Descartes on Numerical Identity and Time

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Abstract

According to most contemporary philosophers, the Indiscernibility of Identicals is obviously true. We might therefore expect earlier philosophers to endorse it. But I will use a puzzle about identity over time to argue that Descartes would reject it.

1 Introduction

Numerical identity can seem straightforward. Consider the principle: A thing is numerically identical to itself. It's unclear how anyone could intelligibly disagree with this principle, because it's unclear how something could fail to be numerically identical to *itself.* Likewise, consider the principle: A thing is not numerically identical to something else. It's unclear how anyone could intelligibly disagree with this principle, because it's unclear how something could be numerically identical to *something else.* Many contemporary philosophers believe that the Indiscernibility of Identicals has a similar status. Roughly stated, it's the principle that, if x and y are numerically identical, they cannot instantiate contrary properties, even at different times. Many contemporary philosophers believe that this principle is obviously true (Bricker 1996, p.252; Sider 2001, p.4). In their minds, disagreeing about the Indiscernibility of Identicals would be like disagreeing about whether a thing is numerically identical to itself.

Some contemporary philosophers go further and claim 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"(Lewis 1986; see also Hawthorne 2003, p.99). 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 don't indicate whether they're 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 aren't disagreements about numerical identity itself. There's a helpful contrast with beauty, truth, justice, and God. There are not only disagreements about which poems 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 philosophers believe that numerical identity is different, in that we can disagree only about which things are identical, not about identity itself.

These philosophers should expect to find their view of identity in earlier authors. They might therefore be surprised to learn that *Descartes* — arguably the most influential early modern metaphysician — not only seems to disagree with them about identity itself, but also about one of the principles that's said to be obviously true, namely the Indiscernibility of Identicals. I will motivate this interpretation by considering how he would respond to a puzzle about identity over time.

Historians of philosophy should also be interested in this interpretation. Descartes's claims about identity over time are crucial to some of his most important conclusions. For example, he claims that a body is identical over time, despite changes to its size, shape, and motion. He infers that having a *particular* size, shape, or motion is not essential to a body. What's essential is just to have *some* size, shape, and motion — that is, to be extended (AT VII 31, VIIIA 42). Without his claim about identity over time, he couldn't reach this important conclusion. Descartes's claims about identity over time are also critical to his attempt to rid metaphysics of substantial forms (AT III: 500–509). One of the most important functions assigned to substantial forms was to help explain identity over time (see, e.g., Aquinas *De Principiis Naturae*). Thus, the extent to which Descartes successfully rid metaphysics of substantial forms depends on whether he has an alternative explanation.

For both reasons, it is disappointing that Descartes's view of identity over time has received so little attention. As far as I'm aware, Gorham (2010) and Pasnau (2011, Ch 8)

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are the only scholars who try to reconstruct it. However, as we'll see, their reconstructions have serious shortcomings, precisely because they take for granted that Descartes would accept the Indiscernibility of Identicals.

2 The Puzzle

Let's focus on Peter, a character familiar from both the medieval and early modern literatures. According to Descartes, Peter is the union of two distinct substances, a body and a mind (AT VII 78, 81). Let's focus on Peter's body, because Descartes says more about the nature and persistence of bodies. Suppose that Peter had an uneventful day: He woke up in the morning, walked until nighttime, and then fell asleep. Let *Morning Peter* be the body that moved in the morning, and let *Night Peter* be the body that rested at night. The following three claims are mutually inconsistent:

a. Morning Peter instantiated motion in the morning, and Night Peter instantiated a contrary property at night (namely: rest).

b. Morning Peter and Night Peter are numerically identical.

c. If x and y are numerically identical, and x instantiated a property at a time, at no time did y instantiate a contrary property.

The puzzle of identity over time is to say which claims, if any, we should reject.

The last claim, (c), is the Indiscernibility of Identicals. Two notions are at its core: 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. Let's understand these notions as broadly as possible, to give ourselves a framework general enough to accommodate other views, including views that imply that motions, shapes, colors, etc., exist only at some times and

locations, and are each instantiated by at most one object (as *tropes*). For example, let's accommodate the view that Peter's motion exists only at Peter's location, and only while Peter is moving.[1]

This isn't the canonical formulation of the Indiscernibility of Identicals. The canonical formulation is:

c.$'$ If x and y are numerically identical, x instantiates a property if and only y instantiates that property.

We're 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:

c.$''$ 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. While the notion of a *contrary property* is open to further analysis, that motion and rest are paradigmatic examples is enough.

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

A second modification is about *when* the properties are instantiated. (c$''$) is ambiguous. Disambiguated in one way, it is equivalent to a principle that doesn't give rise to a puzzle:

c.$'''$ If x and y are numerically identical, and x instantiated a property at a time, y did not instantiate a contrary property at that time.

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[1] For a survey of views on the metaphysics of properties, see Loux 1998, Ch 1–2.

