

John Buridan's Metaphysics of Persistence

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ABSTRACT John Buridan's theory of persistence is based on a metaphysical foundation that has been misrepresented by contemporary scholars. I argue that this fact is both (i) suggested by his treatment of persistence itself, and (ii) explicit in his clearest exposition of the foundations of persistence. I also argue that while this fact has historical interest, its primary interest is philosophical in nature: it shows Buridan developing a distinction that contemporary philosophers find useful in elaborating a metaphysical basis for theories of persistence.

KEYWORDS John Buridan, persistence, numerical sameness, identity, unity, metaphysics, individuation

LONG BEFORE TIBBLES AND FISSIONS ARRIVED on the scene, Scholastic philosophers had their own grapples with questions concerning identity over time. Among later Scholastics, Thomas Aquinas's treatment of these kinds of questions was enormously influential, and the answer he gave was grounded in his notion of substantial form: when faced with a question about the persistence of some substance, Aquinas simply cited the substance's substantial form as that in virtue of which it is numerically the same substance, since the substantial form persists as long as the substance persists.¹

Against Aquinas's framework, John Buridan's theory of persistence stands out as pioneering.² To be sure, the fourteenth-century Parisian arts master shared some general commitments with Aquinas, but the sophistications he added to Aquinas's treatment of persistence resulted in a theory that was entirely new and extraordinary. Buridan thereby thoroughly enlivened the topic, and it is no

¹In *Summa Contra Gentiles*, IV.81, Aquinas claims that, although matter might come and go, sameness of substantial form entails numerical sameness. Throughout, I take Aquinas to be a noteworthy predecessor to Buridan due to Aquinas's influence on later Scholastics, and I use Aquinas's framework to bring Buridan's views into relief, citing both Aquinas's works and occasionally the Latin translations of Aristotle to which Aquinas had access as representative of Aquinas's views.

²It should be noted that Ockham too put forward a theory of persistence that diverged from Aquinas's; see, e.g. Pasnau, *Metaphysical Themes*, 692–95.

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surprise that his treatment has gained a budding interest and appreciation from contemporary scholars.³

Nevertheless, the recent increase in interest regarding Buridan's treatment of persistence has not incited similar increase in interest regarding the underpinnings of his treatment. While praising his innovative theory of persistence, Buridan's interpreters typically assume that the underpinnings of his theory are, for the most part, those of Aquinas. In this paper, I will argue that this assumption is mistaken, since the nuances that Buridan adds to his own discussion of persistence reveal a *foundation* that is also innovative. With the bulk of research being focused narrowly on Buridan's theory of persistence, this unusual aspect of the foundation of that theory has been difficult to flag—to be sure, it has gone completely unnoticed. In addition to marking this mistaken assumption, I will offer a new model for understanding the foundation of Buridan's theory of persistence. Given this new model, one can better appreciate both the differences between Buridan and Aquinas, as well as the similarities between Buridan and contemporary philosophers.

The paper is structured as follows. In §1 I lay out a text in which Buridan discusses numerical sameness over time in detail, namely question I.10 in his commentary on Aristotle's *Physics*, *Quaestiones super octo libros Physicorum Aristotelis* (*QPA*).⁴ Later sections build on the notion of various properties coming in degrees, and so it is important in §1 to see how numerical sameness—something philosophers today largely take to be binary in nature—comes in degrees for Buridan. In §2 I foreground Buridan's commitment to a strict sort of numerical sameness. Using a characteristic Aristotelian example, I argue that this commitment allows for cases where two properties that are central to the metaphysical foundation of persistence can be distinguished, namely the properties *being numerically the same* and *being unified*.⁵ This is a surprising result because it is denied by many of Buridan's modern commentators, but in §3 I show that the foundational difference latent

³The recent expositions devoted to Buridan's theory of identity over time are Arlig, "Parts, Wholes, and Identity"; Arlig, "Remarks"; Klima, "Buridan on Substantial Unity"; Lagerlund, "Buridan's Empiricism"; Lagerlund, "Material Substances"; Normore, "Ockham's Metaphysics of Parts"; Pasnau, *Metaphysical Themes*; Pasnau, "Response to Arlig and Symington"; and Pluta, "Buridan's Theory of Identity." Most modern readers take Buridan's theory to involve a distinction between different types of numerical sameness, which Buridan dubs "total," "partial," and "successive" sameness, though Pasnau has argued that these last two types of sameness are, for Buridan, merely linguistic in nature—see Pasnau, *Metaphysical Themes*, 695–98. Throughout, I assume the majority position and leave aside this debate.

⁴Buridan treats of this very topic in another work as well, namely his *Quaestiones super libros de generatione et corruptione* (*QGC*) I.13. Although the *QGC* question is probably later than the *QPA* question, the two discussions overlap to such a degree that there are no substantial differences between them: Buridan outlines the same theory of numerical sameness in each question. However, in addition to a theory of numerical sameness, the discussion in *QPA* also contains an explicit distinction between numerical sameness and other types of sameness, a distinction that is not explicit in the question in *QGC*. This distinction is important in later considerations of the metaphysical underpinnings of Buridan's theory of persistence (§3). Thus, I focus exclusively on *QPA* because doing so is economical, because the *QPA* question contains an explicit mention of an important distinction not found in the *QGC* question, and because nothing of philosophical importance is lost by leaving aside the *QGC* question. (Thanks to an anonymous referee for highlighting some of these characteristics of the *QGC* discussion.)

⁵For the importance of these properties in the medieval tradition, see Gracia, *Problem*, and Gracia, *Individuation in Scholasticism*.

in Buridan's discussion of persistence is elaborated explicitly in his *Quaestiones in Porphyrii Isagoge* (*QPI*), where, among other things, he discusses the link between numerical sameness and unity. Though not the focus of much scrutiny in Buridan scholarship, I show how the claims that Buridan makes in the *QPI* passage reveal the same difference between Aquinas's foundation of persistence and his own. Finally, in §4 I consider what makes this difference so interesting: with an analysis of *QPA* and *QPI* in hand, we can see that Buridan's distinguishing between sameness and unity is more a precursor to contemporary philosophers, who attempt to keep criteria for identity separate from criteria of individuation, than a descendent of his medieval predecessors.

I. BURIDAN ON PERSISTENCE

The purpose of this section is to elaborate Buridan's theory of persistence and illustrate how, for Buridan, numerical sameness can be manifested to differing degrees. By way of background, Buridan developed his theory after the Condemnation of 1277, where one of the condemned propositions was the notion that "a man can become another person, both numerically and individually, through nourishment."⁶ It is no surprise, then, that the relevant question in *QPA*, Question 10 of Book I, is entitled, "Supposing that today something has been added to him through nutrition and converted into his substance, or supposing that today some part has been removed from him, e.g. if his hand has been amputated, is Socrates the same today as he was yesterday?"⁷ After considering a few initial arguments, Buridan prefaces his main response to the question as follows:

We are not asking about sameness as to species or as to genus, but about *numerical sameness*, according to which "this is the same as that" means that this is that. And then the question is easily solved through a distinction. For we are accustomed to say in three ways that something is numerically the same as something.⁸

Buridan here gives us the outline of his solution to the question, namely his three-fold distinction in ways of talking about numerical sameness.⁹ That such sameness is what Buridan has in mind is clear given his contrast with "sameness as to species

⁶See Hissette, *Enquête*, 187. For a general account of the condemnation of 1277, see Wippel, "Condemnations."

⁷*QPA* I.10 [f. 13va]: *Quaeritur decimo, utrum Socrates est hodie idem, quod ipse fuit heri, posito, quod hodie additum est sibi aliquid ex nutrimento et conversum in eius substantiam, vel posito, quod hodie est aliqua pars ab eo remota ut si amputata est sibi manus?* (All translations are my own. Translations are based on the corrected text established in n14-26 of Pluta [2001].)

