not the first to suggest that some medieval Aristotelians would reject the Indiscernibility of Identicals. In a brief discussion, Stump suggests that Aquinas would reject it, due to his theory of change.[7] But she does not offer any arguments or anticipate any objections. For her, it is a peripheral issue. Adams and King convincingly argue that Scotus would reject an even weaker principle, and thus would reject the Indiscernibility of Identicals.[8] But because Scotus's reasons are idiosyncratic, they do not generalize to the other authors.[9]

In the next section I will consider what Aristotle says about this and related topics, in part to contextualize later claims about Aquinas, Ockham, and Buridan, but also to distinguish the Indiscernibility of Identicals from four related principles (Section 2). In the following section (Section 3) I will clarify our formulation of the Indiscernibility of Identicals and explain why it might seem like an obvious truth to most contemporary philosophers (Section 3). The remaining sections (Sections 4 and 5) argue for the conclusion that Aquinas, Ockham, and Buridan would reject the Indiscernibility of Identicals.

2. Aristotle

Aristotle writes in the *Categories*:

> It seems most distinctive of substance that what is numerically one and
> the same is able to receive contraries.... For example, an individual

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[7] Eleonore Stump, *Aquinas* (New York: Routledge, 2003), 44–46.

[8] Marilyn McCord Adams, "Universals in the Early Fourteenth Century," in N. Kretzmann, A. Kenny, and J. Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy* (New York: Cambridge University Press, 1982), 416–17; Peter King, "Scotus on Metaphysics," in T. Williams (ed.), *The Cambridge Companion to Duns Scotus* (Cambridge: Cambridge University Press, 2003), 22.

[9] Given how Brower interprets Aquinas, we would expect Aquinas to reject the Indiscernibility of Identicals. Brower interprets Aquinas so that, as long as an object has the same essential properties (in Brower's terminology: the same *primary* properties), there can be changes in its inessential properties (in Brower's terminology: its *derivative* properties). This seems to entail that Aquinas would reject the Indiscernibility of Identicals in favor of a principle about essential properties, such as what I will label (A4). That being said, Brower does not make any claims about Aquinas's attitude toward the Indiscernibility of Identicals. See Jeffrey E. Brower, *Aquinas's Ontology of the Material World: Change, Hylomorphism, and Material Objects* (Oxford: Oxford University Press, 2014), 91–100.

man—one and the same—becomes pale at one time and dark at another, and hot and cold, and bad and good.

(Ch 5, 4a10–11 and 18–21;[10] see also *Physics*, Bk 1, 190a32–b16)

There are many possible interpretations. But one *could* interpret Aristotle as saying that it is distinctive of an individual substance, such as Peter, to be numerically identical over time, despite instantiating different properties at different times.[11] In the *Categories*, Aristotle does not say in virtue of what Night Peter would be the same substance as Morning Peter, rather than a numerically distinct substance. That is, he does not respond to the first puzzle. But one *could* interpret him as saying in the *Metaphysics* that forms are individual, so that substance *x* and substance *y* are numerically identical if and only if they have the same form.[12] In that case, it would be natural to expect Aristotle to say that a substance is numerically identical over time, despite instantiating different properties, in virtue of its form. What is Peter's form? In both the *Metaphysics* and *De Anima* he seems to say that the form of a human being is his soul, and that it differs from the souls of animals and plants in that it gives him intellectual powers (*De Anima*, Bk 2, 412a18–26, 414a29–415a12; see also *Metaphysics* Zeta, Ch 10, 1035b14–18). In that case, it would be natural to expect Aristotle to say that Peter is identical

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[10]   Translation by J. L. Ackrill in J. Barnes (ed.), *The Complete Works of Aristotle: The Revised Oxford Translation* (Princeton, NJ: Princeton University Press, 1984), 7.

[11]   This interpretation could be resisted on two grounds. First, it could be denied that "numerically one and the same" means numerical identity. In support of this interpretation, consider that Aristotle elsewhere says that Callias and Socrates are the "same in being" (*Metaphysics* Zeta, Ch 8, 1034a5–9), and he is presumably not saying that they are numerically identical. For discussion, see Michail Peramatzis, "Sameness, Definition, and Essence," *Studia Philosophica Estonica* 7 (2014), 142–67. A challenge for this interpretation is to explain passages like, "we call a thing the same if it is one both in formula and in number, e.g., you are one with yourself both in form and in matter" (*Metaphysics* Iota, Ch 3, 1054b3–13). Second, it could be insisted that he is talking about what is distinctive of a secondary substance, or universal. A challenge for this interpretation is to explain why he says that the relevant kind of substance is pale at one time, dark at another. Universals presumably do not change color.

[12]   This is how Irwin, and Frede and Patzig interpret him. See Terence Irwin, *Aristotle's First Principles* (Oxford: Oxford University Press, 1988), ch. 12; Michael Frede and Günther Patzig, *Aristoteles, "Metaphysik Z": Text, Übersetzung und Kommentar* (Munich: C. H. Beck, 1988), ch. 8. For overviews of this topic, see Mary Louise Gill, "Aristotle's Metaphysics Reconsidered," *Journal of the History of Philosophy* 43 (2005), 223–41, sec. 3; S. Marc Cohen and C. D. C. Reeve, "Aristotle's Metaphysics," in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2020), https://plato.stanford.edu/archives/win2020/entries/aristotle-metaphysics/, sec. 10.

over time, despite instantiating contrary properties, so long as his intellective soul remains. So interpreted, Aristotle would reject the Indiscernibility of Identicals. It is possible that this is how Aquinas, Ockham, and Buridan interpreted him.

It is worth mentioning three other principles that Aristotle might accept as well as one that he might reject. First, he might accept a principle that is restricted to indiscernibility *at a time*:

A2.   If x and y are numerically identical, and x instantiates a property at a time, then y does not instantiate a contrary property at that time.

This principle allows Morning Peter and Night Peter to be numerically identical, even though they instantiated contrary properties, because they did not instantiate those properties at the same time. Morning Peter was white in the morning, not at night.

There is evidence that Aristotle accepts this principle. He says that the most certain of all principles is that "the same attribute cannot *at the same time* belong and not belong to the same subject in the same respect" and that this implies that "it is impossible that contrary attributes should belong *at the same time* to the same subject."[13] He thus seems to accept a principle that links identity at a time to indiscernibility at a time.

Second, Aristotle might still accept an unrestricted principle that is about predicates, rather than properties:

A3.   If x and y are numerically identical, then x satisfies a predicate if and only if y satisfies that predicate.

According to this principle, if Morning Peter and Night Peter are numerically identical, then Morning Peter satisfies the predicate 'was white in the morning' if and only if Night Peter satisfies the predicate 'was white in the morning.' Or, equivalently, 'Morning Peter was white in

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[13] *Metaphysics* Gamma, Ch 4, 1005b19–20 and 26–27, translation by W. D. Ross in *The Complete Works of Aristotle*, 46.

the morning' is true if and only if 'Night Peter was white in the morning' is also true.

There is evidence that Aristotle would accept this principle. He says that when things are identical, "all that is predicated of the one should be predicated also of the other."[14]

Third, Aristotle might still accept a principle that is restricted to a thing's *essential* properties:

A4.   If x and y are numerically identical, and x instantiated an *essential* property at a time, there is no time at which y instantiated a contrary property.

This principle allows Morning Peter and Night Peter to be numerically identical, even though they instantiated contrary properties, because white and brown are not among their essential properties. In contrast, if humanity is an essential property of Peter, he cannot be identical to a dog, rock, or anything else that is not human.

There is evidence that Aristotle would accept this principle. 'Essential property' is our word for his *to ti ēn einai*, more literally "what it is to be that thing." It is unclear what it would mean for a thing to lack "what it is to be Peter" and yet still be Peter.

Aquinas, Ockham, and Buridan seem to accept these principles as well. Some contemporary philosophers might think that anyone who accepts (A2) and (A3) should also accept the Indiscernibility of Identicals. I will return to this issue later (Section 6). I will argue that, given their other commitments, Aquinas, Ockham, and Buridan would not regard these principles as motivation for the Indiscernibility of Identicals. In that case, they can accept them while rejecting the Indiscernibility of Identicals.

Finally, let's consider a principle that is restricted to a thing's *parts*:

A5.   If x and y are numerically identical, and p is a part of x, there is no time at which p is not a part of y.

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[14] *Topics*, Bk 7, 152b27–28, translation by W. A. Pickard-Cambridge in *The Complete Works of Aristotle*.

This principle is known as "mereological essentialism."[15] It implies that nothing can gain or lose parts. It thereby gives rise to another puzzle of identity over time. Morning Peter would just need to eat a peanut or lose an eyelash.

There is evidence that Aristotle would reject mereological essentialism. Growth and decay are at the center of his view of the natural world (*Physics*, 412a15), and if nothing can gain or lose parts, then, strictly speaking, nothing can grow or decay. Aquinas's attitude toward mereological essentialism is moot because for him it is a vacuous principle—he denies that substances have actual parts. He would thus deny that Peter gains or loses a part when he eats a peanut or loses an eyelash.[16] Ockham's attitude toward mereological essentialism is muddier, because while he makes similar-sounding claims, he also seems to think that growth and decay are possible.[17] As we will see, Buridan's attitude toward mereological essentialism is similarly opaque.