This implies that Night Peter didn't instantiate rest *at the same time* that Morning Peter was walking. But that is consistent with the identity and discernibility of Morning Peter and Night Peter, i.e., (a) and (b), and thus doesn't give rise to a puzzle. In contrast, our formulation gives rise to a puzzle.

It is not worth arguing about how to disambiguate the Indiscernibility of Identicals. Like contemporary philosophers, we're interested in a principle that gives rise to a puzzle about change, and thus in a principle that's equivalent to, or at least sufficient for, (c).[2] We are trying to establish that Descartes would reject that principle. For our purposes, then, this is the principle at issue, and 'Indiscernibility of Identicals' is a natural label for it.

As far as I'm aware, only five contemporary philosophers would reject the Indiscernibility of Identicals so formulated: Myro 1986, Baxter 1999, Hansson 2007, Rychter 2009, and Hofweber 2009. To understand why, let's consider eternalism, a popular view about time.[3] Eternalists hold that 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 a fourth, temporal dimension as well as the three spatial dimensions. 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 don't indicate which objects exist and which objects don't exist.

To an eternalist, the puzzle 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*

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[2]For surveys of contemporary responses to the puzzle of identity over time, see Haslanger 2003, Wasserman 2006, Kurtz 2006, and Sider 2007

[3]For a survey of eternalism and its alternatives, see Miller 2013.

are non-identical. Let *Downstairs Peter* be a body that is currently on a treadmill downstairs, and let *Upstairs Peter* be a body that is simultaneously resting upstairs. One reason for thinking that Downstairs Peter isn't identical to Upstairs Peter is that Downstairs Peter instantiates *motion* and Upstairs Peter instantiates *rest*. This might not be the only reason for thinking that Downstairs Peter isn't identical to Upstairs Peter, but it seems sufficient. To an eternalist perspective, we seem to have just as good a reason to think that Morning Peter isn't identical to Night Peter, namely that Morning Peter instantiated *motion* and Night Peter instantiated *rest*. 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. If the fact that Downstairs Peter and Upstairs Peter are moving at different speeds is enough to establish that they are distinct bodies, the mere fact that Morning Peter and Night Peter were moving at different speeds is enough to establish that they are distinct bodies. Likewise, if the mere fact that Downstairs Peter and Upstairs Peter are in different locations is enough to establish that they are distinct bodies, the mere fact that Morning Peter and Night Peter are at different times is enough to establish that they are distinct bodies. Thus, from an eternalist perspective, the Indiscernibility of Identicals might seem obvious.

In the next section I'll argue that Descartes is committed to the identity and discernibility of Morning Peter and Night Peter, i.e., to (a) and (b). This will help motivate the suggestion that Descartes would reject the Indiscernibility of Identicals, i.e., (c). In the fourth section I will present additional motivations.

3   Identity and Discernibility

Descartes writes in a 1645 letter to Mesland that a person's body remains numerically the same over time, despite observable changes, as long as it is substantially united to the same

soul:

> [W]hen we speak of the body of a man, we do not mean a determinate part of matter, or one that has a determinate size; we mean simply the whole of the matter which is united with the soul of that man. And so, even though that matter changes, and its quantity increases or decreases, we still believe that it is the same body, numerically the same body, so long as it remains joined and substantially united with the same soul. (AT IV 166; Trans. Cottingham et al. 1984, 3:243)[4]

Thus, as long as Morning Peter and Night Peter are substantially united to the same soul, Descartes seems committed to their identity, despite the difference in their motions.

This is also a consequence of his general account of bodies. In the *Meditations*, he says that a piece of wax remains numerically the same body even as it melts and changes its color, texture, and shape:

> I put the wax by the fire, and look: the residual taste is eliminated, the smell goes away, the colour changes, the shape is lost, the size increases. ... But does the same wax remain? It must be admitted that it does; no one denies it, no one thinks otherwise. ... I am speaking of this particular piece of wax; the point is even clearer with regard to wax in general. ... It is of course the same wax which I see, which I touch, which I picture in my imagination, in short the same wax which I thought it to be from the start. (AT VII 30–31; Trans. Cottingham et al. 1984, 2:20–21)

While there's room for debate about whether it remains numerically the same *piece of wax* (see Kaufman 2014, p.80), everyone should agree that it remains numerically the same *body*. After all, Descartes argues that the nature of a particular body is knowable only through the intellect (AT VII 31-2). If it were destroyed as a result of its change in its taste, smell, color, shape, or size, then one of these qualities might belong to its nature, and thus its nature could be known through perception.

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[4]Elsewhere he says that "a human body loses its identity merely as a result of a change in the shape of some of its parts"(AT VII 14; Trans. Cottingham et al. 1984, 2:10; see also AT XI 330–331). However, he's contrasting the immortality of the soul with the mortality of the body, and thus is merely saying that a human body is destroyed when certain of its parts change shape, e.g., when its lung permanently collapses. See Kaufman 2014, fn 17.

Descartes doesn't mention motion in this passage. But if the piece of wax remains numerically the same body despite changes to its taste, smell, color, shape, and size, it would presumably also remain numerically the same despite changes in its speed.