⁸*QPA* I.10 [f. 13va-b]: *Non quaerimus de identitate secundum speciem vel secundum genus, sed de identitate numerali secundum quam hoc esse idem illi significatur hoc esse illud. Et tunc illa quaestio facilliter solvitur per distinctionem. Tripliciter enim consuevimus dicere aliquid alicui esse idem in numero.*

⁹One might think that because Buridan introduces this distinction in the formal mode, then numerical sameness is a feature of words, not things. But the locution 'we say in three ways etc.' does not appear to do any such work for him. As we will see below, each mode of numerical sameness is introduced in precisely the same manner, and each is subsequently described in the material mode. So the mere mention of 'ways of speaking' does not indicate that numerical sameness is purely formal, nor does it contrast one mode against the others. Nor still does the mention of custom here, in introducing each mode of sameness, contrast one mode against the others. To be sure, Buridan does mention custom in the elaboration of *some* modes of sameness, but here, his mention of custom is simply his locution for introducing the concepts.

or genus” and his locution “this is the same as that” means that this is that”—if this is that, then there is only one item being described.¹⁰ The first mode of numerical sameness is *total sameness*, and I turn now to Buridan’s explication of it.

1.1 *Total Sameness*

Buridan proceeds directly to the first element of his three-fold distinction:

[A] The first way [one thing is said to be numerically the same as another] is by being totally the same, namely, that this is that and there is nothing of the whole of this that is not of the whole of the other, and conversely; and this is sameness in number in the strictest [*proprissime*] sense. [B] And according to that way, it must be said that I am not the same as I was yesterday, for yesterday there was something that belonged to my whole that has now been dissolved, and something that yesterday did not belong to my whole which later, by nutrition, was made to belong to my substance. [C] And this is what Seneca said in the letter to Lucilius: “No one is the same in youth and old age, indeed not even yesterday and today, for our bodies are swept along as rivers are moved.” And this is the sense in which Heraclitus well said that we are so constantly changed that it does not happen that someone who is totally the same enters twice a river that is also totally the same. And when this mode of “sameness in number” is taken, the arguments that were made at the start of the question, to prove that Socrates is not the same as he was yesterday, go through.¹¹

The reasoning in this passage seems to depend on the concept of parthood, since Buridan speaks of “nothing of the whole” and “something belonging to a whole.” Now, these notions might not correspond perspicuously to the notion “being a part of.” But given the mention of parts in the title of the question and, as will be seen below, the clear use of parts of wholes in elaborating the second and third modes of sameness, it is plausible to assume that Buridan has parthood in mind throughout this question.¹² Total sameness, then, obtains when some whole has all and only the same parts over time ([A]). Put another way, total sameness obtains when there are no differences between the partition of an object at an earlier and

¹⁰Buridan might come off as a little careless in this passage because “this is that” is an incomplete expression. Say I am talking with you on the phone while I am sitting in my office and I tell you, “This is the same as it was yesterday.” This is hopelessly vague—I could be talking about anything. Even if we are in my office at the same time and I say “this!” while pointing to my Langenscheidt pocket dictionary, my expression is still incomplete: I likely am talking about dictionaries, but I could be talking about *pocket* dictionaries, or the color yellow, or books in general, etc. Nevertheless, Buridan has an extensive theory of predicables—*Summulae de dialectica* (*SD*), 2.1–2.7—such that it is likely that we ought to understand his locution “this is the same as that” as “this F is the same as that F.” This removes the ambiguity that might be latent in this preface.

¹¹Bracketed letters ([A], [B], etc.) are my own. *QPA* I.10 [f. 13vb]: *Primo modo totaliter, scilicet quod hoc est illud et nihil est de integritate huius, quod non sit de integritate illius, et e converso; et hoc est propriissime esse idem in numero. Et secundum illum modum dicendum est, quod ego non sum idem, quod ego eram heri, nam aliquid heri erat de integritate mea, quod iam resolutum est, et aliquid etiam heri non erat de integritate mea, quod post per nutritionem factum est de substantia mea. Et sic dicebat Seneca in epistula ad Lucilium: Nemo idem in iuventute et senectute, immo nec heri et hodie, corpora enim nostra rapiuntur fluviorum more. Et ad illum sensum locutus est bene Heraclitus, quod sic continue mutamur, quod non contingit hominem totaliter eundem bis intrare fluvium etiam totaliter eundem. Et ad hunc modum capiendi “idem in numero” procedunt bene rationes, quae fiunt in principio quaestionis ad probandum, quod Socrates non sit idem hodie, quod fuit heri.*

Buridan here references Seneca’s *Epistulae ad Lucilium*, 58, 22.

¹²Buridan also has the notion of parthood independently of these passages, as Zupko nicely expounds—see Zupko, *Portrait*, 171–75.

a later time.¹³ This is evinced by Buridan's example at [B]. There, he says that if, say, *a* and *b* have different parts, then *a* and *b* are not totally the same. For example, Socrates might have had beans for dinner last night and rice for dinner tonight, such that last night his partition listed some beans, whereas tonight his partition lists some rice. To be sure, Socrates's intellective soul has remained the same over the past day—that is, his intellective soul is found on both partitions—but nevertheless, the partition of Socrates from last night is distinct from his partition tonight. This difference explains why Socrates tonight is not totally the same as Socrates last night, and it makes Buridan's treatment of persistence innovative with respect to his predecessors: in contrast to Aquinas, Buridan significantly diminishes the role of substantial form.¹⁴

On Aquinas's account, sameness of substantial form is sufficient for numerical sameness. And, to be sure, sameness of substantial form likely is sufficient for being *specifically* the same, a mode of sameness Buridan mentions in the preface to his solution. But based on Buridan's example at [B], the role of the substantial form in matters concerning numerical sameness is diminished. At [B], Buridan states that there is a difference in Socrates's matter, such that tonight's partition of Socrates differs from last night's, with the result that Socrates does not enjoy numerical sameness in virtue of being totally the same. This does not entail the irrelevance of the substantial form in determining total sameness—the form is, after all, included in the partition of Socrates. But at least in the obtaining of total sameness, sameness of substantial form is not sufficient.

Nor does sameness of substantial form appear to be even *necessary* for total sameness to obtain. Throughout *QPA* I.10, Buridan frames his discussion using the concept of *whole* (*totum*): he uses this notion to explain both sets of initial objections as well as his own views and his replies to objections. Now, Buridan's notion of a whole is incredibly thin—when he discusses wholes in *Summulae de dialectica* (*SD*) 8.1.4, he mentions armies, houses, heaps, and even mere collections of arbitrarily chosen objects all as being wholes.¹⁵ And there are further examples in *QPA* I.10 itself of such attenuated wholes: Buridan takes seriously arguments concerning, for example, portions of wine, a city, and a river. Of course, none of these various items have substantial forms. Thus, Buridan does not limit his discussion of persistence only to things having substantial forms; rather, he limits his discussion to wholes, and because some non-substantial wholes are nevertheless wholes with parts, we

¹³An object *O* enjoys a partition when, were we to list its parts, the list would have the following properties: the list is exhaustive (no part of *O* is left out), the list is minimal (every part on the list is part of *O*), and no parts overlap with each other. *O* might have multiple partitions, but given that *O* is hylomorphic, one of its partitions is a list of its form and the parts that are enformed. (I ignore here the difficulties associated with lumping together *O*'s formal and non-formal parts under a single heading.) Throughout, when I speak of "the partition" of a thing, I am referring to its hylomorphic partition. When I speak of partitions' *agreeing* with each other, I simply mean that, were we to construct partition lists and compare them, the lists would not differ at all. See Barnes, *Method and Metaphysics*, 464.

¹⁴See Pasnau, *Metaphysical Themes*, 689–92, for the importance of the substantial form to Aquinas's and others' treatments of persistence.

¹⁵Buridan's example in *SD* 8.1.4 is that of a triad, which he claims is merely a collection of three objects, whatever they may be. For more on Buridan's ontologically thin conception of wholes, see King, "Buridan's Theory of Individuation," 419n10.

ought not to assume from the outset that these non-substantial things must fail to satisfy criteria for total sameness.