Mereological essentialism and the Indiscernibility of Identicals are hard to pull apart. At least in principle, one could accept mereological essentialism while rejecting the Indiscernibility of Identicals. One would just need to think that it is possible to change one's properties without changing one's parts. Perhaps Peter can change his location, color, and shape merely by walking outside, standing under the sun, and bending his arm, and thus without gaining or losing parts. Likewise, one could reject mereological essentialism while accepting the Indiscernibility of Identicals. One would just need to think that it is possible to change one's parts without changing one's properties. Perhaps a part of Peter could be replaced by an indistinguishable part without changing his location, color, shape, etc. But whether it is ultimately tenable to accept one of these principles while rejecting the other is a complicated issue. My strategy is to set mereological essentialism aside and focus exclusively on the Indiscernibility of Identicals. Once we have established that our

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[15] Roderick M. Chisholm, "Parts as Essential to Their Wholes," *The Review of Metaphysics* 26 (1973), 581–603.

[16] Pasnau, *Metaphysical Themes*, 690–2.

[17] See, e.g., *Ordinatio*, Book 4, Question 13. For commentary, see Calvin G. Normore, "Ockham's Metaphysics of Parts," *The Journal of Philosophy* 103 (2006), 737–54; Pasnau, *Metaphysical Themes*, 682–84 and 689–92.

authors would reject the Indiscernibility of Identicals, we will be in a better position to consider their attitude toward mereological essentialism, though that is not a question we will pursue here.

3. Indiscernibility of Identicals

Here again is our formulation of the principle:

A1.   If x and y are numerically identical, and x instantiated a property at a time, there is no time at which y instantiated a contrary property.

There are two notions at the center of this principle: property and instantiation. These notions are sometimes understood narrowly, so that denying that properties exist outside of space and time (as *universals*) is enough to deny that there are properties, and denying that properties can be instantiated by more than one object is enough to deny that properties are instantiated. But let's understand these notions as broadly as possible, so that it is trivial that Peter's whiteness is a property of Peter, and that Peter instantiates that property. This will give us a framework general enough to accommodate other views, including views that imply that motions, shapes, colors, etc., exist only at some times and locations (as *tropes*), and are instantiated by at most one object. For example, it will accommodate the view that Peter's whiteness exists only on Peter's skin, and only while Peter is white.

This is not the canonical formulation of the Indiscernibility of Identicals. The canonical formulation is:

A6.   If x and y are numerically identical, x instantiates a property if and only if y instantiates that property.

We are modifying this formulation in two ways. First, our formulation is about contrary properties. This simplifies the puzzle because the inconsistency between Morning Peter's moving and Night Peter's resting is then immediate. This first modification yields:

A7.   If x and y are numerically identical, and x instantiates a property, y does not instantiate a contrary property.

Examples of contrary properties include motion and rest, red and green, and weighing less than 10 kg and more than 10 kg. Contrary properties exclude each other, so that, at a minimum, they cannot be instantiated by the same object at the same time. They also belong to the same general "family" of properties. For this reason, being a prime number and being in motion are not contrary properties, even though they cannot be instantiated by the same object. While the notion of a contrary property is open to further analysis, that motion and rest are paradigmatic examples should be enough.

Why should (A7) count as a formulation of the Indiscernibility of Identicals? If y instantiates a contrary property (e.g., rest), it does not also instantiate x's property (e.g., motion), because contrary properties exclude each other. (A7) is thus entailed by the canonical formulation. Establishing the converse, that the canonical formulation entails it, would take more work. Let's just note that, even if it does not, it would merely follow that this formulation is weaker, and thus harder to reject.

The second modification is about when the properties are instantiated. (A7) is ambiguous. Disambiguated in one way, it is equivalent to (A1), the principle that gives rise to the puzzle. Disambiguated in another way, it is equivalent to (A2), a principle that, as noted, does not give rise to a puzzle.

It is not worth arguing about how to disambiguate the Indiscernibility of Identicals. Like contemporary philosophers, we are interested in a principle that gives rise to a puzzle about identity over time, and thus in a principle that is equivalent to, or at least sufficient for, (A1). We are trying to establish that the medieval Aristotelians would reject that principle. For our purposes, then, this is the principle at issue, and 'Indiscernibility of Identicals' is the standard label for it among contemporary philosophers.

As noted above, there are not many contemporary metaphysicians who would reject the Indiscernibility of Identicals, even when it is formulated in this way. To understand why, let's consider eternalism, a popular view about time. According to eternalists, times are like locations. Just as minerals exist below us in the ground and clouds exist above

us in the sky, eternalists claim that our ancestors exist before us in the seventeenth century and our descendants exist after us in the twenty-second century. Eternalists describe reality as four-dimensional, with things distributed across all four dimensions, including the fourth, temporal dimension. If you ask an eternalist what exists in the most expansive sense of 'exists,' they will list objects that exist in the past, present, and future. According to them, terms like 'past,' 'present,' and 'future' indicate when something exists in relation to when we exist, just as terms like 'here' and 'there' indicate where something exists in relation to where we exist. These terms do not indicate which objects exist and which objects don't exist.

For an eternalist, the puzzle of identity over time is that our reasons for thinking that objects at different *locations* are non-identical also seem like reasons for thinking that objects at different *times* are non-identical. Let *Downstairs Peter* be a pale person who is downstairs, and let *Upstairs Peter* be a tanned person who is simultaneously upstairs. One reason for thinking that Downstairs Peter is not identical to Upstairs Peter is that Downstairs Peter instantiates *whiteness* and Upstairs Peter instantiates *brownness*. This might not be the only reason for thinking that Downstairs Peter is not identical to Upstairs Peter. But it seems like a sufficient reason. From an eternalist perspective, the puzzle of identity over time is that we seem to have just as good a reason to think that Morning Peter is not identical to Night Peter, namely that Morning Peter instantiated *whiteness* and Night Peter instantiated *brownness*. This seems like just as good a reason, because, from an eternalist perspective, variation across reality's three spatial dimensions is relevantly like variation across its fourth, temporal dimension. For the eternalist, if the mere fact that Downstairs Peter and Upstairs Peter have different colors is enough to establish that they are distinct people, the mere fact that Morning Peter and Night Peter had different colors is enough to establish that they are distinct people. Similarly, if the mere fact that Downstairs Peter and Upstairs Peter are in different locations is enough to establish that they are distinct people, the mere fact that Morning Peter and Night Peter are at different times is enough to establish that they are distinct people.

This is not the only view about time. The main alternative is presentism, the view that objects exist only in the present. I will say more about

presentism later, and why the Indiscernibility of Identicals might seem obviously true to presentists. For now, I just wanted to give one of the reasons why so many contemporary philosophers regard this principle as obviously true.

4. Rejecting the Indiscernibility of Identicals

There is a straightforward argument for our conclusion: Aquinas, Ockham, and Buridan are committed to the numerical identity and discernibility of Morning Peter and Night Peter, and these commitments are mutually inconsistent with the Indiscernibility of Identicals. In other words, they are committed to (B1) and (C1), and these commitments are mutually inconsistent with (A1).

Here are some representative passages:

> The human body, over one's lifetime, does not always have the same parts materially. . . . Materially, the parts come and go, and this does not prevent a human being from being numerically one from the beginning of his life until the end [as long as his intellective soul is the same].
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> (Aquinas, *Summa contra gentiles*,
> Book IV, Question 81, Par. 4157)[18]

> Someone is certainly said to be numerically the same human being, because the intellective soul, which is a simple form, remains in the whole and in each part. (Ockham, *Sentences*, Book IV, Distinction 13)[19]

> Speaking unconditionally and without qualification, a human being remains the same from the start of his life up to the end, because we are accustomed to denominate a thing unconditionally and without qualification on the basis of its most principal part [namely: the intellective soul].
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> (Buridan, *Quaestiones super libros De generatione
> et corruptione Aristotelis*, Book I, Question 13)[20]

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[18] Translation by Pasnau in *Metaphysical Themes*, 691.
[19] *Opera theologica* VII: 261, translation by Pasnau in *Metaphysical Themes*, 694.
[20] Translation by Pasnau in *Metaphysical Themes*, 697.

According to Aquinas, Ockham, and Buridan, a person is numerically identical over time from birth (if not earlier) until death (if not later). This implies that Morning Peter and Night Peter are numerically identical, even if Morning Peter was white and Night Peter was then brown. Thus, they seem committed to (B1) and (C1).

But this might seem too quick. Recall that almost all contemporary philosophers reject either the identity or the discernibility of a person over time, i.e., (B1) or (C1). This is not a coincidence. Almost all contemporary philosophers believe that, if we want to be coherent, these are our only options. This might make one reluctant to interpret Aquinas, Ockham, and Buridan as committed to (B1) and (C1). One might prefer to interpret them as speaking loosely in these and other passages. Perhaps, strictly speaking, their views are incompatible with (B1) or (C1).

To help reassure ourselves that they really are committed to the identity and discernibility of people over time, let's consider the most prominent contemporary responses to the puzzle of identity over time: relationism, adverbialism, exdurantism, and perdurantism. Listing the reasons why Aquinas, Ockham, and Buridan would not accept these proposals will not only help establish that they really are committed to the identity and discernibility of people over time, but also help us appreciate how deeply rooted these commitments are in their metaphysics. Let's then consider subdurantism, a proposal that is sometimes described as a response to the puzzle, but is not.

a. Relationism

Relationists would deny the discernibility of Morning Peter and Night Peter.[21] They would first insist that *whiteness* and *brownness* are relations to times. In that case, to say that someone instantiates *whiteness* is to say that he stands in the *whiteness* relation to a time. They would then insist that Morning Peter and Night Peter stand in the same relations to the same times. In particular, when Morning Peter was walking, he stood in

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[21] See, e.g., D. H. Mellor, *Real Time II* (London: Routledge, 1998), ch. 8.

the *whiteness* relation to the morning, and in the *brownness* relation to the night. Likewise, when Night Peter was resting, he stood in the *whiteness* relation to the morning, and in the *brownness* relation to the night. It might help to make a list:

> Morning Peter bears the *whiteness* relation to the morning.
> Morning Peter bears the *brownness* relation to the night.
> Night Peter bears the *whiteness* relation to the morning.
> Night Peter bears the *brownness* relation to the night.

