



Everything Flows: Towards a Processual Philosophy of Biology

Daniel J. Nicholson and John Dupré

Print publication date: 2018

Print ISBN-13: 9780198779636

Published to Oxford Scholarship Online: July 2018

DOI: 10.1093/oso/9780198779636.001.0001

Persons as Biological Processes

A Bio-Processual Way Out of the Personal Identity Dilemma

Anne Sophie Meincke

DOI:10.1093/oso/9780198779636.003.0018

Abstract and Keywords

Human persons exist longer than a single moment in time; they persist through time. However, so far it has not been possible to make this natural and widespread assumption metaphysically comprehensible. The philosophical debate on personal identity is rather stuck in a dilemma: reductionist theories explain personal identity away, while non-reductionist theories fail to give any informative account at all. This chapter argues that this dilemma emerges from an underlying commitment, shared by both sides in the debate, to an ontology that gives priority to static unchanging things. The claim defended here is that the dilemma of personal identity can be overcome if we acknowledge the biological nature of human persons and switch to a process-ontological framework that takes process and change to be ontologically primary. Human persons are biological higher-order processes rather than things, and their identity conditions can be scientifically investigated.

Keywords: biological identity, change, endurance, non-reductionism, perdurance, persistence, personal identity, process ontology, reductionism, substance ontology

It is certain there is no question in philosophy more abstruse than that concerning identity, and the nature of the uniting principle, which constitutes a person. So far from being able by our senses merely to determine this question, we must have recourse to the most profound metaphysics to give a satisfactory answer to it.

—David Hume, *Treatise IV, 2*

1. Introduction

Persons exist longer than a single moment in time; they persist through time. Strikingly enough, we are still in need of a theory that makes this natural and widespread assumption metaphysically comprehensible. Metaphysicians are deeply divided on how to account for personal identity and on whether there is such a thing at all. Many have actually cast doubt on the latter, thereby following the sceptical path famously taken by David Hume. The reason why we haven't found so far a waterproof metaphysical justification for our everyday belief in personal identity might lie in the fact that personal identity is an illusion. It might, however, equally lie in the insufficiency of the explanatory approaches hitherto taken. Is it really, to speak with Hume, the question of personal identity that is 'abstruse', or do we rather have to blame the metaphysicians for having failed to grasp the problem correctly?¹

In this chapter I shall pursue the second of these two options. I take it that the accounts of personal identity put forward so far fail for fundamental reasons: they are committed to the wrong kind of ontology. In fact the debate on personal identity is stuck in a dilemma, manifest in the antagonism between reductionist theories, which reduce the identity of persons to weaker continuity relations, and non-reductionist theories, which declare it to be a primitive 'further fact'. Personal identity is either **(p.358)** eliminated or mystified. I wish to claim that this dilemma is a special case of a general dilemma of persistence, and that it can be overcome only if we replace the underlying metaphysical framework, shared by both sides of the debate, with a new one. Thing ontology, which gives priority to unchanging static things, must give way to process ontology, which takes process and change to be ontologically primary.

I shall defend this claim in three steps: first, I shall briefly present the dilemma of personal identity. Second, I shall identify the thing-ontological roots of the dilemma. These roots can be traced—through reductionism's and non-reductionism's disagreements on what persons are (bundle theory vs substance theory), on what constitutes reality most fundamentally (Humean ontology vs substance ontology) and on what persistence is (perdurantism vs endurantism)—back to a striking similarity: the disappearance of change on both sides. On the basis of this analysis, I shall demonstrate, third, how acknowledging the biological nature of human persons and switching to a process-ontological framework accordingly lays the foundations for a convincing account of personal identity exactly by rehabilitating change. I shall conclude by highlighting the most important assets and implications of such a move, as well as by indicating key tasks for further elaborating a bioprocess view of personal identity.