1.2 *Partial Sameness*

Buridan subsequently posits two additional modes of numerical sameness, which he calls *partial sameness* and *successive sameness*. Here is his characterization of partial sameness:

[D] But in a second way, one thing is said to be the same as another *partially*, namely, because this is part of that, and this is said primarily if it is a major or principal part, or similarly because this and that share [*participant*] in something that is a major or principal part of each. For thus Aristotle says in *Nicomachean Ethics* IX [1168b31] that a human being is primarily the intellect. . . . And from this, too, our denominating a whole by denominating its part comes forth. And thus a human being remains the same through his whole life, because the soul remains totally the same, the soul being a principal, indeed the most principal, part. . . . [E] And in this way, it is certainly true that you are the same as that one who was baptized forty years ago, primarily since this holds of us principally, because of the soul, and not the body.¹⁶

This passage has the same general structure as the preceding one: in the first half ([D]), Buridan describes partial sameness as obtaining when a whole has some major or principal part that remains totally the same over time. For instance, a partition of Socrates tonight does not agree with last night's partition, but both partitions list Socrates's substantial form, such that Socrates is partially the same.¹⁷ As a result, there is a sense in which Socrates is numerically the same over time—he is *partially* the same. Note that it is very important that Buridan include partial sameness in his theory of persistence: Socrates, say, is not totally numerically the same on account of his nourishment, so Buridan needs *some* sense of numerical sameness according to which Socrates remains numerically the same in order to avoid commitment to the condemned proposition mentioned above.

1.3 *Successive Sameness*

Here is Buridan on the third and final mode of sameness, namely successive sameness:

But in a still third way, less strictly, one thing is said to be numerically the same as another [F] according to the continuity of distinct parts, one in succession after another. . . . [G] The water that we see, which is called the Seine, and the water that

¹⁶QPA I.10 [f. 13vb]: *Sed secundo modo aliquid dicitur alicui idem partialiter, scilicet quia hoc est pars illius et maxime hoc dicitur, si sit maior pars vel principalior vel etiam, quia hoc et illud participant in aliquo, quod est pars maior vel principalior utriusque. Sic enim dicit Aristoteles nono Ethicorum, quod homo maxime est intellectus. . . . Et exinde etiam proveniunt denominationes totorum a denominationibus partium. Et ita manet homo idem per totam vitam, quia manet anima totaliter eadem, quae est pars principalior immo principalissima. . . . Et sic bene est verum, quod tu es ille idem, qui a quadraginta annis citra fuisti baptizatus, maxime cum hoc nobis conveniat principaliter ratione animae et non corporis.*

¹⁷It might be asked whether Buridan confusedly distinguishes partial sameness from sameness in species—after all, sameness in substantial form seems sufficient for both. Perhaps, but I would hesitate to infer from the fact that the examples of major/principal parts in [D]–[E] are all substantial forms, to the fact that these are the only major/principal parts there are. It could be that there are other types of major/principal parts, but Buridan simply is not concerned with them here.

I saw [ten years ago], which was also called the Seine, and also the waters that were there in the intervening time: each was called the Seine in its own time, and each was in continuous succession with the others.¹⁸

This passage has the same structure as the passages elaborating total and partial sameness: Buridan describes successive sameness as obtaining when a series of partially overlapping wholes obtain ([F]), and gives a brief example of how we use this particular mode of sameness in our speech ([G]). Formally, the successive sameness of *a* and *b* is equivalent to *a* being an ancestor of *b* in the relation of partial sameness.¹⁹ To illustrate, consider some comparisons of arbitrarily chosen partitions. It frequently happens that this yields no agreement—the partitions of, say, Socrates and Chrysippus on their final birthdays, or the partitions of the Seine today and the Seine ten years ago. These two cases differ, however, because in the case of Socrates and Chrysippus, there is no agreement, nor would considering their partitions at different times ever produce agreement—go as far back from Chrysippus's final birthday as you like, his partition will never agree with Socrates's. However, in the case of the Seine, although there is no agreement initially, there is a series of partial agreements that connects the two. No part of the Seine today was part of the Seine ten years ago, but some parts today were included in its partition an hour ago; and some parts of the partition an hour ago were included in the partition two hours ago—all the way back to those decade-old parts of the Seine.

Based on these passages, Buridan is committed to various modes of numerical sameness.²⁰ Moreover, by considering how strong a claim each mode of sameness entails, we see that these *modes* of numerical sameness track *degrees* of numerical sameness. Every thing that satisfies the criteria for total sameness also satisfies the criteria for successive sameness, for if Socrates were to retain all his parts for some period of time—to be sure, he does not—he would satisfy the criteria for both total and successive sameness; so too everything that satisfies the criteria for partial sameness also satisfies the criteria for successive sameness, for Socrates himself satisfies both criteria over some period of time. But not everything that satisfies the criteria for successive sameness satisfies the criteria for either total, or even partial, sameness: the Seine is successively the same over a decade—a partition of the Seine today will have parts traceable to a partition of the Seine ten years ago—but it does not satisfy the criteria for total or even partial sameness

¹⁸QPAI.10 [f. 13vb]: *Sed adhuc tertio modo et minus proprie dicitur aliquid alicui idem numero secundum continuationem partium diversarum in succedendo alteram alteri. . . . Aqua, quam videmus, quae vocatur Secana, et aqua, quam tunc vidi, quae etiam vocabatur Secana, et aquae etiam, quae intermediis temporibus fuerunt, vocabantur quaelibet in tempore suo Secana et continue fuerunt ad invicem in succedendo.*

¹⁹The ancestral relation is a relation that two items in an ordered series bear to one another, such that there are two relations in the vicinity. First, the relation according to which *a* and *b* are ordered, and second, the ancestral relation itself. One typical illustrative example involves fatherhood: *a* is the father of *b*, and *b* is the father of *c*, such that *a* is an ancestor of *c* in the fatherhood series. For more, see Frege, *The Foundations of Arithmetic*, 89–93.

²⁰This might seem odd to contemporary philosophers who take numerical sameness to be the relationship denoted by '=', since that relation is an all or nothing affair. If $x = y$, then there is one thing; if not, there is not. But it should not seem odd at all: modern treatments of personal identity seem to turn on just kind of issue. We recognize today how to use '=', but nevertheless find it inadequate for answering many questions regarding personal identity. See Parfit, "Personal Identity," and Wiggins, *Sameness and Substance Renewed*.

over that span, since today's partition will share no part with the partition from a decade ago. Now, Buridan does not say explicitly, in *QPA* I.10, that, for example, Socrates is *both* partially and successively the same, even though Socrates satisfies criteria for both modes of sameness. Perhaps Buridan takes the highest degree of numerical sameness that a thing manifests to supersede, as it were, the lower degrees of sameness. But whatever his reasons for doing so, the resulting theoretical framework is clear: there is a tripartite hierarchy of numerical sameness, where total sameness is numerical sameness to the highest degree, successive sameness is numerical sameness to the lowest degree, and partial sameness falls somewhere in between.

With Buridan's general treatment of persistence laid out, I want to focus on his discussion of total sameness. Establishing what kinds of things are totally the same reveals an interesting feature of the metaphysical foundation of Buridan's treatment of sameness over time: just as in his theory of persistence itself, the *foundation* of his theory of persistence diverges from Aquinas's views.

2. WHAT MANIFESTS TOTAL NUMERICAL SAMENESS?

In this section, I will illustrate another difference between Buridan and Aquinas. This is not, however, a difference in the theories of persistence themselves—that difference has already been flagged as Buridan's diminishing of the role of substantial forms. Instead, the difference I have in mind here is a difference in the way in which each theory of persistence is grounded. The foundational difference turns on the relationship between the properties *being numerically the same* and *being unified*, and it is brought out most clearly by considering what exhibits total sameness.