Descartes does mention motion in other places. In a letter to an unknown recipient, he says:

> [T]he same body can exist at one time with one shape and at another with another, now in motion and now at rest. (AT IV 349; Trans. Cottingham et al. 1984, 3:280)

And in *Principles of Philosophy*, he says:

> [O]ne and the same body, with its quantity unchanged, may be extended in many different ways (for example, at one moment it may be greater in length and smaller in breadth and depth, and a little later, by contrast, it may be greater in breadth and smaller in length.) (AT VIIIA 31; Trans. Cottingham et al. 1984, 1:215)

Thus, Descartes's general account of bodies seems to commit him to the identity of Morning Peter and Night Peter, despite the difference in their motions.

There's a complication. In the 1645 letter to Mesland, Descartes denies that non-human bodies always survive changes in their parts. Also, in the passage from the *Principles*, he restricts himself to a body whose quantity is unchanged. His choice of examples in the *Meditations* might also be significant, because a piece of wax doesn't seem to gain or lose parts as it melts. For this reason, Descartes's *general* account of bodies might not commit him to the identity of Morning Peter and Night Peter. Given how we formulated the puzzle, they might not have all the same parts. Fortunately, we can build into our puzzle that Morning Peter and Night Peter have all the same parts by supposing that God prevents Night Peter from gaining or losing parts. In that case, like the wax before and after it melts, Morning Peter and Night Peter differ only in their motions, colors, textures, shapes, and other properties, and are therefore numerically identical.

Thus, both Descartes's specific account of human bodies and his general account of bodies seem to commit him to the identity and discernibility of Morning Peter and Night Peter, i.e., (a) and (b). Let's further support this interpretation by considering why he wouldn't accept any of the contemporary proposals for denying these commitments.

Relationists would deny the discernibility of Morning Peter and Night Peter (see Mellor 1998, Ch 8). They would first insist that *motion* and *rest* are relations to times. To say that someone instantiated *motion* is to say that he stood in the *motion* relation to a time. They would then insist that Morning Peter and Night Peter stood in the same relations to the same times. In particular, when Morning Peter was walking, he stood in the *motion* relation to the morning, and in the *rest* relation to the night. Likewise, when Night Peter was resting, he stood in the *motion* relation to the morning, and in the *rest* relation to the night. It might help to make a list:

Morning Peter stood in the *motion* relation to the morning.
Morning Peter stood in the *rest* relation to the night.
Night Peter stood in the *motion* relation to the morning.
Night Peter stood in the *rest* relation to the night.

Relationists would conclude that while Morning Peter was walking he instantiated all the same properties as Night Peter while he was resting. They would also conclude that none of these properties are contraries. Just as standing in the *taller than* relation to one person is compatible with standing in the *shorter than* relation to another person, standing in the *motion* relation to the morning is compatible with standing in the *rest* relation to the night. This understanding of change is therefore consistent with the Indiscernibility of Identicals.

Descartes wouldn't accept relationism. First, according to Descartes, a body changes by existing in one way and then existing in another way. Descartes also thinks that a body's properties — including its size, shape, and motion — are just the ways that body exists. Like Aquinas, he calls them *modes* (AT VIII 26, 31). Once a thing stops moving, its previous

motion is not a property of it. Instead, it has a new property, because it exists in a new way. Thus, Descartes would reject any proposal, including relationism, that implies that a body changes without gaining or losing properties.

Second, Decartes, like the medieval Aristotelians (Brower 2001, esp. Sec 3.1), seems to deny the existence of relations involving more than one object, i.e., polyadic relations. Order and number are paradigmatic examples of polyadic relations and Descartes says that they're just ways of thinking about the things ordered and numbered (AT VIIIA: 26). Additionally, Descartes implies that everything that exists is a substance or a mode (AT VIIIA 28–30). Relations don't seem like substances, because a substance can exist apart from all other substances, and relations can't exist apart from their relata. Relations also don't seem like modes, at least by Descartes's lights, because his definitions of 'mode' and 'modal distinction' seem to presuppose that all modes are monadic. He writes, "By *mode*, as used above, we understand exactly the same what is elsewhere meant by *attribute* or *quality*. But we employ the term *mode* when we are thinking of a substance as being affected or modified ..." (AT VIIIA 26). This seems to presuppose that modes are properties of a single substance. He later defines a 'modal distinction' as a relation between either "a mode ... and the substance of which it is a mode" or "two modes of the same substance" (AT VIIIA 29–30). He doesn't mention distinctions between substances, again suggesting that modes are properties of a single substance. Thus, relations seem to be neither modes nor substances, and thus not to exist. For this reason, Descartes would reject any proposal, including relationism, that implies that properties are relations, because while modes exist (see also AT VII 185), relations do not.