Relationists would conclude that Morning Peter and Night Peter instantiate all the same properties. They would also conclude that these properties are not contraries. Just as bearing the *taller than* relation to one person is compatible with bearing the *shorter than* relation to another person, bearing the *whiteness* relation to the morning is compatible with bearing the *brownness* relation to the night.

Aquinas, Ockham, and Buridan would reject relationism. First, according to relationism, Peter changes by standing in different relations to earlier times and later times, e.g., by standing in the *whiteness* relation to the morning and the *brownness* relation to the night. Because Peter always stands in the same relations to the same times, he always has the same properties.[22] In contrast, according to Aquinas, Ockham, Buridan, and other medieval Aristotelians, Peter changes by gaining or losing properties. Peter is white at one time, and not white at another time, because he loses the property of being white.[23] Thus, Aquinas, Ockham,

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[22] To deny this, a relationist would have to say that Peter bears the *whiteness* relation to the morning at some times, but not at others. From a logical perspective, I can make sense of this position. But, from a metaphysical perspective, I can't. For an eternalist, that would be like claiming that whether Peter is in his house is somehow relative to another location, e.g., that he's in his house relative to Damascus and not in his house relative to Paris. I cannot make sense of that claim. Whether Peter is in his house seems to depend only on a relation between Peter and his house, not some further location. Likewise, whether Peter is white in the morning seems to depend only on a relation between Peter and his whiteness, not some further time. For a presentist, it is hard to see how relationism can even get going, for the reasons I am about to introduce.

[23] See, e.g., Aquinas, *De principiis naturae*. For discussion, see pp. 681 and 684 of Calvin G. Normore, "Accidents and Modes," in R. Pasnau (ed.), *The Cambridge History of Medieval Philosophy* (Cambridge: Cambridge University Press, 2009), II: 674–85.

and Buridan would reject relationism, because it is incompatible with their understanding of change.

Second, like almost all other medieval Aristotelians, Aquinas, Ockham, and Buridan deny that polyadic relations are things that exist.[24] They insist, however, that properties are things that exist. For example, not only does Peter gain and then lose the property of whiteness, but his whiteness is *created* and then *destroyed*. These authors disagree about whether Peter's whiteness exists in the same sense as Peter.[25] But they all agree that Peter's whiteness exists. This is built into Aquinas's understanding of Peter's whiteness as a *mode* of Peter, i.e., a way in which Peter exists. It is also built into Ockham's and Buridan's understanding of Peter's whiteness as a *real accident*, i.e., as something that could in principle exist apart from Peter. Thus, they would reject any proposal that implies that properties are polyadic relations, because while they would say that Peter's whiteness exists, they would deny that his two-place relations exist, including any two-place relation that he bears to the morning. Aquinas, Ockham, and Buridan would reject relationism, because it is incompatible with their understanding of properties and polyadic relations.

Third, like almost all other medieval Aristotelians, Aquinas, Ockham, and Buridan accept presentism, the view that objects exist only in the present.[26] According to presentists, while minerals exist below us in the ground and clouds exist above us in the sky, our ancestors do not exist before us in seventeenth century, and our descendants do not exist after us in the twenty-second century. The most that can be said is that our ancestors in seventeenth century *used to* exist and our descendants in the twenty-second century *will* exist, and that does not imply that they exist, even in the most expansive sense of 'exists.' Presentists sometimes

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[24] For a survey, see especially Jeffrey E. Brower, "Medieval Theories of Relations," in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018), https://plato.stanford.edu/archives/win2018/entries/relations-medieval/, sec 3.1.

[25] For discussion, see Normore, "Accidents and Modes"; Pasnau, *Metaphysical Themes*, ch. 10.

[26] For discussion, see R. T. Mullins, *The End of the Timeless God* (Oxford: Oxford University Press, 2016), 74–87; Calvin G. Normore, "Future Contingents," in N. Kretzmann, A. Kenny, and J. Pinborg (eds.), *Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982), 358–81, at 367f.; Pasnau, *Metaphysical Themes*, 388–89.

describe reality as three-dimensional, with objects distributed across all three spatial dimensions. As time passes, that distribution changes. Just as only one image is projected onto a movie screen at a time, reality is just one distribution of objects at a time. If you ask a presentist what exists in the most expansive sense of 'exists,' their answer would include minerals and clouds, but not our ancestors or our descendants.

Given their commitment to presentism, Aquinas, Ockham, and Buridan would reject any proposal that appeals to objects that exist only in the past or only in the future. This would presumably also lead them to reject any proposal that appeals to past times or future times. Thus, they would presumably reject relationism, because it treats properties as relations between objects and both past times and future times, and thus appeals to both past times and future times.

There is another, closely related reason why they would reject relationism. In his *Physics*, Aristotle says that times are measures of motion (Book 4, Chapter 14, 220b33). There was a debate among medieval Aristotelians about whether this means that times are identical to motions (e.g., Buridan, *Summulae de dialectica*, Tr 3, Ch 7, Sec 1),[27] or whether times are measurements made by the soul, and thus exist only in the soul (e.g., Ockham, *Expositio Physicorum*, Book 4, 27.4).[28] Either way, it would be hard to reconcile this view of time with relationism. On the one hand, if times are motions, *whiteness* would be a relation to a motion that no longer exists. Making times relations to motions would also lead to regress. For example, suppose that Peter's motion is a relation to the motion of the sun. Because the motion of the sun is itself a property, it would have to be a relation to the motion of another object, and so on, without end. On the other hand, if times are ideas in the soul, *whiteness* would be a relation to something that exists only in a soul. Either way, times are not the right kind of entity for relationism.

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[27] For commentary, see Dirk-Jan Dekker, "Buridan's Concept of Time: Time, Motion and the Soul in John Buridan's *Questions on Aristotle's* Physics," in J. M. M. H. Thijssen and J. Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan* (Leiden: Brill, 2001), 151–64.

[28] *Opera philosophica* V:291. For commentary, see pp. 272–75 of Cecilia Trifogli, "Change, Time, and Place," in R. Pasnau (ed.), *The Cambridge History of Medieval Philosophy* (Cambridge: Cambridge University Press, 2010), I: 267–78.

b. Adverbialism

Similar to relationists, adverbialists would deny the discernibility of Morning Peter and Night Peter.[29] They would first insist that, for every time, there is a different way of instantiating *whiteness*. They would then insist that Morning Peter and Night Peter instantiate the same properties in the same ways. In particular, Morning Peter instantiated the property *whiteness* in a morning-ly way, and he instantiated the property *brownness* in a night-ly way. Likewise, Night Peter instantiated the property *whiteness* in a morning-ly way, and he instantiated the property *brownness* in a night-ly way. It might help to again make a list:

> Morning Peter instantiates *whiteness* in a morning-ly way.
> Morning Peter instantiates *brownness* in a night-ly way.
> Night Peter instantiates *whiteness* in a morning-ly way.
> Night Peter instantiates *brownness* in a night-ly way.

Adverbialists would conclude that Morning Peter and Night Peter instantiated all the same properties in all the same ways. They would also conclude that these properties are not contraries. Just as greeting one person in a friendly way is compatible with greeting another person in an unfriendly way, instantiating *whiteness* in a morning-ly way is compatible with instantiating *brownness* in a night-ly way.

There are several reasons why Aquinas, Ockham, and Buridan would reject adverbialism. First, according to adverbialists, Peter changes by instantiating different properties in different ways, e.g., by instantiating *moving* in a morning-ly way and instantiating *resting* in a night-ly way. Because Peter always instantiates the same properties in the same ways, he always has the same properties. Thus, Aquinas, Ockham, and Buridan would reject adverbialism, because it is incompatible with their understanding of change as gaining or losing properties.

Second, like most other medieval Aristotelians, Aquinas, Ockham, and Buridan claim that properties are things that exist at some times, but not

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[29] See, e.g., Mark Johnston, "Is There a Problem About Persistence?" *Proceedings of the Aristotelian Society* 61 (1987), 107–35.

at other times, and at some locations, but not at other locations (because they are *tropes*). Thus, if Night Peter instantiates whiteness in some sense, his whiteness must exist while he is sleeping. As noted above, they also accept presentism, the view that whatever exists, exists in the present. Thus, if Night Peter instantiates whiteness in some sense, his whiteness must exist in the present. But at what location? And why does it no longer make anything white? These questions are not unanswerable, but they are uncomfortable. Perhaps for this reason, it is built into their understanding of instantiation as *inherence* that it is a relation that a thing bears to properties relative only to the present. Thus, they would reject adverbialism, because it is incompatible with their understanding of instantiation.[30]

Relationists and adverbialists insist that, in some sense, Morning Peter and Night Peter both instantiate the property of whiteness. What differentiates them is the sense in which they both instantiate that property. For relationists, it is that *whiteness* is a relation to a time, and Morning Peter and Night Peter both stand in that relation to the morning. For adverbialists, it is that there are many ways of instantiating *whiteness*, and Morning Peter and Night Peter both instantiate that property in the same way, namely morning-ly. There are other senses in which Morning Peter and Night Peter might instantiate the same properties.[31] But I cannot find or invent any such proposal that would be acceptable to Aquinas, Ockham, and Buridan. For example, any proposal for denying that Morning Peter and Night Peter have different properties seems irreconcilable with their view of change. But even if I am wrong, and there is a proposal that they could have considered, and perhaps should have considered, that does not mean that they endorsed it. Medieval philosophers spent a lot of time thinking about the nature of change, and there is no suggestion that, in some sense, a thing always has the same properties.