In the course of elaborating his theory of persistence, Buridan lays down the criteria for total sameness, and he gives one, and only one, example of something that exhibits total sameness, the human soul. In addition to the human soul being totally the same, contemporary interpreters suppose, even though Buridan does not explicitly mention them, that angels, that is, immaterial intellects, and God are also totally the same.²¹ This addition is perfectly harmless, of course: the cases certainly satisfy the criteria for total sameness. However, they are somewhat unilluminating examples because all of the entities involved are mereological simples, and as such they do not have any proper parts. Thus, they are totally numerically the same as long as they exist at all. They are thereby facile cases of total sameness, and they will not figure in my discussion below.

We might ask, following in the footsteps of contemporary philosophers who have added to the list of entities that manifest total sameness on Buridan's behalf, whether there are any items that are a bit more pedestrian that also satisfy Buridan's criteria for total sameness. Many commentators think not, and the uniformity between them is striking. Consider first Arlig, who claims that “[c]areful reflection on the definition of total numerical sameness reveals that only incorruptible things can be numerically identical over time in this sense of [total] numerical

²¹See Arlig, “Parts, Wholes, and Identity”; Klima, “Buridan on Substantial Unity”; Lagerlund, “Buridan's Empiricism” and “Material Substances”; and Normore, “Ockham's Metaphysics of Parts.”

sameness," where "incorruptible things" are entities that are undivided or unified to a high degree, for example, the human soul, angels, and God.²² Lagerlund makes precisely the same point, saying, "On this view only indivisible substances are totally the same over time. There are only three such things, according to both Ockham and Buridan, namely, God, Angels, and the human soul."²³ Normore also makes this point where he claims that "the only things totally the same over time are indivisibles; and for Buridan, the only indivisibles are . . . human souls, angels, and God."²⁴ Each author is commenting on the same texts laid out above from *QPA* I.10, and although each puts the point slightly differently, each is getting at the same claim: they would have it that for Buridan, only human souls, angels, and God exhibit total sameness *because* those are the only things that are incorruptible or indivisible. Put another way, human souls, angels, and God are the only things that are unified to such an extent that total sameness is guaranteed.

Klima gives even more attention to this aspect of Buridan's theory than the aforementioned trio. Klima writes that "[f]or Buridan . . . what is one thing is an undivided being. But then, since division comes in degrees, and so its lack comes in degrees, too, it is no wonder that unity and the derivative notion of identity come in degrees as well."²⁵ Klima notes that identity, what we have been calling numerical sameness, is dependent on unity. That there is such a connection is not surprising. Consider, for late medieval philosophers like Buridan, a persistence question is typically formulated as such: "Is *x* today the same as it was yesterday?" More formally, this is equivalent to the following: "Is *x* at t_1 numerically the same as *x* at t_2 ?" Put this way, we see already that the medieval treatment of persistence depends on a synchronic account because in order to account for why something is the same, one thing over time, Scholastics look to why something is the thing it is at a time. And of course, what makes something what it is at a time is to be understood in virtue of its substantial form: among its other tasks, a composite's substantial form unifies various parts into one whole. The upshot, then, is that the usual accounts of sameness over time are grounded in accounts of unity at a time.²⁶

²²Arlig, "Parts, Wholes, and Identity," 456. Note that it is tempting to think that 'incorruptible' is merely a synonym for 'mereologically simple.' Consider, corruption is the separation of a composite's matter from its form. (See Aquinas's *De principiis naturae*, 2.96.) But mereological simples do not have those 'parts,' since they have no parts at all; *ipso facto*, simples are incorruptible. Nevertheless, it is better, I think, to treat 'incorruptibility' as in fact synonymous with 'indivisible,' i.e. 'highly unified,' and not 'mereologically simple,' since there are actually two ways of being incorruptible: first, by something's not having form and matter at all; and second, by some composite's form and matter being unified to such a high degree that they cannot be separated in reality. Here are two examples of this second case: first, on the Aristotelian view, heavenly bodies—the stars—are both incorruptible, and composites, where *aether* is their matter (Aquinas, *In libros Aristotelis de caelo et mundo expositio*, lib. 1, l. 6, n. 7). Second, Aquinas claims, in a theological context, that human beings, upon being resurrected, are both composite and incorruptible (*Summa Theologiae, Supp.*, q. 82, art. 1). Better, then, to link incorruptibility with a more general notion such as unity, instead of mere partlessness.

²³Lagerlund, "Material Substances," 476; Lagerlund makes the same point in "Buridan's Empiricism," 34.

²⁴Normore, "Ockham's Metaphysics of Parts," 751.

²⁵Klima, "Buridan on Substantial Unity," 41.

²⁶There is, of course, a trivial way in which the properties come apart: 'is unified' is a predicate of arity one, and 'is numerically the same as' is a predicate of arity two. By substituting two different arguments into 'is numerically the same as,' the properties to which the predicates refer automatically come apart: I am not numerically the same as my dog, but I am unified, and my dog is unified. Still, it

However, Klima presumes that the connection between unity and sameness that Buridan is working with is quite robust. Klima claims that, for Buridan, unity comes in degrees *and thereby* numerical sameness comes in degrees—hence Klima calls numerical sameness a “derivative notion.” But not only does Klima’s view entail that every unified thing is numerically the same, it also entails that everything that is numerically the same is so in virtue of its being unified. And because unity is the basis for numerical sameness, things that are unified to a certain degree are also numerically the same to that same degree—the two properties co-manifest in lockstep, with items unified to a high degree manifesting numerical sameness to a high degree, and items unified to a low degree manifesting numerical sameness to a low degree.²⁷ This connection between sameness and unity is remarkably strong, and each of the four interpreters presupposes that it is just this kind of connection that underpins Buridan’s theory of persistence. I will call this view of the connection between unity and sameness the *strong coextension model*.

It is worthwhile to clarify briefly what makes the *strong coextension model* the model it is because it is very difficult to characterize the model using contemporary philosophical tools. For example, it is part of the model that unity and numerical sameness are coextensional, that is, everything that is unified is numerically the same and everything that is numerically the same is unified. But there is more to the model than that: not only are unity and numerical sameness coextensional, but they also co-manifest in lockstep, with highly unified things being highly numerically the same and less unified things being less numerically the same. Merely being coextensional is not sufficient for this type of co-manifestation—this is all that I mean to capture in speaking of “strong coextension.”²⁸

is *not* trivial to show that, for Buridan, these properties come apart in matters of persistence, where we are not concerned with any old application of these predicates, but rather as they are applied to *one and the same* entity. These types of applications fall within the realm of persistence questions; applications now to Fido, now myself, do not. Moreover, restricting our discussion to these types of applications removes the air of strangeness that arises when talking of ‘sameness’ as a property.

²⁷Again, see Klima, “Buridan on Substantial Unity,” 42, where he claims that Brunellus the horse is “not as strongly numerically one as a human being is, [though] Brunellus is still more numerically one than is a river, and both are more numerically one than is a heap.” The conversational implicature is that items that enjoy high degrees of numerical sameness do so in virtue of being highly unified.

²⁸To elaborate why coextensionality fails to capture this type of co-manifestation, consider an analogy: two properties, *F* and *G*, both come in degrees, such that they can be represented on a graduated scale. One such scale is a glass thermometer; another is a yardstick. Say, then, that *F* is a body’s having a temperature, and *G* is a body’s having a length. Every body that has a length has a temperature, and every body that has a temperature has a length, and so, *F* and *G* are coextensional. Having *F* or *G* is then tantamount to falling somewhere on the *F* “thermometer” or the *G* “yardstick.” But given only that *F* and *G* are coextensional, there is no constraint on how the *F* thermometer and the *G* yardstick co-manifest. Falling near the high-end of the *F* thermometer does not entail falling near the high-end of the *G* yardstick; indeed, some bodies are very small and very hot, and some bodies are very large and very hot. Instead, falling near the high-end of the *F* thermometer simply entails falling *somewhere* on the *G* yardstick. Nor does falling near the high-end of the *G* yardstick entail falling near the high-end of the *F* thermometer, as some bodies are very large and very hot, and some bodies are very large and very cold. (Of course, *increasing* something’s temperature typically results in an *increase* in its length, but this concerns *co-variation* of changes in *F* and *G*, not *co-manifestation* of *F* and *G* in themselves. So this feature of the example is irrelevant to *F* and *G* being coextensional.) So *F* and *G* merely being coextensional does not entail their being *strongly* coextensional, in the sense above.