Third, Descartes, again like the medieval Aristotelians (Mullins 2016, p.74–87; Normore 1982, p.367f; Pasnau 2011, p.388–9), seems to reject eternalism in favor of presentism, the view that objects exist only in the present. Presentists hold that while minerals exist below us in the ground and clouds exist above us in the sky, our ancestors don't exist before us

in the seventeenth century and our descendants don't exist after us in the twenty-second century. The most that can be said is that our ancestors in the seventeenth century *used to* exist and our descendants in the twenty-second century *will* exist, and that doesn't imply that they exist, even in the most expansive sense of 'exist'. Presentists sometimes describe reality as three-dimensional, with objects distributed across all three spatial dimensions. As time passes, the 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.

Descartes seems to accept presentism. He says that God preserves a thing by creating it "afresh at each moment of time" (AT VII 109, see also 49–50). This suggests that God creates a thing moment-by-moment, through distinct acts of creation, rather than at all moments in a single act of creation. Otherwise, God wouldn't be creating it *afresh*. It also suggests that a thing exists simultaneously with God's act of creation, so that a thing exists at a moment just in case God creates it at that moment. Otherwise, God wouldn't be recreating it *at each moment of time*. Descartes's claim therefore suggests presentism.[5] If so, he wouldn't accept any view that involves relations to objects that exist in the past or future, and thus presumably wouldn't accept any view that involves relations to past times or future times, including relationism.

His view about the nature of time seems also incompatible with relationism. He says that we either identify times with durations, in which case times are just motions, or we distinguish times from durations, in which case times are abstractions existing only in our minds (AT VIIIA 27). Either way, times don't seem like the right kind of *things* for properties to be relations to them. If times were just motions, then all properties would be relations to the properties of bodies. But then minds couldn't exist without bodies, and Descartes insists that they can (AT VIIIA 29). Alternatively, if times exist only in minds, then all properties

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[5]This goes further than a "cinematic view" of how God creates the world (see Garber 2001, Ch 10, though Garber is specifically talking about how God creates motion). The cinematic view is neutral about whether God creates the "frames" one-by-one or all-at-once, and thus is neutral between presentism and eternalism.

would be relations to the properties of minds, specifically their abstractions. But then bodies couldn't exist without minds, and Descartes insists that they can (see again AT VIIIA 29). Moreover, both options seem to 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.

Adverbialists would also deny the discernibility of Morning Peter and Night Peter (see Johnston 1987). They would first insist that, for every time, there is a different way of instantiating *motion*. They would then insist that Morning Peter and Night Peter instantiated the same properties in the same ways. In particular, while Morning Peter was walking, he instantiated the property *motion* in a morning-ly way and the property *rest* in a night-ly way. Likewise, while Night Peter was resting, he instantiated the property *motion* in a morning-ly way and the property *rest* in a night-ly way. It might help to again make a list:

Morning Peter instantiated *motion* in a morning-ly way.
Morning Peter instantiated *rest* in a night-ly way.
Night Peter instantiated *motion* in a morning-ly way.
Night Peter instantiated *rest* in a night-ly way.

Adverbialists would conclude that while Morning Peter was walking he instantiated all the same properties, and in all the same ways, as Night Peter while he was resting. They would also conclude that none of these properties are contraries. Just as greeting one person in a friendly way is compatible with greeting another person in an unfriendly way, instantiating *motion* in a morning-ly way is compatible with instantiating *rest* in a night-ly way.

Descartes wouldn't accept adverbialism. First, it seems inconsistent with his account of change. As noted above, Descartes seems to think that a body changes by gaining and losing properties, whereas adverbialism implies that things always have the same properties.

Second, given that a thing's properties are its ways of existing, its properties presumably exist at some times but not other times, and at some locations but not other locations (as

tropes). Thus, if Night Peter instantiates motion in some sense, his motion presumably exists at some time and at some location. Given presentism, it must exist while he's sleeping. But where? And why does it no longer make anything move? These questions aren't unanswerable, but they are uncomfortable.[6]

Exdurantists would deny that Morning Peter and Night Peter are identical. They claim that a person's body exists only for an instant and is then replaced by a new body (see Chisholm 1976; Parfit 1984; Hawley 2001, Ch 2; Varzi 2003a, 2003b; Sider 1996). The new body is often, but not always, nearly indiscernible from the old body. For example, Morning Peter was replaced by a body that was nearly indiscernible, except that it was moving slightly faster, and perhaps also had a slightly different shape, because its knee was slightly higher. It was then replaced by another body, and so on. According to exdurantists, there was no body that was moving in the morning and then resting at night. There was just a series of different instantaneous bodies, some moving, others resting, some with bent knees, others with straight knees. Morning Peter and Night Peter are supposed to be bodies in that series. This view has its roots in the writings of Heraclitus and other ancient Greek authors (see, e.g., Plato, *Cratylus*, 402a).

As some contemporary exdurantists develop the view, we can still make true claims about what a person *did* and *will do*. For example, according to Sider 1996, Peter can truly say "I was running" at night because he has the right kind of relation to the person who was moving in the morning (p.437–439). He just can't truly say, "I am numerically identical to the person who was running"(p.446; also Sider 2001, p.196).