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[30] The same problem might not extend to relationism. Suppose that we agree with Mellor that Peter's whiteness is a relation to the morning. Even if Night Peter still has that property, it might not make him white, given that it is just a relation to a time, rather than something that by nature makes something white, such as the trope *whiteness*.

[31] See, e.g., Peter van Inwagen, "Four-Dimensional Objects," *Noûs* 24 (1990), 245–55.

c. Exdurantism

Exdurantists would deny that Morning Peter and Night Peter are identical. They claim that a person exists only for an instant, at which point he or she is replaced by a new person.[32] The new person is often, but not always, nearly indiscernible from the old person. For example, Morning Peter was replaced by a person who was nearly indiscernible, except that he was slightly browner, and perhaps also had a slightly different shape, because his knee was slightly higher. He was then replaced by another person, and so on. According to exdurantists, there was no person who was white in the morning and then brown at night. There was just a series of different people, some white, others brown, some with bent knees, others with straight knees. Morning Peter and Night Peter are supposed to be people in that series.

However, like most other medieval Aristotelians, Aquinas, Ockham, and Buridan explicitly say that a person is identical over time. Quoting from the passages excerpted at the beginning of the section, Aquinas says that a human being is "numerically one from the beginning of his life until the end," Ockham says that despite changes "someone is certainly said to be numerically the same human being," and Buridan says that "a human being remains the same from the start of his life up to the end." Thus, I do not think they would accept exdurantism.

In *Metaphysical Themes*, Pasnau agrees that Aquinas and Ockham are talking about numerical identity. But he denies that Buridan is talking about numerical identity. According to Pasnau, Buridan is talking about some other relation.

However, there is compelling evidence that Buridan really is talking about numerical identity. Reviewing the evidence will not only help establish that this is the right interpretation of Buridan, it will also explain why our authors never address the puzzle—they were working

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[32] See, e.g., Katherine Hawley, *How Things Persist* (Oxford: Clarendon University Press, 2001), ch. 2; Roderick M. Chisholm, *Person and Object: A Metaphysical Study* (La Salle, IL: Open Court, 1976); Derek Parfit, *Reasons and Persons* (Oxford: Clarendon Press, 1984); Achille C. Varzi, "Entia successiva," *Rivista di estetica* 43 (2003), 139–58; Achille C. Varzi, "Naming the Stages," *Dialectica* 57 (2003), 387–412; Theodore Sider, "All the World's a Stage," *Australasian Journal of Philosophy* 74 (1996), 433–53.

in a medieval Aristotelian tradition in which the Indiscernibility of Identicals did not seem true. In this regard, it is worth mentioning that the medieval author most likely to have accepted both mereological essentialism and the Indiscernibility of Identicals, Abelard, was writing before the reintroduction of Aristotle's metaphysics into medieval philosophy.[33]

Let's start with Buridan's argument that if a person did not remain the same over time, "it would follow that you who are here have not been baptized, but rather someone else was. Therefore you are not a Christian" (*Quaestiones super libros Physicorum*, Book 1, Question 10). Why should we think that this conclusion is about numerical identity?

First, and most obviously, Buridan writes a few sentences later, "we are asking not about sameness with respect to species or genus, but about numerical sameness [*identitate numerali*], according to which 'this being the same as that' means that this is that."

Second, his argument seems invalid if he is talking about another relation. For example, if an adult were merely *similar* to a child who was baptized, that does not seem like a reason to conclude that the adult is baptized. Likewise, if an adult were merely *generated* from a child who was baptized, that does not seem like a reason to conclude that the adult is baptized.

Third, as Pasnau acknowledges, Buridan's conclusion would amount to the mere suggestion that we should *say* that the adult is numerically identical to a child.[34] But Buridan elsewhere goes to great lengths to establish more than verbal consistency with Christian doctrine. For example, like many other medieval philosophers, he insists that the whiteness of a communion wafer continues to exist after the communion wafer is destroyed and replaced by the body of Christ (*In Metaphysicam*

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[33] For commentary on Abelard's relation to mereological essentialism, see Arlig, "Identity and Sameness"; Andrew W. Arlig, "Parts, Wholes, and Identity," in J. Marenbon (ed.), *The Oxford Handbook of Medieval Philosophy* (Oxford: Oxford University Press, 2012), 445–67; Andrew W. Arlig, "Peter Abelard on Material Constitution," *Archiv für Geschichte der Philosophie* 94 (2012), 119–46; Andrew W. Arlig, "Some Twelfth-Century Reflections on Mereological Essentialism," *Oxford Studies in Medieval Philosophy* 1 (2013), 83–112.

[34] Pasnau, *Metaphysical Themes*, 697–98; p. 62 of Robert Pasnau, "Response to Arlig and Symington," in G. Klima and A. W. Hall (eds.), *Metaphysical Themes, Medieval and Modern* (Newcastle: Cambridge Scholars Publishing, 2014), 57–72.

Aristotelis quaestiones, Book 4, Question 6).[35] Buridan does not merely insist that we should *say* that the whiteness continues to exist, and presumably he is as serious about the sacrament of baptism as he is about the sacrament of the eucharist. Arlig makes a related point, "I do not think Buridan wants to validate the claim that I am the one who was baptized merely by appealing to custom."[36]

Anticipating this point, Pasnau suggests that Buridan might have a hidden motive. In particular, that Buridan might be trying to preserve verbal consistency with the Condemnation of 1277, to avoid persecution.[37] But Buridan elsewhere treats the Condemnation of 1277 as an authority to be respected, not merely circumvented. In particular, Buridan objects to Ockham's theory of motion that it is committed to the heretical view that God cannot move the entire universe (*Quaestiones super libros Physicorum*, Book 3, Question 7).[38] This would not be an effective objection if Ockham could respond by merely offering redefinitions of the words in the Condemnation of 1277 (including 'move' and 'entire'), so that his view is verbally consistent with it. Buridan seems to have regarded the Condemnation of 1277 as an authority to be respected, rather than a restriction to be circumvented through redefinition. This is also what we would expect given his more general insistence that philosophers should not try to correct theologians about doctrines of faith.

Fourth, if Buridan's conclusion were not about numerical identity, it would not conflict with the conclusions of those philosophers who, like Nicholas of Autrecourt,[39] deny that people are numerically identical over time, even though Buridan writes as though he is arguing against them.

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[35] For commentary, see P. J. J. M. Bakker, "Aristotelian Metaphysics and Eucharistic Theology: John Buridan and Marsilius of Inghen on the Ontological Status of Accidental Being," in J. M. M. H. Thijssen and J. Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan* (Leiden: Brill, 2001), 250–54.

[36] See p. 24 of Andrew W. Arlig, "Remarks on Pasnau's Metaphysical Themes: 1274–1671," in G. Klima and A. W. Hall (eds.), *Metaphysical Themes, Medieval and Modern*, 9–26. See also Arlig, "Identity and Sameness," 135.

[37] Pasnau, *Metaphysical Themes*, 697. For background, see Hans Thijssen, "Condemnation of 1277," in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018), https://plato.stanford.edu/archives/win2018/entries/condemnation/.

[38] For commentary, see Dekker, "Buridan's Concept of Time," 153–54.

[39] Nicholas of Autrecourt, *Tractatus utilis*, p. 252; for background, see Pasnau, *Metaphysical Themes*, 703.

Fifth, if human beings were not numerically the same over time, they would not be substances. Buridan interprets Aristotle as saying that one of the definitive properties of substances is that numerically the same substance is able to receive contraries, including to be pale at one time and dark at another, and Buridan endorses this claim (*Summulae de dialectica*, Treatise 3, Chapter 2, Section 6). Thus, if human beings are not numerically the same over time, they cannot be substances, just as they wouldn't be substances if they did not have the other definitive properties of substances, such as not inhering in another (ibid., Section 4), or not being predicated of another (ibid., Section 5).

Sixth, if human beings were not numerically the same over time, it would be hard to understand why the sentence 'Socrates will tomorrow be running' is supposed to be true "strictly speaking."[40] In contrast, the sentence 'The Seine that I see is the one that I saw ten years ago' is not supposed to be true strictly speaking because the water is not the same.[41]

Baptism isn't Buridan's only argument that a person remains the same over time. He also argues that if a person were not the same over time then we would not be justified in rewarding or punishing him for his past actions, or in holding him responsible for his past promises (*Quaestiones super octo Physicorum libros*, Book 1, Question 10). Many of the same points apply to these other arguments.

There is another argument worth mentioning, even though Buridan does not rely on it. There were many controversies about the doctrine of reincarnation, including whether the person who will exist after resurrection will have numerically the same body as the person who died, and whether that person will exist *as a person* following his death but before his resurrection.[42] But it was uncontroversial that the person who will

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[40] *Summulae de dialectica*, tr. G. Klima (New Haven, CT: Yale University Press, 2001), Chapter 4, Reply to 5th Sophism.

[41] *Quaestiones super octo Physicorum libros*, Book 1, Question 10, unpublished translation by Pasnau.

[42] See, e.g., Aquinas, *Summa theologiae*, Part 3, Supplement, Question 79; *Quaestiones disputatae de anima*, Question 19; *Summa contra gentiles* Book 4, Question 79. For discussions of Aquinas's views, see Eleonore Stump, "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul," in B. Niederbacher and E. Runggaldier (eds.), *Die menschliche Seele: Brauchen Wir den Dualismus?* (Frankfurt: Ontos Verlag, 2006), 151–72; Christina Van Dyke, "Human Identity, Immanent Causal Relations, and the Principle of Non-Repeatability: Thomas Aquinas on the Bodily Resurrection," *Religious Studies* 43 (2007), 373–94.

exist after resurrection is numerically identical to the person who died, and it is hard to see how that is possible if a person cannot be numerically identical over time. Buridan does not say much about the doctrine of resurrection, because he was not a member of the faculty of theology. But he says that God *could* create numerically the same world after its destruction (*Quaestiones super libros De generatione et corruptione*),[43] and that God *could* make it the case that a person exists as a person following his death but before his resurrection (*Quaestiones in De anima*, Book 3, Question 6).[44] Thus, he presumably thinks that God *could* resurrect numerically the same person, and it is hard to see how that is possible if a person cannot be numerically identical over time.