On the one hand, attributing this model to Buridan is a natural presupposition for interpreters to make, not least because this seems to be Aquinas's view, and Aquinas was incredibly influential with respect to later Scholastics.²⁹ The Latin text of Aristotle's *Metaphysics* on which Aquinas commented strongly supports the model: at V.9 [1018a7–9], Aristotle says, "Plainly, therefore, sameness is a certain unity, either of many things or when one thing is taken as many, just as when one says 'this thing is the same as itself,' for one takes it as two things."³⁰ In speaking of "the sameness of one thing taken as two things," Aristotle gestures toward the persistence questions under consideration: when Scholastics ask if x is the same thing across two times, they are treating x "as two things" in order to determine whether or not x persists. And in stating that sameness is a certain unity, Aristotle posits an intimate connection between the two properties that Aquinas will endorse. In his commentary on *Metaphysics*, he affirms what he takes to be Aristotle's position, namely that "sameness is unity."³¹ If, on Aquinas's view, sameness is unity, then only things that are highly unified have a high degree of sameness, and *vice versa*.

On the other hand, it is puzzling, I think, that anyone would attribute Aquinas's metaphysical framework, or something very close to it, to Buridan—at least, it is puzzling that one would do so without an extended defense. Arlig and others praise Buridan for his transformation of Aquinas's theory of *persistence*, but none of them questions whether or not the foundation for that theory, the *strong coextension model*, is in fact properly attributable to Buridan. I do not think it is, and I think that a close consideration of things that manifest total sameness shows this.

To motivate the sort of case I have in mind, consider again the broad structure of the passage on total sameness: in the first half ([A]–[B]), Buridan describes what is required to be totally the same; in the second half ([C]), he rehearses Heraclitus's distinctive "flux" doctrine, in order to elucidate his own views. Total numerical sameness requires that, over some period of time, the partition of some whole remains the same. It is clear that, within the setup of the question, Buridan is considering changes in the parts of a whole that take place over the course of a day. This is mentioned in the very title of the question: is Socrates today the same as he was yesterday?³² Moreover, the changes that are occurring are changes that go along with everyday nourishment processes that any living thing undergoes, for example, ingestion, digestion, and egestion of food matter. It seems, then, that

²⁹Throughout, I am more concerned with correcting the model that current readers attribute to Buridan, and less with establishing incontrovertibly that the *strong coextension model* is clearly attributable to Aquinas. I cite three texts below as evidence of the model's place in Aquinas—likely, they are not as wide-ranging as is needed for firmly grounding the historical claim, but this does not matter much to my project.

³⁰Aristotle, *Metaphysica* V.9 [1018a7–9; l. 362–65]: *Quare palam quia ydemptitas unitas quedam est aut plurium essendi aut quando utitur ut pluribus, ueluti quando dixerit ipsum ipsi idem; nam ut duobus utitur eodem.*

³¹In *duodecim libros metaphysicorum Aristotelis expositio*, lib. 5, l. 11, n. 7: *Ex hoc autem ulterius concludit, quod identitas est unitas vel unio.* Aquinas also holds this position in his *Summa Contra Gentiles*, IV.24. Aquinas's teacher, Albert the Great, holds a similar position in his *Metaphysics* commentary; see his *Metaphysicorum libri*, lib. 3, tract. 2, cap. 11.

³²Additionally, this is clear from the adverbs Buridan uses in the body of the question, namely *hodie* or "today," and *heri* or "yesterday," as well as his invocation of Seneca's letter, which similarly references the span of a day.

anything that is a living thing cannot be totally numerically the same over the course of a day on account of these natural processes—Buridan takes them to be or entail changes in parts. So, if anything mundane *could* be totally numerically the same over the course of a day, it would have to be a non-living thing. Of course, being inanimate is not sufficient for total sameness: else the River Seine, which is not a living thing, would be totally numerically the same. Buridan takes the Seine as an instance of successive sameness—the weakest type of numerical sameness—so we cannot conclude that inanimate entities that clearly lose or gain parts are totally the same. For an inanimate thing to manifest total sameness, it would have to remain static in a way that the Seine does not.

When we put the matter so, it seems that there are actually *quite a few things* that are inanimate and neither gain nor lose parts over the course of a day, and as such are totally the same: artifacts in storage such as the chair you sentimentally keep but never use; a rare, unearthed diamond; and even one of Aristotle's favorite examples, his heap of stones.³³ It is this last example that I want to develop below.

Say I form a little heap of stones in the morning, on my desk. After a long day's work and a good night's rest, I return to find the heap still in the same state it was in previously. As is evident from Buridan's discussion in *QPA*, I myself am not totally numerically the same. I have ingested, digested, and egested food, and so, some of my parts today are different from the parts I had yesterday. What of the heap? To make a start, recall that Buridan unambiguously acknowledges heaps as a kind of whole in *SD*, so it seems that they are sensible candidates that could, theoretically, satisfy the criteria for total sameness. But then it quickly follows that the heap is totally the same: the stones have not ingested, digested, or egested any food—they require no nourishment at all. Nor has the heap undergone the kinds of changes that the Seine undergoes: the stones are in the exact same configuration as the day before; there are just as many of them today as yesterday; they are the same size, shape, mass, and so on. There is agreement, then, between the partition of the heap yesterday and the partition of the heap today. So, this little pile of stones exhibits the highest degree of numerical sameness, namely total sameness.

Of course, Aristotle typically uses his heap of stones example as one that illustrates an entity that lacks the kind of unity that substances characteristically have. Heaps of stones have only a derivative, accidental unity. This is not to say that heaps have no unity whatsoever—after all, they possess a sort of continuity, one stone with another, such that the heap would be destroyed if the stones were scattered.³⁴ So it would be difficult to deny *any* sort of unity to the heap. It is simply that the heap possesses a derivative, low degree of unity. This is a distinction that would not be unfamiliar to Buridan: he himself claims that living things are substantially composed of soul and body, such that they have a substantial unity,

³³The example figures in his discussions in *Metaphysics*, Z.16 [1040b5] and Z.17 [1041b11], wherein he elaborates the difference between compounds that are substantially unified and compounds that are accidentally unified.

³⁴Thus a heap is at least more unified than the mereological sum of its stones: given the stones, there is always a mereological sum that has them as its parts. But the sum exists regardless of the stones's being contiguous or not, whereas the heap always manifests contiguity. So as long as the heap exists, it is more unified than the sum of its stones.

and that this unity is stronger than a merely accidental unity.³⁵ The upshot of the heap example, then, is clear: the little heap of stones on my desk possesses the highest degree of numerical sameness while possessing a low degree of unity.

This example perfectly fits the criteria Buridan lays down in *QPA*, and makes use of an Aristotelian distinction that he accepted, namely the contrast between substantial and accidental unity. It seems then that, for Buridan, the properties of unity and numerical sameness must be distinct in a way that contravenes the *strong coextension model*: in the model, sameness and unity manifest in lockstep, so the pile of stones could never be numerically the same to a high degree and unified to a low degree.³⁶

Now, it might be objected that the little heap of stones does not really exhibit a high degree of numerical sameness, even using the criteria that Buridan sets down in *QPA* I.10—it simply takes longer to change its parts than a living organism. The heap will eventually lose or gain parts, say, due to erosion, whereupon it will be only successively the same. I do not think this is a decisive objection, for two reasons. First, it is clear that Buridan has a certain length of time in mind in the examples he gives. Based on the context of the question, he takes the time spanning a day as sufficient, and I see no reason why we should not consider day-long examples as well. Second, and more importantly, suppose it is granted to the objector that the criteria for total sameness are perfectly general regarding the length of time in question. After all, Buridan *never* states, in his criteria for total sameness, how long something must retain all and only its initial parts, so the period of time over which something might be totally the same is arbitrarily chosen. But even then, the objection is not devastating: supposing that the little pile is not totally numerically the same for all time, or even for a day, it is still more plausible than not that it is totally the same for *some* stretch of time, however brief. If this is the case, then there is at least some span over which the example holds. And this proves enough, I think, as neither Buridan nor any Scholastic would countenance a pile of stones being more *unified* than a living organism for *any* length of time. As a result, being unified and being numerically the same must be distinct for Buridan.