Descartes wouldn't accept exdurantism. In his 1645 letter to Mesland he says that after a human body changes, "it is the same body, numerically the same body"(AT IV 166). In the *Meditations* he says that after a piece of wax changes that "no one denies" that it's the

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[6]Because Descartes conceives of properties as ways of existing, it's in principle open to him to claim that *was moving* is a mode of Night Peter. But there's no evidence that Descartes thought that this is a way of existing, or that it's a mode.

same piece of wax (AT VII 30). Thus, he doesn't just claim that these bodies are different at later times. He claims that they are numerically identical to the bodies at earlier times. In the letter for Mesland he even restates the claim in Latin [*idem numero*] after first stating it in French [*le mesme*] to emphasize that he means identity in the strict, philosophical sense.[7] Moreover, as mentioned in the introduction, if the piece of wax wasn't the same, and was replaced by a new body, then Descartes wouldn't have shown that it can exist with a different size, shape, or motion, and thus wouldn't have shown that its size, shape, and motion are inessential to it. He thus couldn't conclude that the essence of a body is merely to be extended (AT VII 31, VIIIA 42).

Perdurantists would deny either the discernibility or the identity of Morning Peter and Night Peter, depending on how these names are disambiguated. Perdurantists also claim that there are instantaneous. But unlike exdurantists, perdurantists claim that there are also composites of those instantaneous bodies (see Quine 1950; Lewis 1986, Ch 4). 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 (see especially Lewis 1993). 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,

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[7]I owe this observation to Saja Parvizian.

a composite doesn't instantiate contrary properties because one of its temporal parts was moving in the morning and another of its temporal parts was resting as night.

Descartes wouldn't accept perdurantism. First, as noted above, Descartes seems to accept presentism, the view that whatever exists, exists in the present. Presentism implies that no more than one temporal part of a composite exists. Thus, presentism and perdurantism imply that, if a person's body is a composite, at most one temporal part of that body exists. This seems to imply that the body doesn't exist. Similarly, if only one spatial part of a car exists (e.g., its muffler), the car doesn't exist, and if only one spatial part of Peter's body exists (e.g., his foot), Peter doesn't exist (see Merricks 1995, p.524). It would be hard to deny that the underlying principle applies to temporal parts as well. There is another option: deny that a person's body is a composite. Perdurantism would then imply that a human body exists for only an instant, and Descartes can't accept that, for the same reasons he can't accept exdurantism.

Second, Descartes can't be a perdurantist about a person's mind. Descartes insists that a person's mind lacks parts, i.e., that it's simple (AT VII 86). Thus, it can't be composed of instantaneous minds. For this reason, even if Descartes could use perdurantism to solve our puzzle, he couldn't use it to solve the parallel puzzle about how minds can be identical over time, despite discernible differences in their properties, such as new ideas and judgments (AT VII 36–37).

Note also that, while Descartes says that all bodies have spatial parts, in virtue of being extended, he never talks about temporal parts. It therefore seems unlikely that this would be his solution to the puzzle, for bodies or for minds.

Gorham (2010, p.168–170) claims that Descartes is committed to perdurantism because past bodies and future bodies can exist without each other (by AT VII 109, 370) and "two substances are really distinct if one can exist without the other"(AT VII 162). Gorham infers that past bodies and future bodies must be distinct substances, and thus bodies can

persist over time only if they are composed of distinct, instantaneous substances. But that's unacceptable from a Cartesian point of view, for the reasons mentioned above. It seems more likely that the principle "two substances are really distinct if one can exist without the other" is restricted to a time, and thus is just a particular instance of the more general principle:

c.″ If x and y are numerically identical, and x instantiated a property at a time, then y didn't instantiate a contrary property *at that time*.

In support of this hypothesis, consider that Descartes uses this principle only to establish that, if it's possible for x to exist at a time when y does not, they are distinct — for example, that if it's possible for a mind to exist when a body does not, they are distinct. Also, consider that Scotus and Ockham make similar claims about when two substances are really distinct (King 2003, p.21; Adams 1976, p.12), and they are not perdurantists (Pasnau 2011, p.395).

Pasnau's interpretation doesn't straightforwardly fall under any of the responses we considered. It also doesn't solve the puzzle. According to Pasnau, Descartes's view of identity over time relies on a distinction between thick substances and thin substances (Pasnau 2011, p.143). A thick substance is a substance "including" all of its properties, whereas a thin substance is a substance "excluding" all of its properties. According to Pasnau, Descartes inherits this distinction. The medieval Aristotelians distinguished between a *thin* substance consisting of just prime matter and a substantial form, and a *thick* substance consisting of prime matter, a substantial form, and accidental forms (Pasnau 2011, p.99–108; Brower 2014, p.91–100). Thin substances are intrinsically the same over time, in virtue of having the same constituents, whereas thick substances are created and destroyed with each change in their properties. Pasnau suggests that when Descartes says that a human body or a piece of wax is numerically the same over time, he's talking about a thin substance.