Pasnau mentions three considerations in support of his interpretation. First, Buridan denies that a person is numerically identical over time in the "strict*est* sense," on the grounds that the parts of a human being change over time (*Quaestiones super octo Physicorum libros*, Book 1, Question 10). But a person must still be identical over time in a strict sense, not only for the reasons mentioned above, but also because in other work he insists that this is still numerical identity "unconditionally and without qualification" (see the previous quote from Buridan, *Quaestiones super libros De generatione et corruptione*, Book I, Question 13). Second, Buridan says that a person's identity over time is an instance of "partial identity." According to Pasnau, this is Buridan's way of indicating that it is not really identity. Likewise, a partial eclipse is not really an eclipse, and a partial refund is not really a refund. But there is another interpretation. Buridan could be saying that it is identity that follows from sharing a certain part, namely the same soul. In that case, he is using 'partial' to indicate the cause of the identity (it is due to a shared part), rather than to indicate that it is not really identity. In support of this interpretation, consider that Buridan calls identity in the strictest sense 'total identity,' rather than just 'identity,' because it is identity that follows from sharing all the same parts. He thus seems to be using

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[43] For commentary, see p. 60 of Olaf Pluta, "Buridan's Theory of Identity," in J. M. M. H. Thijssen and J. Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan* (Leiden: Brill, 2001), 49–64.

[44] See Pluta, "Buridan's Theory of Identity," 60.

'total' to indicate the cause of the identity. Given all of the other evidence, this interpretation seems more likely.

Most fundamentally, Pasnau denies that Buridan can be talking about numerical identity because he is talking about a relation that does not satisfy the Indiscernibility of Identicals. Pasnau explains:

> Things are identical when they are in fact not multiple things at all, but are just one thing. This is the identity of the equal sign, the identity that licenses the indiscernibility of identicals, which is to say that things are identical only if they share all the same features. It is unintelligible to say that things are identical and yet different. Or, rather, such talk can be made intelligible, but only when construed in some looser, less-than-strict sense. That is, to speak of identity where there is differences requires construing such claims as saying something other than what they seem on their face to say.
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> ("Response to Arlig and Symington", p. 62)

Contemporary philosophers make similar claims. For example, Sider claims that, "Restricting Leibniz's Law [the Indiscernibility of Identicals and its converse] forfeits one's claim to be discussing identity. The demands of the notion of identity are high: identical things must share all their properties."[45]

But I do not think we should impose such a strict limit on how numerical identity must be understood. Philosophers have been talking about numerical identity since the beginning; it is not a technical notion that was stipulated into existence. Just as there is room for disagreements about beauty, truth, justice, and God, there is room for disagreement about numerical identity. As I hope everyone will agree, we should not deny that Plato is talking about beauty because he denies that poems are beautiful,[46] or that Bradley is really talking about truth because he denies that truth requires correspondence,[47] or that Hobbes is really talking about justice because he denies that democracies are just,[48] or that Whitehead is really talking about God because he denies that God is

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[45] Sider, *Four-Dimensionalism*, 167.
[46] Plato, *Republic*, tr. R. Waterfield (Oxford: Oxford University Press, 1993), Bk 10, 601.
[47] F. H. Bradley, *Essays on Truth and Reality* (Oxford: Clarendon Press, 1914), ch. 5.
[48] Thomas Hobbes, *Leviathan* (Indianapolis: Hackett, 1994), ch. 19.

omnipotent.[49] We likewise should not deny that Buridan is really talking about numerical identity just because he is talking about a relation that does not satisfy the Indiscernibility of Identicals. Philosophy is far too open-ended to start imposing strict limits on how its basic notions are to be understood.

d. Perdurantism

Perdurantists would deny either the discernibility or the identity of Morning Peter and Night Peter, depending on how these names are disambiguated. Like exdurantists, perdurantists claim that there are instantaneous bodies. But, unlike exdurantists, perdurantists claim that there are also composites of those instantaneous bodies.[50] A composite of instantaneous bodies exists whenever one of its instantaneous bodies (its "temporal parts") exists. As perdurantism is developed by Lewis and others, there were many composites in the morning, because composites can share the same temporal parts.[51] If perdurantism is developed in this way, the names 'Morning Peter' and 'Night Peter' are ambiguous, because I let Morning Peter be the body that was moving in the morning and Night Peter be the body that was resting at night, when many composites satisfy those descriptions. If we disambiguate these names so that they refer to different composites, perdurantists would deny their identity. If we disambiguate these names so that they refer to the same composite, and that composite has at least one temporal part that was moving in the morning and at least one temporal part that was resting at night, then perdurantists would deny their discernibility. Just as you don't instantiate contrary properties because your left hand is moving on your left side and your right hand is resting on your right side, a composite doesn't instantiate contrary properties because one of its

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[49] Alfred North Whitehead, *Adventures of Ideas* (New York: Macmillan, 1933), 213.

[50] See, e.g., W. V. O. Quine, "Identity, Ostension, and Hypostasis," *The Journal of Philosophy* 47 (1950), 621–33; Eli Hirsch, *The Concept of Identity* (New York: Oxford University Press, 1982); Lewis, *On the Plurality of Worlds*, ch. 4.

[51] David Lewis, "Many, but Almost One," in K. Campbell, J. Bacon, and L. Reinhardt (eds.), *Ontology, Causality, and Mind: Essays in Honour of D. M. Armstrong* (Cambridge: Cambridge University Press, 1993), 23–38.

temporal parts was moving in the morning and another of its temporal parts was resting as night.

Aquinas, Ockham, and Buridan would not respond in this way. The medieval term for such beings is "successive entities" (*entia successiva*).[52] The medieval Aristotelians debated about whether there are *any* successive entities, focusing on the most likely candidates, motion and time. As far as I am aware (and see Pasnau, *Metaphysical Themes*, p. 395), there was not a debate about whether people are successive entities. It was taken as a given that people are not successive entities.

There are at least two possible reasons for this consensus. First, medieval Aristotelians, including Aquinas, Ockham, and Buridan, deny that people have parts that are independent of each other, in the sense that each part can exist without the others. They claim that if people had parts that were independent of each other in this sense, people would be "mere aggregates," rather than substances. This leads them to deny that the body can exist without the mind. It also leads them to deny that our fingers, toes, ears, and other organs can exist apart from each other (see e.g., Aquinas, *Summa contra gentiles*, Book II, Question 72).[53] For the same reason, they would deny that people are composed of many instantaneous bodies, because instantaneous bodies not only *can* exist without each other, but actually do exist without each other, since each exists at a different time. There is more to say about all these arguments, including why these authors insist that people are substances rather than mere aggregates, and why, following Aristotle (*Metaphysics*, Zeta, Ch 13, 1039a3–8), they insist that people would be mere aggregates if their parts could exist without each other. But hopefully this is enough for present purposes.

Second, as noted above, medieval Aristotelians standardly accept presentism, the view that objects exist only in the present. According to perdurantists, at most one temporal part of a person exists in the present. Thus, if a medieval Aristotelian accepted perdurantism, he would need to say that at most one temporal part of a person exists,

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[52] For background, see Anneliese Maier, *Zwischen Philosophie und Mechanik* (Rome: Edizioni di storia e letteratura, 1958); Pasnau, *Metaphysical Themes,* ch. 18.

[53] For background, see Pasnau, *Metaphysical Themes*, ch. 26.

and thus to deny that people exist. Similarly, if only one part of a car exists (e.g., its muffler), the car does not exist, and if only one part of Peter's body exists (e.g., his foot), Peter does not exist.[54] Ockham explicitly articulates the underlying principle: "[T]hat which does not exist cannot be part of any being."[55] In some cases, this principle might be controversial. Albert of Saxony says that a month can exist even if none of its parts exist (*Physics* Book 3, Question 2).[56] Haslanger says that her extended family exists, even though her grandmother is a part of her extended family and her grandmother does not exist.[57] But even if the principle is controversial for months and families, it should not be controversial for human beings.

These same considerations establish that, for the medieval Aristotelians, human beings cannot be composed of things that exist for any other length of time. For the medieval Aristotelians, a human being cannot be a series of distinct things, no matter how long those things exist.

e. Subdurantism

Finally, let's consider a red herring. Aquinas, Ockham, and Buridan all distinguish between what we might call *thin* substances and *thick* substances. As contemporary philosophers understand the distinction, a thin substance is a substance "excluding" all of its properties, whereas a thick substance is a substance "including" all of its properties.[58] For medieval metaphysicians, this means that a thin substance consists of just prime matter and substantial form(s), and a thick substance consists of prime matter, substantial form(s), and accidental forms such as whiteness and brownness.[59]

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[54] See p. 524 of Trenton Merricks, "On the Incompatibility of Enduring and Perduring Entities," *Mind* 104 (1995), 523–31.

[55] *Summula philosophiae naturalis*, Book 3, Chapter 5, in *Opera philosophica* VI:262, translated in Pasnau, *Metaphysical Themes*, 385.

[56] For background, see Pasnau, *Metaphysical Themes*, 386.

[57] Haslanger, "Persistence Through Time."

[58] See, e.g., D. M. Armstrong, *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997), 123–26.

[59] For background, see Pasnau, *Metaphysical Themes*, 99–108; Brower, *Aquinas's Ontology of the Material World*, 91–100.