Based on his criteria for total sameness, then, Buridan must accept that the properties of being numerically the same and being unified are distinct in such a way that we should not attribute the *strong coextension model* to him. It seems, therefore, that Buridan's pioneering treatment of persistence has equally pioneering metaphysical foundations, *contra* many of Buridan's contemporary interpreters. Still, this is a good result, as Buridan's explicit discussion of those metaphysical foundations aligns with this commitment. I turn to this discussion in the next section.

³⁵See Buridan's *Quaestiones in Aristotelis tres libros de anima*, II.9, as well as *SD* 8.1.4. Normore ("Buridan's Ontology," 194) and King ("Buridan's Theory of Individuation," 419n10) also see Buridan as appreciating this point.

³⁶This is not to say that Aquinas's treatment of persistence is confused in the case of a pile of stones case—in fact, the absence of the concept of total sameness in Aquinas shows precisely how such a case could be handled. Because Aquinas's treatment of persistence does not have the notion of total sameness, he need not concede that the pile of stones is numerically the same to a high degree—he could easily claim that the heap is numerically the same to a *low* degree. So such a case is not a counterexample against Aquinas's view.

3. BURIDAN ON THE LINK BETWEEN
NUMERICAL SAMENESS AND UNITY

In order to characterize the metaphysical foundations of Buridan's theory of persistence, I will consider a passage where he describes the relation between numerical sameness and unity. In elaborating on this relation, Buridan uses various parts of his semantic theory, so it will be helpful to cover briefly the relevant portion of his semantics.³⁷

As will be seen shortly, Buridan deployed the distinction between subject and accident in explaining the relation between numerical sameness and unity. That he did so should not be surprising—medieval philosophers were intimately familiar with the idea that accidents are properties of some subject, and subjects are bearers of some properties. But Buridan recognizes another sense of the distinction, one that applies to *predicates*. He describes this other sense of the distinction in his question-commentary on Aristotle's *Metaphysics*, *Quaestiones in Metaphysicen Aristotelis* (*QMA*):

[H] By suppositing for the very same thing, two terms are called subject and accident, and thus they are mutually predicable, where one of the terms adds, beyond the signification of the other, some connotation. The one absolute term, the term without connotation, is called the subject, and the connotative term is called the accident.³⁸

In the course of elaborating the linguistic sense of the distinction between subject and accident, this passage relies on two other parts of Buridan's semantic theory, namely supposition and connotation. For our purposes, it will be sufficient to elaborate supposition in terms of reference: in the sentence 'Socrates is human,' 'Socrates' supposits for, or refers to, Socrates the individual human being.³⁹ Thus, because the subject-term and accident-term that Buridan is describing at [H] supposit for the very same things, the subject-term and the accident-term are co-referential or coextensional. This coextension shows, in part, that the linguistic sense of the distinction between subject and accident parallels the ontological sense of the distinction. Just as the existence of some accident entails the existence of some subject, so too the predication of some accident-term entails the predication of some subject-term.⁴⁰

³⁷Buridan's semantic theory is sophisticated and rich in its own right, and it is not my aim to give it the full treatment it deserves herein. Below, I consider several examples in detail, but I introduce only as much of the theory as is needed to elaborate them. For comprehensive treatments, see Klima, *John Buridan*, and Zupko, *Portrait*.

³⁸*QMA*, Bk IV, q. 4 [f. 15ra-b]: *Subiectum et passio vocantur duo termini pro eodem supponentes et sic de se invicem predicabiles, quorum unus addit super significationem alterius aliquam connotationem, unus terminus absolutus a connotatione dicitur subiectum, et terminus connotativus dicitur passio*. Note that I am rendering '*passio*' as 'accident' only to emphasize the fact that it always has a correlative '*subiectum*' or 'subject.' One might render '*passio*' as, variously, 'attribute,' 'property,' etc.; it makes no difference to the argument I make below.

³⁹The brief description of supposition and the examples are from King, "Buridan's Theory of Individuation."

⁴⁰It should be noted that while this claim holds for many Scholastics in natural philosophical contexts, there are theological contexts where some Scholastics deny it—most notably in analyses of the Eucharist. Buridan, motivated by this unique theological case, claims that strictly speaking, accidents can exist separately from subjects, but *only* through divine intervention; see *QMA* V.8. Since separately existing accidents only manifest through divine intervention, and possibly only in Eucharistic rites, I will leave aside those contexts

The second semantic idea that Buridan uses to characterize the relation between subject-terms and accident-terms is his notion of connotation.⁴¹ For our purposes, it will suffice to elaborate connotation in terms of modes of reference or intensions. Consider an example where 'human being' and 'father' both refer to, supposit for, the same person: although these terms are, by hypothesis, co-referential, the *ways* in which the terms refer to the same individual are distinct. 'Human being' refers to the individual absolutely, that is, it refers to the individual not in relation to anything else. 'Father,' in contrast, refers to the individual connotatively, that is, it refers to the individual in relation to something else—in this case, that in relation to which the individual is referred is that individual's child. Since these two terms refer to the same individual in different ways, they have different intensions. But the intensions of the terms differ in a very specific way: the intension of 'father' has as one of its components the intension of 'human being,' and that which is added to 'human being' that gives the intension of 'father' is what Buridan calls the connotation of the term 'father.' More generally, then, the intension of an accident-term presupposes the intension of a subject-term, though the intension of the former encompasses more than the intension of the latter. So although subject- and accident-terms are coextensional, they are not cointensional.

An example from Buridan's *QMA* will help clarify matters, as well as provide us with a springboard into the foundations of his theory of persistence. In *QMA*, Buridan elucidates the relation between the terms 'being' and 'unity,' and this relation is an example of the relation between subject-terms and accident-terms: in *QMA* IV.5, he claims that the term 'unity' is an accident-term having as its subject-term 'being.'⁴² So, 'being' and 'unity' are related in the manner described above. To be sure, the broader context in which Buridan considers this relation is the laying out of his theory of transcendentals, and transcendentals as such are not accidents inhering in substances—that is, Socrates's relation to his unity is not an inherence relation, as opposed to, say, his relation to his paleness.⁴³ Nevertheless, the relation being described between subject-terms and accident-terms is not ontological but semantic, and Buridan clearly states that some transcendentals are related to others as subject-terms are related to accident-terms.

The details of Buridan's further characterization of the connection between 'being' and 'unity' in *QMA* IV.7 bear this out. First, he claims that 'being' and 'unity' are coextensional terms: "these terms 'being' and 'unity' are convertible [*convertuntur ad invicem*] because every being is a unity . . . and also every unity is a being."⁴⁴ Second, he explains that, although the terms are coextensional, they

⁴¹Buridan outlines his understanding of connotation in various parts of *SD*; e.g. see *SD* 2.1.3, 3.1.8, and 8.2.4. Modern expositions of Buridan on connotation can be found in King, "Buridan's Theory of Individuation," and de Rijk, "On Buridan's Doctrine of Connotation."

⁴²*QMA* IV.5 [f. 16rb]: *Eius [termini 'ens'] etiam sunt passionnes propriae, scilicet termini connotativi cum eo convertibiles, ut isti termini unum, idem, diversum, et etiam sub disiunctione causa vel causatum, prius vel posterius, actus vel potentia et sic de multis aliis.*

Note that instead of rendering *unum* as 'one,' I opt for 'unity' because, as Buridan claims in the body of the text, *unum* signifies lack of division (*caentia divisionis*), and I take 'lack of division' to be synonymous with 'unity.'