But this doesn't really the puzzle. Even if Morning Peter and Night Peter are thin substances, they have properties; Morning Peter moved, and Night Peter rested. Descartes

is clear on this point, saying that a human body is the same despite an increase in its size (AT IV 166), and a piece of wax is the same despite losing its color (AT VI 30–31). Thus, if we're thinking about Morning Peter and Night Peter as thin substances "underneath" the changing properties, we still need to think about them as having properties "on top". Otherwise, we wouldn't be thinking about something that has increased in size. But if they have properties on top, changes in those properties are enough to give rise to the puzzle. After all, the Indiscernibility of Identicals isn't restricted to Morning Peter's and Night Peter's *constituents*. It is about *all* of their properties. 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.[8] According to this view, a change in a thing's properties isn't a change in its constituents. As far as I'm 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 arises for anyone who thinks that objects have properties, regardless of their view about the nature of those properties, including whether they are constituents. Thus, the puzzle arises for Descartes regardless of whether Morning Peter and Night Peter are thin substances.

In addition, Descartes may be unable to countenance a distinction between thin and thick substances. Given Descartes's understanding of properties as modes, a substance's properties are just the ways in which that substance exists, so if we exclude a substance's properties, we're excluding its existence (as Pasnau acknowledges, 2011, p.275). Thus, Descartes would have to deny that thin substances exist. It's also unclear what Descartes would include among the constituents of thin substances, given that he doesn't countenance substantial forms or prime matter. Perhaps this is why Descartes nowhere makes or endorses a distinction between thick and thin substances.

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[8]For an overview of substrata, bundle, and substance views, see Loux 1998, Ch 3.

4 Indiscernibility of Identicals

Here, again, is the puzzle:

a. Morning Peter instantiated motion in the morning, and Night Peter instantiated a contrary property at night (namely: rest).

b. Morning Peter and Night Peter are numerically identical.

c. If x and y are numerically identical, and x instantiated a property at a time, at no time did y instantiate a contrary property.

Almost all contemporary philosophers reject either the identity or the discernibility of a person over time, i.e., (a) or (b). This isn't a coincidence. Contemporary philosophers believe that, if we want to be coherent, these are our only options. But there's a third option: reject the Indiscernibility of Identicals, perhaps in favor of the weaker principle restricted to times:

c.''' If x and y are numerically identical, and x instantiated a property at a time, then y did not instantiate a contrary property *at that time*.

As I interpret Descartes, this is how he would respond. My argument is simple: Descartes is committed to (a) and (b), and they are jointly inconsistent with (c).

There are four additional considerations in support of this interpretation. First, none of his arguments seem to presuppose the Indiscernibility of Identicals, rather than the weaker principle. For example, consider again his argument that a body and its mind are numerically distinct because the body has parts while the mind doesn't (AT VII 13, 86). As we noted, that argument just presupposes (c'''). Likewise, consider again his argument that a body and its mind are numerically distinct because it's possible for the mind and the body to exist without one another (AT VII 109, 370). This argument also just presupposes (c'''). Of course, these are just two arguments. But I can't find any arguments that require the Indiscernibility of Identicals.

Second, because Descartes is a presentist, it would be easier for him to reject the Indiscernibility of Identicals. From a presentist perspective, it isn't arbitrary to restrict the principle to a time but not to a location. Recall that, according to eternalists, 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 motions is enough to establish that they are distinct bodies, the mere fact that Morning Peter and Night Peter had different motions is enough to establish that they are distinct bodies. According to presentists, there's 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 reasons for thinking that Downstairs Peter isn't identical to Upstairs Peter might be of a different kind than our reasons for thinking that Morning Peter isn't identical to Night Peter. Thus, even if the Indiscernibility of Identicals seems obviously true to eternalists, it needn't seem obviously true to presentists, at least not for the same reason.

From a presentist perspective, there is a different motivation for the Indiscernibility of Identicals. It derives from the principle: If a claim is true, it is made true by the things that exist and the properties they instantiate (for background, see Caplan and Sanson 2011; Miller 2013, p.354–356). For example, if "He was moving" is true when said at night, it is made true by things that exist and the properties they instantiate. A natural suggestion is that it is made true by Peter and the properties he instantiates. Given presentism, it would follow that it is made true by Peter and the properties he instantiates *at night.* Generalizing this line of reasoning, it might establish: For every property Peter instantiated in the morning, he still instantiates it at night. A similar line of reasoning involving claims about the future might establish: For every property Peter instantiated at night, he already instantiated it

in the morning. A presentist might thereby be led to the Indiscernibility of Identicals. The details of this motivations are complicated, but, for our purposes, it's enough to note that there's no reason to think that this line of reasoning commits Descartes to the Indiscernibility of Identicals. There's no evidence he's committed to the principle that if a claim is true, it is made true by the things that exist and the properties they instantiate.