According to subdurantists, people are thin substances that persist through time by having the same constituents. For example, Peter persists through time by having the same prime matter and substantial form(s).

Jeffrey Brower presents subdurantism as Aquinas's account of persistence.[60] He also presents it as a response to a puzzle about temporary intrinsic properties due to Lewis,[61] and thus as an alternative to relationism and perdurantism.[62] It might therefore be natural to assume that subdurantism is a response to the puzzle. And that is how Pasnau presents it in his discussion of Descartes.[63]

But subdurantism is not a response to the puzzle. The Indiscernibility of Identicals is not restricted to Morning Peter's and Night Peter's *constituents*. It is about *all* of their properties. Even if Morning Peter and Night Peter are substrata ("the things underneath"), their colors and other properties are still "on top" of them. In that case, their relations to those properties are still enough to give rise to the puzzle. While a substratum does not change its constituents, it still changes extrinsically, in virtue of gaining and losing properties "on top." The puzzle is to explain how a thing can change while remaining numerically the same.

It might help to consider the more general view that a thing's properties exist apart from it, and are merely related to an underlying substratum, such as a thin substance, substance, or bundle.[64] According to this view, a change in a thing's properties is not a change in its constituents. As far as I am aware, nobody thinks that this provides an answer to the puzzle of identity over time. Contemporary philosophers understand the Indiscernibility of Identicals so that it generates a puzzle for anyone who thinks that objects have properties, regardless of their view about the nature of those properties, including whether they are constituents. Thus, subdurantism is not really a response to the puzzle.

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[60] Brower, *Aquinas's Ontology of the Material World*, 99–100.

[61] Lewis, *On the Plurality of Worlds*, 203–4.

[62] Especially Brower, "Aristotelian Endurantism: A New Solution to the Problem of Temporary Intrinsics," *Mind* 119 (2010), 883–905, fn 4.

[63] Pasnau, *Metaphysical Themes*, 143. For critical discussion, see my "Descartes on Numerical Identity and Time," *Australasian Journal of Philosophy*, forthcoming.

[64] For an overview of substrata, substance, and bundle views, see Loux, *Metaphysics* ch. 3.

5. Further Considerations

We just considered a straightforward argument for the conclusion that Aquinas, Ockham, and Buridan would reject the Indiscernibility of Identicals. In brief: Aquinas, Ockham, and Buridan are committed to the identity and discernibility of people over time, and these commitments are mutually inconsistent with the Indiscernibility of Identicals. There are four further considerations in support of this conclusion.

a. Other Counterexamples to the Indiscernibility of Identicals

Some medieval Aristotelians even deny that identity requires indiscernibility *at a time*. They would thus reject the even weaker claim:

A2.   If x and y are numerically identical, and x instantiates a property at a time, then y does not instantiate a contrary property at that time.

For example, Scotus claims that x and y can be identical even if they are "formally distinct," and by definition formally distinct things have different properties at the same time. His examples include a universal and its instantiations, a soul and its faculties, and the genus and specific differentia within a substance. Thus, for Scotus, identity does not require indiscernibility at a time.[65]

Similarly, in defense of his understanding of properties as universals, Burley says that, "it is not absurd that numerically the same thing [namely, the universal *man*] is in heaven and in hell and that it is simultaneously in motion and at rest."[66]

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[65] See *Reportatio* Book I, Distinction 33, Questions 2–3 and Distinction 34, Question 1. For discussion, see Adams, "Universals in the Early Fourteenth Century," 416–17; Adams, *William Ockham* (Notre Dame, IN: University of Notre Dame Press, 1987), 29; King, "Scotus on Metaphysics," 22.

[66] *Super artem veterem* f. 5ra, translation by Adams, in "Universals in the Early Fourteenth Century," 428.

Abelard suggests a different kind of counterexample. He says that even though a waxen image and the piece of wax it is made from are numerically identical, "their properties remain so thoroughly unmixed that the property of the one in no way participates in the other" (*Theologia Christiana* 3.140).[67]

In the special case of God, many more medieval Aristotelians would deny that identity requires indiscernibility at a time. For example, Buridan says that the divine persons of God are discernible, but nonetheless identical. In particular, he says that the Father is identical to God, and God is identical to the Son, but denies that the Father is identical to the Son. Thus, in the special case of God, Buridan rejects the transitivity of identity, and thus also the Indiscernibility of Identicals (*Summulae de dialectica*, Treatise 5, Chapter 2, Section 2).

It is unclear how much weight we should put on these examples. Scotus's, Burley's, and Abelard's claims were controversial precisely because they deny that identity at a time requires indiscernibility at a time (more on this below). In addition, the doctrine of the trinity involves God, and thus might be exceptional. Nonetheless, that medieval Aristotelians are willing to deny that identity always requires indiscernibility, especially in cases involving indiscernibility at a time, is further evidence that they are working with different presuppositions about identity.

Notably, Scotus might have another reason for rejecting the Indiscernibility of Identicals. Medieval Aristotelians standardly claim that a substance is prior to its properties. Scotus takes this to establish that a substance's properties are not necessary for its identity.[68] Thus, Scotus might reject the Indiscernibility of Identicals on the grounds that, for example, Peter's properties are not necessary for Peter's identity.

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[67] For discussion, see Arlig, "Identity and Sameness," 128–29; Adams, "Universals in the Early Fourteenth Century."

[68] See the discussion at p. 4 in Richard Cross, "Identity, Origin, and Persistence in Duns Scotus's *Physics*," *History of Philosophy Quarterly* 16 (1999) 1–18, citing *Ordinatio* Book 2, Distinction 3, in *Opera omnia* VII, paragraphs 82–83.

b. No Arguments Require the Indiscernibility of Identicals

None of their arguments seem to presuppose the Indiscernibility of Identicals, rather than the principle that merely links identity to indiscernibility at a time, such as (A2). For example, Ockham argues (against Aquinas, *Summa contra gentiles*, Book II, Question 72) that a person is not numerically identical to his body, because after death the body still exists, while the person no longer exists (*Quodlibetal Questions* Book 2, Quodlibet 11). This argument presupposes that, if a person is identical to his body, and the body exists at a time, the person exists at that time. Thus, this argument presupposes (A2), and does not require the Indiscernibility of Identicals.

Similarly, Ockham and Buridan argue (against Scotus, see above) that Peter's whiteness is not identical to Paul's whiteness, because Peter's whiteness exists in a different location than Paul's whiteness.[69] They conclude that we should not understand properties as universals. This argument presupposes that if Peter's whiteness is identical to Paul's whiteness, and Peter's whiteness exists in a location at a time, then Paul's whiteness exists in the same location at that time. Thus, this argument also presupposes (A2). It does not, however, require the Indiscernibility of Identicals.

Of course, these are just two of their arguments involving identity and indiscernibility. But I cannot find any arguments that require the Indiscernibility of Identicals, rather than the weaker principle.

c. Arguments from Eternalism to the Indiscernibility of Identicals

Recall that, according to eternalists, variation across reality's three spatial dimensions is relevantly like variation across its fourth, temporal

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[69] See Ockham, *Ordinatio* Book 1, Distinction 2, Questions 1 and 6, and Buridan, *Summulae de dialectica* Tr 3, Ch 5, Sec 7. For discussion, see Adams, "Universals in the Early Fourteenth Century," 417–22; Adams, *William Ockham*, ch. 2.

dimension. Thus, from an eternalist perspective, our reasons for thinking that objects at different *locations* are non-identical also seem like reasons for thinking that objects at different *times* are non-identical. For example, our reason for thinking that Downstairs Peter is not identical to Upstairs Peter (namely: that only Downstairs Peter is white) also seems like a reason for thinking that Morning Peter is not identical to Night Peter. Thus, from an eternalist perspective, it can seem that anyone who accepts (A2) should also accept the Indiscernibility of Identicals.

But, rightly or wrongly, Aquinas, Ockham, and Buridan reject eternalism in favor of presentism (see Section 4.1). From a presentist perspective, there is an important asymmetry between locations and times: while objects exist at many locations, they exist at only one time, namely the present. Thus, a presentist will agree that Downstairs Peter exists downstairs and Upstairs Peter exists upstairs, but they will deny that Morning Peter exists in the morning and Night Peter exists at night, because at most one of these times is the present. As a result, our reason for thinking that Downstairs Peter is not identical to Upstairs Peter (namely: that only Downstairs Peter is white) might not be a reason for thinking that Morning Peter is not identical to Night Peter. Our reason for thinking that Morning Peter is not identical to Night Peter might be more like our reasons for thinking that Morning Peter is not identical to certain people in non-actual situations, such as a counterfactual person born to different parents. It would take a long time to properly spell out the details of this asymmetry between locations and times, and the potential symmetry between counterfactuals and times, but I hope it is clear enough why, from a presentist perspective, our thinking about identity across locations need not guide our thinking about identity across times. Our thinking about identity across times is more like our thinking about identity across counterfactuals.

d. Arguments from Presentism to the Indiscernibility of Identicals

From a presentist perspective, there is a different motivation for the Indiscernibility of Identicals. In particular, the Indiscernibility of

Identicals might seem to follow from our ability to make true claims about the past. Consider the claim 'Peter was white' when said at night. From a presentist's perspective, it is unclear how this claim can be true, because it is about someone who is no longer white.[70] Given presentism, it might seem that 'Peter was white' can be true when said at night only if, in some sense, Peter still instantiates *whiteness*. More generally, it might seem that we can make true claims about what Peter did only if, in some sense, Peter still instantiates the properties Morning Peter instantiated. It would follow that, if Morning Peter and Night Peter are identical, and Morning Peter instantiated a property in the morning, Night Peter instantiates that property at night. This is a short step from the full Indiscernibility of Identicals, and already sufficient for the puzzle of identity over time. Thus, from a presentist perspective, it can seem that anyone who accepts:

A3.   If x and y are numerically identical, then x satisfies a predicate if and only if y satisfies that predicate.

should also accept the Indiscernibility of Identicals.