⁴³For an extended discussion of Buridan's theory of transcendentals, see Aertsen's marvelous *Transcendental Thought*, 537–42.

⁴⁴*QMA*, Bk. IV, q. 7 [f. 18ra]: *isti termini 'ens' et 'unum' convertuntur ad invicem quia omne ens est unum . . . et etiam omne unum est ens.*

are not cointensional: These terms ‘being’ and ‘unity’ are not synonymous, for they differ according to reason: for this term ‘being’ or ‘something’ is grasped according to a simple concept, absolute and without connotation; and this term ‘unity’ is a connotative term, for it connotes lack of division.⁴⁵ The relation, then, between ‘being’ and ‘unity’ is one of coextension but not one of cointension; the terms even fail to be cointensional in precisely the same manner as that described above: ‘being’ is a simple or absolute term, referring to things not in relation to anything else, whereas ‘unity’ is a connotative term, referring to the same things that ‘being’ refers to, but also connoting lack of division. Thus, the relation between being and unity is isomorphic with the relation between subject-terms and accident-terms.

Still, having a firm grip on the relation between ‘being’ and ‘unity’ is only useful for elaborating the foundation of Buridan’s theory of persistence if Buridan connects one of these concepts to the concept of numerical sameness, and it is not immediately obvious that Buridan does this in the works considered thus far.⁴⁶ However, there is a discussion in another work, his *Quaestiones in Porphyrii Isagogen (QPI)*, that explains the link between unity and numerical sameness. *QPI* is a question-commentary devoted to Porphyry’s *Isagoge*, which is itself an introduction to Aristotle’s *Categories*.⁴⁷ In the *Isagoge*, Porphyry attempts to clarify some notions from the *Categories*, concepts such as genera, species, *differentia*, and so on. So in *QPI*, we find Buridan concerned with questions such as “Is the definition of ‘*differentia*’ that Porphyry gives a good one?” and it is in answering this very question that Buridan characterizes the connection between sameness and unity. Here is the passage:

But concerning that term ‘same’ [*idem*], I say that it is even more connotative than the term ‘unity’; and therefore, ‘same’ is called an accident [*passio*] of ‘unity’ just as ‘unity’ is called the subject and foundation of it. For the signification of the term “same” presupposes the signification of “unity” and connotes a further aspect, namely that there is something with respect to which it is the same, and this is that very thing which is the same.⁴⁸

⁴⁵*QMA*, Bk. IV, q. 7 [f. 18ra]: *Isti termini ‘ens’ et ‘unum’ non sunt synonymi . . . differunt enim secundum rationem: iste enim terminus ‘ens’ vel ‘aliquid’ accipitur secundum conceptum simplicem, scilicet absolutum a connotatione, et iste terminus ‘unum’ est terminus connotativus; connotat enim carentiam divisionis.*

⁴⁶The questions in *QPA* are unhelpful regarding the link between unity and sameness, since they focus on issues much less abstract. Nor does there appear to be much help elsewhere in *QMA*: V.4 appears promising, given its concern with *unum numero*, but it is a non-starter since Buridan does not speak of *unum numero* in connection with numerical sameness (*idem* or *identitas*); VII.19 similarly mentions *unum numero* and similarly fails to connect it with numerical sameness. In *SD*, the converse problem obtains: Buridan there gives attention to numerical sameness—see, especially, *SD* 2.2.2—but does not connect it to unity. As far as I can tell, the passage below is the only text where Buridan explicitly discusses the link between unity and sameness.

⁴⁷For a helpful introduction to *Isagoge* and its reception by medieval philosophers, see Cameron, “Logic of Dead Humans.” Although commentaries on *Isagoge* are rarer than those on the *Categories*, it should be less surprising that Buridan wrote a commentary on *Isagoge*, given his interests in Aristotle’s logical works—he commented on over half of the *Organon*.

⁴⁸*QPI*, q. 11 [f. 129ra]: *Sed de isto termino “idem” ego dico, quod adhuc est magis connotativus quam iste terminus “unum”; et ideo, “idem” dicitur passio “unius” et “unum” dicitur tamquam subiectum et fundamentum ipsius. Nam significatio huius termini “idem” praesupponit significationem “unius” et connotat ultra illam respectum, scilicet quod aliquid sit ad quod sit idem, et hoc est illudmet quod est idem.*

Buridan is here using the linguistic version of the subject-accident distinction outlined above, claiming, explicitly, that 'same' is an accident of 'unity,' and 'unity' is the subject of 'same.' In conjunction with the *QMA* passages above, this passage shows Buridan using the linguistic subject-accident distinction to construct a semantic hierarchy where 'being' is a subject-term that has 'unity' as its accident-term, and 'unity' is a subject-term that has 'same' as its accident-term.

This passage is vitally important. Not only is it one of the precious few texts where Buridan gives any characterization at all of the foundations of his views on sameness, but the characterization it provides also affords us a much fuller picture of Buridan's framework. Recall that, in the preface to his main reply in *QPA* I.10, Buridan distinguishes between sameness in genus, species, and number. I take it, then, that what Buridan is saying about sameness generally in *QPI* applies equally to each variety of sameness, including numerical sameness. And even though the relation at hand in *QPI* is a semantic one, nevertheless this passage has *metaphysical* implications because, as previous philosophers have noted, Buridan's notion of supposition links together his semantics with his ontology: the supposition of terms tells us what things there are in our ontology and how they stand; that is, supposition of terms tells us what things carry ontological commitment.⁴⁹ Moreover, Buridan clearly states, at [H], that subject-terms and accident-terms supposit for the same things, with the result that 'unity' and 'numerical sameness' supposit for the same things. Put another way, 'unity' and 'numerical sameness' are coextensional: whatever is unified also manifests numerical sameness, and whatever manifests numerical sameness is also unified.⁵⁰

Numerical sameness and unity, then, are at least coextensional, and this much is compatible with the *strong coextension model*. But again, mere coextension between these properties is not sufficient for co-manifestation in lockstep, such that the *QPI* passage is not sufficient evidence for attributing the *strong coextension model* to Buridan. Further, it is likely that the *QPI* passage, in conjunction with passages from *QMA*, suggests that attributing the model to Buridan is mistaken. In the course of explaining the link between 'being' and 'unity' in *QMA*, Buridan claims that, because the two terms supposit for the same things, the fact that they differ in intension does not add any additional being to the things for which the terms supposit—the connotation that 'father' adds to 'human being' does not add anything to Buridan's ontology. It is only *supposition* of terms that makes an ontological difference, and the only claim that follows from 'unity' and 'numerical sameness' suppositing for the same things is that being unified and being numerically the same are merely coextensional, and nothing more robust than that. So not only is the *strong coextension model* left unsupported by the passages above, it is likely directly opposed: there simply is nothing else in the ontology that entails strong coextension.

⁴⁹This feature of supposition is noted by King, "Buridan's Theory of Individuation," 399; Klima, *John Buridan*, ch. 7; and Zupko, *Portrait*, 310n10.

⁵⁰Hereafter I talk speak of 'sameness' and 'unity' as properties, but only as shorthand for 'things that manifest sameness' and 'things that manifest unity.' This seems to be how other philosophers use the terms in the literature—especially in the literature on Buridan and numerical sameness over time, where they frequently speak of Buridan's claims about *being numerically the same*—so I take it that my usage here is not unreasonable.

These considerations are, of course, defeasible. It may be that Buridan has other reasons for affirming that the difference in intension between ‘being’ and ‘unity’ does not result in an addition to being. Nevertheless, I think that the interpretation I suggest above provides a more coherent reading of the passages out of *QMA* and *QPI*. My interpretation also coheres with the conclusion of §2: just as is presupposed in his treatment of persistence, so too here, the relation between numerical sameness and unity is not Aquinas’s.