Third, Descartes is at least *superficially* committed to (a) and (b) by the 1645 letter to Meslend (AT IV 166), the wax passage from the *Meditations* (AT VII: 30–31), and the other passages quoted at the start of the previous section. If he were committed to the Indiscernibility of Identicals, he would have noticed the apparent contradiction and would have addressed it. After all, it's completely straightforward. But Descartes doesn't acknowledge even the appearance of a contradiction. Instead, he moves to the next topic. Of course, philosophers sometimes fail to notice when their claims appear contradictory. But the contradiction is so obvious in this case, that's hard to believe. It's also hard to believe that the Indiscernibility of Identicals never occurred to him, given that he was deeply interested in numerical identity, especially its necessary conditions. This suggests that he didn't take himself to be committed to the Indiscernibility of Identicals.

Fourth, Descartes was exposed to philosophers who weren't committed to the Indiscernibility of Identicals, or at least could have been interpreted as not being committed to it. For example, Aquinas writes,

> [T]he 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]. (Aquinas, *Summa Contra Gentiles*, Book IV, Question 81, Par 4157; Trans. Pasnau 2011, p.691)

Aquinas seems to say that a human being, such as Peter, is numerically identical over time, despite material changes, such as a loss of nutrients, and the corresponding change in his size and color. Aquinas thus seems committed to both the identity and discernibility of

Peter over time. Moreover, Aquinas seems to think that Peter's identity is in virtue of his intellective soul, and thus in virtue of his essence (*Summa Theologica*, Volume, 1a Question 29).

In other work, I argue that this is indeed Aquinas's view, and that he would therefore reject the Indiscernibility of Identicals (and see Stump 2003, p.44-46). I also argue for similar interpretations of Ockham and Buridan. But, for present purposes, what's more important is that they could reasonably have been interpreted in these ways by Descartes and his contemporaries. Keep in mind that these authors were especially influential in France.[9] It is thus likely that Descartes was exposed to their views, probably during his student days at La Flèche.[10] Indeed, Descartes seems to have this tradition in mind when, in his letter to Mesland, he says that the human body is numerically identical over time because of its relation to the *soul*.

In this tradition, the Indiscernibility of Identicals might not have seemed like a principle that needed to be given up; it might not have seemed true. This might explain why Descartes acts as though his claims about identity over time aren't even superficially puzzling. It might also explain why his critics and correspondents also didn't seem to think they were puzzling. In contrast, Descartes wasn't exposed to a tradition in which philosophers endorsed relationism or adverbialism, and while he *might* have been exposed to ancient authors who endorsed exdurantism (see again Plato, *Cratylus*, 402a), and perhaps also ancient and medieval authors who endorsed perdurantism about some beings (e.g., time, motion; see Pasnau 2011, Ch 18), it's far less likely that he would have absorbed these traditions unreflectively through his teachers and contemporaries. Because they were marginal views, it's also likely that he would have felt the need to acknowledge and defend them. It's also likely that his contemporaries would have noticed and criticized them.

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[9]See Roensch 1964; Courtenay 2008, Ch 8; and Thijssen 2004, respectively, for the influence of Aquinas, Ockham, and Buridan on French Scholasticism.

[10]See Ariew 1999, p.9, for more on Descartes's education at La Flèche.

In this tradition, philosophers accepted the weaker principle, (c‴). Aristotle 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" (*Metaphysics* Gamma, Ch 4, 1005b19–20 and 26–27, Trans. Ross in 1984, p.46, emphasis added). Likewise, Descartes's contemporary Mersenne says that the most certain of all principles is that "it is impossible for the same thing to be and not to be" and that this principle implies that the same thing cannot be green and not green, sweet and not sweet, and so on, for all other pairs of contraries. He also says that this principle is restricted to a time (*Truth of the Sciences*, Trans. Ariew et al. 1998, p.162). Aristotle and Mersenne thereby endorse the weaker principle, (c‴). Descartes's view is traditional, in that he too would endorse the weaker principle.

Descartes's view is not completely traditional. There are at least three important departures. First, Descartes's focus is on a person's body, not the whole person. Whereas for Descartes the mind and body are more fundamental than their union (e.g., AT VIIIA 28–29), traditionally their union is more fundamental (e.g., Aquinas, *Summa Theologica*, Volume 1a, Questions 75–76).

Second, Descartes doesn't countenance substantial forms (AT III 502), and thus owes us an alternative account of the essence shared by Morning Peter and Night Peter. According to Descartes, they share the same essence as they share the same principle attribute. In particular, they share the attribute of extension (AT VIIIA 25).

Third, Descartes doesn't think that sharing the same essence is *sufficient* for numerical identity. Bodies are distinct from each other, but they share the same essence, namely the attribute of extension. While there's a debate about whether distinct bodies are distinct *substances* (see Secada 2000, p.208), and a debate about whether the distinctions between bodies are *mind-dependent* (see Sowaal 2004), everyone should agree that bodies are distinct

from one another. Thus, bodies can share the same essence while being distinct. This point is even clearer for minds. All minds share the same essence, namely thought (AT VIIIA 25). But minds are distinct from one another; they're distinct substances (AT VII 14). Thus, minds share the same essence while being distinct. Once again, sharing the same essence isn't sufficient for identity.