Aquinas, Ockham, and Buridan would accept (A3) (see e.g., Ockham, *Ordinatio*, Distinction 2, Question 6). They might thus seem committed to the Indiscernibility of Identicals by the above line of reasoning. But that line of reasoning depends on an assumption that they would reject. We can roughly state the assumption: If a claim is true, it is made true by the things that exist and the properties they instantiate. Rightly or wrongly, medieval Aristotelians do not accept this principle. Aquinas says that, "Although knowledge has only being for its object, it is not necessary that what is known should be a real being at the time in which it is known."[71] Likewise, Buridan says that propositions about the past can be true even though "it is not the case that howsoever it signifies

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[70] I am setting aside claims about the future, because some medieval Aristotelians deny that claims about the future can be true, given that the future is not yet settled. See Normore, "Future Contingents."

[71] *Truth: A Translation of Quaestiones Disputatae De veritate, Volume I, Questions I–IX*, tr. R. W. Schmidt (Washington, DC: Henry Regnery Company, 1952), Question 2, Article 3, Ad 12.

[things to be] outside, so are the things that are signified outside."[72] One possibility is that these claims are true because God believes them, and, just as there is no distinction between God's willing something and God's doing it, so there is no distinction between God's believing something and its being true.[73] There are other explanations as well.[74] Regardless of which explanation medieval Aristotelians would prefer, they would not think that the Indiscernibility of Identicals follows from our ability to make true claims about the past, because they would not accept the principle that, if a claim is true, it is made true by things that exist and the properties they instantiate.[75]

6. Conclusion

Why did the Indiscernibility of Identicals have such a different status in medieval philosophy? The long answer is that many held the views listed above, and those views are mutually inconsistent with the Indiscernibility of Identicals. But that's not completely satisfying. We are left to wonder: Why did they think it was okay to hold views that are mutually inconsistent with the Indiscernibility of Identicals? Unfortunately, they don't say. The motivations of contemporary philosophers are often just as inscrutable. While it is possible to reconstruct an argument from eternalism to the Indiscernibility of Identicals (see Section 3), many will deny that this is the correct order of justification. In their minds, the

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[72] *Summulae de dialectica*, Sophismata Chapter 2, Second Conclusion (tr. Klima, 850); see also ibid., to the Second Sophism, and ibid., Sixth Conclusion.

[73] See Alan Rhoda, "Presentism, Truthmakers, and God," *Pacific Philosophical Quarterly* 90 (2009), 41–62.

[74] For a survey, see pp. 199–201 of Ben Caplan and David Sanson, "Presentism and Truthmaking," *Philosophy Compass* 6 (2011), 196–208.

[75] We also have the ability to make true claims about things that no longer exist, such as 'Peter went running,' said centuries later. Bigelow and Zimmerman both argue that such claims are made true by a property instantiated by the entire world, in this case *is such that Peter went running*. They could claim that this property also makes 'Peter went running' true when said at night. This might be a way to accept (A2) and the truth-making assumption while still rejecting the Indiscernibility of Identicals. See John Bigelow, "Presentism and Properties," *Philosophical Perspectives* 10 (1996), 35–52; Dean W. Zimmerman, "Chisholm and the Essences of Events," in L. Hahn (ed.), *The Philosophy of Roderick Chisholm* (Chicago: Open Court, 1997), 73–100.

Indiscernibility of Identicals is axiomatic, while eternalism must be argued for. Why do they think it's so obvious? They don't say either.

Here's my best guess: Thanks to Aristotle, the medieval Aristotelians took themselves to have a firm grip on numerical identity across time: x and y are identical just in case they share the same substantial form. To them, this was definitional. They thus felt no pressure to link identity to any other notions, such as complete indiscernibility. Many contemporary philosophers, on the other hand, do not seem to have any other way of making sense of numerical identity over time. They do not countenance substantial forms or, more generally, individual essences. Without the link to complete indiscernibility, they would have no grip at all on numerical identity over time. As a result, they take this link to be definitional.

We might be able to test this hypothesis. In the future, philosophers might again become comfortable with individual essences. Will the Indiscernibility of Identicals still seem obligatory? Or will it be supplanted by a principle linking numerical identity over time to individual essences? Time might tell.[76]

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Bibliography

Adams, Marilyn McCord. "Universals in the Early Fourteenth Century," in N. Kretzmann, A. Kenny, and J. Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy* (New York: Cambridge University Press, 1982), 411–39.

Adams, Marilyn McCord. *William Ockham* (Notre Dame, IN: University of Notre Dame Press, 1987).

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[76] This paper was originally a subsection of "Spinoza on Mind, Body, and Numerical Identity." It then became a section of "Descartes and Spinoza on Numerical Identity and Time." Eventually, that paper was split in three: "Descartes on Numerical Identity and Time," "Spinoza on Numerical Identity and Time," and this paper. As should be clear, I owe a tremendous intellectual debt to Robert Pasnau. His *Theories of Cognition in the Later Middle Ages* first sparked my interest in medieval philosophy, and his *Metaphysical Themes* nurtured it. I disagree with him precisely because I think he is worth disagreeing with. I am also grateful to Andrew Arlig, Magali Roques, and Brian Embry for comments on an earlier draft.

Albert of Saxony. *Expositio et quaestiones in Aristotelis libros Physicorum ad Albertum de Saxonia attributae*, ed. B. Patar (Leuven: Peeters, 1999).

Aristotle. *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes (Princeton, NJ: Princeton University Press, 1984).

Arlig, Andrew W. "Identity and Sameness," in R. Cross and J. T. Paasch (eds.), *The Routledge Companion to Medieval Philosophy* (New York: Routledge, 2021), 126–38.

Arlig, Andrew W. "Parts, Wholes, and Identity," in J. Marenbon (ed.), *The Oxford Handbook of Medieval Philosophy* (Oxford: Oxford University Press, 2012), 445–67.

Arlig, Andrew W. "Peter Abelard on Material Constitution," *Archiv für Geschichte der Philosophie* 94 (2012), 119–46.

Arlig, Andrew W. "Remarks on Pasnau's Metaphysical Themes: 1274–1671," in G. Klima and A. W. Hall (eds.), *Metaphysical Themes, Medieval and Modern*, vol. 11 of *Proceedings of the Society for Medieval Logic and Metaphysics* (Newcastle: Cambridge Scholars Publishing, 2014), 9–26.

Arlig, Andrew W. "Some Twelfth-Century Reflections on Mereological Essentialism," *Oxford Studies in Medieval Philosophy* 1 (2013), 83–112.

Armstrong, D. M. *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997).

Bakker, Paul J. J. M. "Aristotelian Metaphysics and Eucharistic Theology: John Buridan and Marsilius of Inghen on the Ontological Status of Accidental Being," in J. M. M. H. Thijssen and J. Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan* (Leiden: Brill, 2001), 247–64.

Baxter, Donald L. M. "The Discernibility of Identicals," *Journal of Philosophical Research* 24 (1999), 37–55.

Bigelow, John. "Presentism and Properties," *Philosophical Perspectives* 10 (1996), 35–52.

Bradley, F. H. *Essays on Truth and Reality* (Oxford: Clarendon Press, 1914).

Brower, Jeffrey E. *Aquinas's Ontology of the Material World: Change, Hylomorphism, and Material Objects* (Oxford: Oxford University Press, 2014).

Brower, Jeffrey E. "Aristotelian Endurantism: A New Solution to the Problem of Temporary Intrinsics," *Mind* 119 (2010), 883–905.

Brower, Jeffrey E. "Medieval Theories of Relations," in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018), https://plato.stanford.edu/archives/win2018/entries/relations-medieval/.

Caplan, Ben and David Sanson. "Presentism and Truthmaking," *Philosophy Compass* 6 (2011), 196–208.

Chisholm, Roderick M. "Parts as Essential to Their Wholes," *Review of Metaphysics* 26 (1973), 581–603.

Chisholm, Roderick M. *Person and Object: A Metaphysical Study* (La Salle, IL: Open Court, 1976).

Cohen, S. Marc and C. D. C. Reeve. "Aristotle's Metaphysics," in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2020), https://plato.stanford.edu/archives/win2020/entries/aristotle-metaphysics/.

Cross, Richard. "Identity, Origin, and Persistence in Duns Scotus's *Physics*," *History of Philosophy Quarterly* 16 (1999), 1–18.

Dekker, Dirk-Jan. "Buridan's Concept of Time: Time, Motion and the Soul in John Buridan's Questions on Aristotle's Physics," in J. M. M. H. Thijssen and J. Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan* (Leiden: Brill, 2001), 151–64.

Frede, Michael and Günther Patzig. *Aristoteles, "Metaphysik Z": Text, Übersetzung und Kommentar* (Munich: C. H. Beck, 1988).

Gill, Mary Louise. "Aristotle's Metaphysics Reconsidered," *Journal of the History of Philosophy* 43 (2005), 223–41.

Hansson, Tobias. "The Problem(s) of Change Revisited," *Dialectica* 61 (2007), 265–74.

Haslanger, Sally. "Persistence Through Time," in M. J. Loux and D. W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics* (Oxford: Oxford University Press, 2003), 315–54.

Hawley, Katherine. *How Things Persist* (Oxford: Clarendon Press, 2001).

Hawthorne, John. "Identity," in M. J. Loux and D. W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics* (Oxford: Oxford University Press, 2003), 99–130.

Hirsch, Eli. *The Concept of Identity* (New York: Oxford University Press, 1982).