Another conclusion we can draw from my interpretation is that, although Buridan’s understanding of the connection between numerical sameness and unity is not captured by the *strong coextension model*, the linguistic subject-accident framework does shed some light on how Buridan understands the connection. Because subject-terms and accident-terms supposit for the same things, and because ‘unity’ and ‘numerical sameness’ are related as subject-term to accident-term, respectively, it follows that unity and numerical sameness are thereby coextensional. And because supposition of terms is, likely, the only avenue for making an ontological difference, unity and numerical sameness are at *most* coextensional—nothing more. I call this model the *weak coextension model*, and I think it better captures Buridan’s understanding of the metaphysical foundations of his theory of persistence.⁵¹

Not much research has been devoted to illuminating this facet of Buridan’s metaphysics, with focus shifted instead toward his theory of persistence. Nevertheless, the moves that Buridan makes in his more abstract discussion of sameness and unity are similar to those he makes in his more concrete discussion of persistence: he begins with a framework similar to Aquinas’s, and through some subtle changes, he produces a result that is out of the ordinary. For consider, on the *strong coextension model*, being unified and being numerically the same are such that some x being numerically the same to a high degree ensures its being unified to a high degree. However, Buridan uses a conventional distinction between substance and accident and thereby develops a new model where numerical sameness and unity are only weakly, not strongly, coextensional.⁵²

There is significant evidence, then, that Buridan has an innovative, coherent foundation for his theory of persistence. To be sure, his explicit discussion of this metaphysical foundation is isolated to a single text in *QPI*. Nevertheless, what we find there coheres nicely with discussions of closely related concepts in *QMA*. Moreover, the foundation also coheres with what we would *expect* to find, based on

⁵¹Note that ascribing the *weak coextension model* to Buridan is not incompatible with ascribing the heap of stones example in §2 to him: though being unified and being numerically the same are more distinct on in this model than they are in the *strong coextension model*, in the weaker model the heap still has *some* degree of unity and *some* degree of sameness. The properties remain merely coextensional, even though the heap enjoys the properties to opposing degrees; see n28 above.

⁵²It might be asked, here, what the implications of attributing the *weak coextension model* to Buridan are, especially with respect to partial or successive numerical sameness. There is no reason to think that the weaker model only applies to total sameness, and I do not think that an inconsistency is introduced by claiming that it is logically possible for something to be both (i) partially the same and (ii) to a high (or low) degree unified. In fact, given the substantial unity of human beings, Socrates would be just this kind of entity, both partially the same and highly unified. Still, for the argument I am advancing, it is enough to consider only the cases of total numerical sameness.

the criteria Buridan sets down for total sameness. So even though these passages might not *demonstrate* Buridan's commitment to a foundation that radically differs from Aquinas's, still, the passages do give us more reason than not to attribute such a foundation to Buridan. In any event, the nature of this foundation is under-appreciated, if not completely ignored, by his readers today. In the last section, I will explain why the nature of this foundation is more important than is commonly recognized.

4. AN OLD CONFLATION

Although Buridan does not affirm the *strong coextension model*, the model has philosophical appeal insofar as it is simple and theoretically powerful. Given that Aquinas posited an intimate connection between unity and numerical sameness, his theory of persistence is easy—or at least, easier.⁵³ Buridan's theory does not enjoy this intimate connection, and thereby does not enjoy this ease. Because he weakens the connection between unity and numerical sameness, the inference from being unified over time to being numerically the same over time is unavailable to him. This makes it harder for him to explain persistence, and it is no surprise that his theory is thus more complex than that of his predecessors. The complexities are philosophically required.

Buridan's distinguishing of unity and identity forces him into this unlovely result. However, the lack of simplicity is offset by his avoidance of what philosophers today sometimes see as an old conflation. On the *strong coextension model*, the conditions under which something is numerically the same just are the conditions under which that thing is unified. Over time, a human being is numerically the same, to a certain degree, just in case she is unified, to a certain degree. Put another way, on the *strong coextension model*, a thing's identity criteria just are that thing's individuation criteria. But this suppresses the distinction between identity criteria and individuation criteria, and this distinction is one that contemporary philosophers have found quite useful.⁵⁴

On the one hand, identity criteria concern numerical sameness, that is, they are criteria that govern how many things are being considered. This can be illustrated using the question with which Buridan began *QPA I.10*: supposing Socrates is the same today as he was yesterday, he has been one thing throughout the past day; if not, he has been multiple things throughout the past day. On the other hand, individuation criteria concern what makes something the kind of thing that it is. Whether or not Socrates is the same today as he was yesterday, there is something in virtue of which he is unified and is the kind of thing he is. These criteria do seem to be connected in some way, but they do not always overlap. For example, most

⁵³"Easy" in the sense given by Pasnau, who shows that persistence questions pose no special problem for this type of view, given the role of substantial forms; see Pasnau, *Metaphysical Themes*, 689–92.

⁵⁴Lowe is illustrative on this point: "A principle of individuation, we might say, is not so much a criterion of identity as a principle of unity: countable items are singled out from others of their kind in a distinctive way that is determined by the sortal concept under which they fall, whereas portions of stuff can only be singled out in *ad hoc* ways" (Lowe, *The Possibility of Metaphysics*, 33). Note also that some philosophers consider "identity" or "individuation" criteria to be epistemic in nature, but I will only use them in their ontological sense.

mass-terms have clear criteria for kind membership—we know exactly what it takes for metal to be gold; but there do not seem to be clear criteria for identity—such criteria govern numbers of things, but the question “how many golds do we have?” is ill-formed at best. As a result, philosophers today keep the two criteria distinct.⁵⁵

Of course, these are thoroughly modern locutions, and neither ancient nor medieval philosophers spoke explicitly of identity and individuation criteria. Nevertheless, Scholastic philosophers clearly had similar, if not the same, concepts in mind in discussing theories of persistence and their foundations. This much is clear in Buridan’s *QPI* passage, where he uses notions of unity and numerical sameness. But more interestingly, Buridan himself seems to be making the same type of distinction that contemporary philosophers make in keeping identity and individuation criteria separate. We ought to have been alerted to this based on Buridan’s theory of persistence, where the role of substantial forms is diminished, because in doing so, Buridan separates criteria for individuation—for a thing’s substantial form is what makes it the kind of thing it is—from criteria for identity. Moreover, as I have argued, the passage in *QPI* evinces this by positing a subject-accident relation between these two terms. The fact that the terms are related as such not only highlights the difference between Buridan and his predecessors, but also foregrounds the similarity between Buridan and contemporary philosophers. Philosophers today work hard to keep criteria of individuation separate from criteria of identity, and Buridan’s commitment to the *weak coextension model* is, at least, a step in that direction. Buridan, then, holds to surprising views in both his discussion of persistence in itself, and in his discussion of the foundations of persistence. In a word, the uniqueness and innovation of Buridan’s system goes all the way down.⁵⁶

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⁵⁵This is not to say that the Aquinas’s view is incoherent on this particular point: Pasnau points out several passages where Aquinas discusses how to count “water,” i.e. instances of elemental water. (See Pasnau, *Thomas Aquinas*, 85–86.) The gist of Aquinas’s remarks is that a mass of water is one substance only when the mass in question is a *minimum*. So a molecule of H₂O would count as one water; any more and you do not have *one* substance or *one* water. As seen above, Aquinas seems to adopt the *strong coextension model*, and so this understanding of how to deal with mass-terms, though counterintuitive, works perfectly well under that framework.

⁵⁶I am very grateful for extensive comments from, and discussions with, Andrew Arlig, Eric Hagedorn, John Heil, Mi-Kyoung Lee, Robert Pasnau, the anonymous referees at *JHP*, and an audience at the 2013 NEH Summer Seminar *Metaphysics and Mind*. But I am especially grateful to Dominic Bailey, Brian Reese, and Damon Watson, without whom I could not have written the paper at all.

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