Descartes does still claim that sharing the same essence is *necessary* for identity. For example, he argues that the mind and body are distinct because they have different essences (AT VII: 78). But he denies that it's sufficient.

What's sufficient for numerical identity? For human bodies, it's an inessential relation to the soul (AT IV 166–167). For non-human bodies, it's unclear. The letter to Mesland, quoted above (AT IV 166–167) might suggests that a non-human body is numerically identical over time if it retains the same parts. But that regresses, because we'd need to explain the numerical identity of the parts over time (Normore 2007, p.281). In principle, Descartes could appeal to some other inessential property of non-human bodies, such as their internal structure. In any case, that Descartes doesn't tell us what's sufficient for the identity of non-human bodies over time is a serious omission, given that this is one of the roles of the substantial forms he rejects.

Descartes also doesn't tell us what's sufficient for the identity of minds over time (Normore 2007, p.280). This is arguably a less significant omission, because minds are destroyed by an act of God (AT VII 49), not by their modifications. For minds, there's a sharp metaphysical distinction between being modified and being destroyed. We are thus not left wondering which modifications they can survive.

5   Conclusion

It shouldn't be surprising to discover philosophers who would reject the Indiscernibility of Identicals. Consider the principle that a thing is identical to itself. This principle is obviously true, and we would expect anyone to accept it, regardless of their starting point. One doesn't need philosophical training to understand it, and its appeal doesn't depend on one's metaphysical views about the nature of time or any other abstract topic. If you asked a person to choose between this principle and a weaker principle that says a thing is identical to itself only at some times, they would choose the stronger principle without hesitation. In contrast, the Indiscernibility of Identicals is about properties and their instantiations, notions that are incredibly abstract and about which there's considerable disagreement. Without philosophical training, it might not even be intelligible. As we saw earlier, its appeal also varies with one's metaphysical view of time, in particular whether one is a presentist or an eternalist. If you asked a person without philosophical training to choose between the Indiscernibility of Identicals and the principle that links identity to indiscernibly at a time, they probably wouldn't know how to respond. This doesn't mean that the Indiscernibility of Identicals isn't true. It means that it isn't *obviously* true, and we therefore shouldn't be surprised if some would reject it.

There is a possible line of resistance. Some regard the Indiscernibility of Identicals as so fundamental to our understanding of numerical identity that it can't be rejected.[11] According to them, anyone who rejects the Indiscernibility of Identicals lacks the concept of numerical identity, and must be talking about another relation. Analogously, anyone who denies that squares have four sides arguably lacks the concept of a square, and must be talking about another shape. If these philosophers are right, Descartes can't be talking about numerical identity when he says that, "we still believe that it is the same body, numerically the same

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[11]Tarski 1994, p.50, and Church 1956, p.281–282, build the Indiscernibility of Identicals into their definitions of identity, though they don't discuss identity over time.

body, so long as it remains joined and substantially united with the same soul"(AT IV 166).

But numerical identity has at least as fundamental a connection to counting (Baxter 2018, p.907). When we ask whether Morning Peter and Night Peter are numerically identical, we're asking whether they are *one* body or *two*. Likewise, when Descartes asks whether Peter's body and Peter's mind are numerically identical, he's asking whether they are *one* substance or *two* (AT VII 162). The Indiscernibility of Identicals gives us one way to count, but not the only way. For objects at a given time, Descartes's alternative is to count by asking whether each can exist without the others (AT VII 162, VIIIA 24). For objects at different times, he lacks an an alternative. Unlike his predecessors, he can't rely on substantial forms. But insofar as he is using numerical identity to count, we have good reason to allow that he's really talking about numerical identity.

More generally, we should't impose strict limits on how numerical identity must be understood. Philosophers have been talking about numerical identity since the beginning; it's not a technical notion that was recently stipulated into existence. In this respect, it's like our notions of beauty, truth, justice, and God. As I hope everyone will agree, we shouldn't deny that Plato is talking about beauty because he denies that poems are beautiful (*Republic* 10, Book 10, 601b), or that Bradley is really talking about truth because he denies that truth requires correspondence (Bradley 1914), or that Hobbes is really talking about justice because he denies that democracies are just (*Leviathan*, Ch 19), or that Whitehead is really talking about God because he denies that God is omnipotent (Whitehead 1933, p.213).[12] We likewise shouldn't deny that Descartes is really talking about numerical identity just because he's talking about a relation that doesn't satisfy the Indiscernibility of Identicals. Philosophy is far too open-ended to impose strict limits on how its basic notions must be understood.[13]

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[12] For other examples, see Baxter 2018, p.907–908.

[13] This paper began as a section of a much longer paper on identity in medieval and early modern philosophy. Over six years, I spun off five papers: "Three Medieval Aristotelians on Numerical Identity and Time," "Descartes on Numerical Identity and Time," "Spinoza on Numerical Identity and Time," "Spinoza on

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