Hobbes, Thomas. *Leviathan* (Indianapolis: Hackett, 1994).

Hofweber, Thomas. "The Meta-Problem of Change," *Noûs* 43 (2009), 286–314.

Irwin, Terence. *Aristotle's First Principles* (Oxford: Oxford University Press, 1988).

John Buridan. *In Metaphysicam Aristotelis quaestiones* (Paris, 1518; repr. Frankfurt: Minerva, 1964).

John Buridan. *Quaestiones super libros De generatione et corruptione Aristotelis*, ed. M. Streijger et al. (Leiden: Brill, 2010).

John Buridan. *Quaestiones super octo libros Physicorum Aristotelis (secundum ultimam lecturam): libri I–II*, ed. M. Streijger and P. J. J. M. Bakker (Leiden: Brill, 2015).

John Buridan. *Quaestiones super octo libros Physicorum Aristotelis (secundum ultimam lecturam): libri III–IV*, ed. M. Streijger and P. J. J. M. Bakker (Leiden: Brill, 2016).

John Buridan. *Questions on Aristotle's* De anima, *Books I–III*, ed. G. Klima et al. (Dordrecht: Springer, forthcoming).

John Buridan. "Questions on Aristotle's Physics, Book 1, Question 10," tr. R. Pasnau (unpublished, 2015).

John Buridan. *Summulae de dialectica*, tr. G. Klima (New Haven, CT: Yale University Press, 2001).

John Duns Scotus. *Opera omnia*, ed. C. Balić et al., 21 vols. (Vatican City: Typis Polyglottis Vaticanis, 1950–2013).

John Duns Scotus. *Reportatio I–A*, ed. A. B. Wolter and O. V. Bychkov, 2 vols. (St. Bonaventure, NY: St. Bonaventure University Press, 2004–8).

Johnston, Mark. "Is There a Problem About Persistence?" *Proceedings of the Aristotelian Society* 61 (1987), 107–35.

King, Peter. "Scotus on Metaphysics," in T. Williams (ed.), *The Cambridge Companion to Duns Scotus* (Cambridge: Cambridge University Press, 2003), 15–68.

Kurtz, Roxanne Marie. "Introduction to Persistence: What's the Problem?" in S. Haslanger and R. M. Kurtz (eds.), *Persistence: Contemporary Readings* (Cambridge, MA: MIT Press, 2006), 1–26.

Lewis, David. "Many, but Almost One," in K. Campbell, J. Bacon, and L. Reinhardt (eds.), *Ontology, Causality, and Mind: Essays in Honour of D. M. Armstrong* (Cambridge: Cambridge University Press, 1993), 23–38.

Lewis, David. *On the Plurality of Worlds* (Oxford: Blackwell, 1986).

Loux, Michael J. *Metaphysics: A Contemporary Introduction* (New York: Routledge, 1998).

Maier, Anneliese. *Zwischen Philosophie und Mechanik* (Rome: Edizioni di storia e letteratura, 1958).

Mellor, D. H. *Real Time II* (London: Routledge, 1998).

Merricks, Trenton. "On the Incompatibility of Enduring and Perduring Entities," *Mind* 104 (1995), 523–31.

Morrison, John. "Spinoza on Numerical Identity and Identity," in Y. Melamed (ed.), *A Companion to Spinoza* (Hoboken, NJ: Wiley-Blackwell, 2021) 189–203.

Morrison, John. "Descartes on Numerical Identity and Time," *Australasian Journal of Philosophy* 100 (2022), 230–246.

Morrison, John. "Descartes on Numerical Identity and Time," *The Australasian Journal of Philosophy* 100 (2022), 230–246.

Mullins, R. T. *The End of the Timeless God* (Oxford: Oxford University Press, 2016).

Myro, George. "Identity and Time," in R. E. Grandy and R. Warner (eds.), *Philosophical Grounds of Rationality: Intentions, Categories, Ends* (Oxford: Clarendon Press, 1986), 383–409.

Nicholas of Autrecourt. *Tractatus utilis ad videndum an sermones peripateticorum fuerint demonstrativi*, in J. R. O'Donnell (ed.), "Nicholas of Autrecourt," *Mediaeval Studies* 1 (1939), 179–267.

Normore, Calvin G. "Accidents and Modes," in R. Pasnau (ed.), *The Cambridge History of Medieval Philosophy* (Cambridge: Cambridge University Press, 2009), II: 674–85.

Normore, Calvin G. "Future Contingents," in N. Kretzmann, A. Kenny, and J. Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982), 358–81.

Normore, Calvin G. "Ockham's Metaphysics of Parts," *The Journal of Philosophy* 103 (2006), 737–54.

Parfit, Derek. *Reasons and Persons* (Oxford: Clarendon Press, 1984).

Pasnau, Robert. *Theories of Cognition in the Later Middle Ages* (New York: Cambridge University Press, 1997).

Pasnau, Robert. *Metaphysical Themes 1274–1671* (Oxford: Clarendon Press, 2011).

Pasnau, Robert. "Response to Arlig and Symington," in G. Klima and A. W. Hall (eds.), *Metaphysical Themes, Medieval and Modern*, vol. 11 of *Proceedings of the Society for Medieval Logic and Metaphysics* (Newcastle: Cambridge Scholars Publishing, 2014), 57–72.

Peramatzis, Michail. "Sameness, Definition, and Essence," *Studia Philosophica Estonica* 7 (2014), 142–67.

Peter Abelard. *Theologia Christiana*, in E. Buytaert and C. Mews (eds.), *Opera theologica* (Turnhout: Brepols, 1969–87).

Plato. *Republic*, tr. R. Waterfield (Oxford: Oxford University Press, 1993).

Pluta, Olaf. "Buridan's Theory of Identity," in J. M. M. H. Thijssen and J. Zupko (eds.), *The Metaphysics and Natural Philosophy of John Buridan* (Leiden: Brill, 2001), 49–64.

Quine, W. V. O. "Identity, Ostension, and Hypostasis," *Journal of Philosophy* 47 (1950), 621–33.

Rhoda, Alan R. "Presentism, Truthmakers, and God," *Pacific Philosophical Quarterly* 90 (2009), 41–62.

Rychter, Pablo. "There Is No Puzzle About Change," *Dialectica* 63 (2009), 7–22.

Sider, Theodore. "All the World's a Stage," *Australasian Journal of Philosophy* 74 (1996), 433–53.

Sider, Theodore. *Four-Dimensionalism: An Ontology of Persistence and Time* (Oxford: Clarendon Press, 2001).

Sider, Theodore. "Temporal Parts," in T. Sider, J. Hawthorne, and D. W. Zimmerman (eds.), *Contemporary Debates in Metaphysics* (Malden, MA: Blackwell, 2007), 241–62.

Stump, Eleonore. *Aquinas* (New York: Routledge, 2003).

Stump, Eleonore. "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul," in B. Niederbacher and E. Runggaldier (eds.), *Die menschliche Seele: Brauchen Wir den Dualismus?* (Frankfurt: Ontos Verlag, 2006), 153–74.

Tarski, Alfred. *Introduction to Logic and to the Methodology of the Deductive Sciences* (New York: Oxford University Press, 1994).

Thijssen, Hans. "Condemnation of 1277," in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2018), https://plato.stanford.edu/archives/win2018/entries/condemnation/.

Thomas Aquinas. *De principiis naturae*, in *Opuscula philosophica*, ed. R. M. Spiazzi (Rome: Marietti, 1954).

Thomas Aquinas. *Liber de veritate Catholicae fidei contra errores infidelium, seu Summa contra gentiles*, ed. C. Pera, P. Marc, and P. Caramello (Rome: Marietti, 1961–7).

Thomas Aquinas. *Quaestiones disputatae de veritate* (*Opera Omnia*, vol. 22) (Rome: Commissio Leonina, 1975).

Thomas Aquinas. *Quaestiones disputatae de anima* (*Opera Omnia*, vol. 24) (Rome: Commissio Leonina, 1996).

Thomas Aquinas. *Summa theologiae*, ed. P. Caramello (Rome: Marietti, 1950–53).

Thomas Aquinas. *Truth: A Translation of Quaestiones disputatae de veritate, Volume I, Questions I–IX*, tr. R. W. Schmidt (Washington, DC: Regnery, 1952).

Trifogli, Cecilia. "Change, Time, and Place," in R. Pasnau (ed.), *The Cambridge History of Medieval Philosophy* (Cambridge: Cambridge University Press, 2009), I: 267–78.

Van Dyke, Christina. "Human Identity, Immanent Causal Relations, and the Principle of Non-Repeatability: Thomas Aquinas on the Bodily Resurrection," *Religious Studies* 43 (2007), 373–94.

van Inwagen, Peter. "Four-Dimensional Objects," *Noûs* 24 (1990), 245–55.

Varzi, Achille C. "Entia successiva," *Rivista di estetica* 43 (2003), 139–58.

Varzi, Achille C. "Naming the Stages," *Dialectica* 57 (2003), 387–412.

Walter Burley. *Expositio super artem veterem Porphyrii et Aristotelis* (Venice, 1509).

Wasserman, Ryan. "The Problem of Change," *Philosophy Compass* 1 (2006), 48–57.

Whitehead, Alfred North. *Adventures of Ideas* (New York: Macmillan, 1933).

William Ockham. *Opera philosophica et theologica* (St. Bonaventure, NY: Franciscan Institute, 1967–89).

William Ockham. *Quodlibetal Questions*, tr. A. Freddoso and F. Kelley (New Haven, CT: Yale University Press, 1991).

Zimmerman, Dean W. "Chisholm and the Essences of Events," in L. Hahn (ed.), *The Philosophy of Roderick Chisholm* (Chicago: Open Court, 1997), 73–100.