2. Elimination or Mystification: The Personal Identity Dilemma

What exactly is the question of personal identity about? A natural approach is to say that it is about the truthmakers of diachronic identity statements. Suppose that someone watches me in the early morning sleepily rubbing my eyes after having been torn from sleep by the alarm clock. Suppose, further, that he points at me and says: 'This isn't the same person as the one I watched going to bed last evening!' It seems then that there must be something which makes my observer's statement either true or false. A satisfying theory of personal identity would tell us *why* I, rubbing my eyes after having been woken by the alarm clock, am the same person who had been watched going to bed some hours earlier, given that this is indeed the case, and likewise *why* I am not the same person, if indeed I am not. It would allow us to distinguish between cases of identity and cases of non-identity by specifying criteria that have to be met in order for identity statements about persons to be true.

Now this is where problems start. Philosophers wildly disagree about what these criteria are and about whether there is any such criterion at all. Reductionists think that there are indeed identity criteria, and they define them in terms of diachronic empirical relations that hold between a person *a* identified at time t_1 and a person *b* identified at time t_2 . Thus, if I, being identified in the morning in my bed, am indeed the same person who was identified while entering my bed the evening before, then this is due to the holding of a certain empirical relation between me this morning and me yesterday evening. My transtemporal identity is in that sense reducible to the holding of that relation, which some believe to be the relation of psychological continuity (there is a chain of interrelated mental events connecting me and the person who went to bed last evening), while others take it to be some sort of spatio-temporal continuity (I have the same body, or at least the same brain as the **(p.359)** person identified earlier). However, non-reductionists reject this picture altogether. They insist that personal identity cannot be reduced to any empirical relations, whatever these might be. Instead, they think that my identity in the imagined case is a further fact, which adds to the empirical facts objectively to be observed. Personal identity is primitive, that is, non-analysable.

Let us have a closer look at reductionism (also called 'the complex view') first. Its long predominant and still paradigmatic version is psychological reductionism. Psychological reductionism itself comes in two variants: standard psychological reductionism (as I would like to call it) and Parfitian reductionism (the sort of reductionism defended by Derek Parfit). Standard psychological reductionism maintains that psychological continuity constitutes personal identity in the sense of strict numerical identity. According to Parfitian reductionism, on the other hand, personal identity amounts to a relation weaker than identity, namely a particular form of psychological continuity itself (relation R). This disagreement on the exact profile of a psychological reductionist account of personal identity arises from certain hypothetical puzzle cases to

which, as Parfit claims, only Parfitian reductionism provides a convincing solution, whereas they turn out to be lethal for standard psychological reductionism.

Imagine that my psychology, as present at t_1 , is replaced bit by bit, in a continuous process, with somebody else's psychology, until finally, at t_3 , nothing of my psychology is left. Or suppose that (rehearsing another famous scenario) the two hemispheres of my cerebrum are transplanted into two different living bodies, with the result that, at t_3 , there are two people psychologically continuous with me. In both cases, standard psychological reductionism's assumption that psychological continuity constitutes numerical identity would yield contradictory results: we would be forced to accept, in the former case, that I can be identical with someone else and, in the latter case, that I am identical with two people (which would lead to the further absurdity that these two, by transitivity of identity, would be identical with each other as well). However, alternatively allowing for the relation of psychological continuity to become intransitive in certain cases—such that I would neither be identical with someone else who happens to be psychologically continuous with me nor be identical with two psychologically continuous successors—does not help either. It invites vagueness: given that, in both scenarios, we have at t_1 a clear case of identity and at t_3 a clear case of non-identity and, furthermore, given that there is no ontological fact of the matter that would allow us to draw a non-arbitrary sharp boundary, at least one of the identity statements about how things are in between, at t_2 , will be neither definitely true nor definitely false (see Meincke 2015: ch. 2.2.1a and ch. 2.2.1b).²

Parfit's reaction to this is the provocative claim that 'identity is not what matters' (Parfit 1987: 215, 279). When it comes to survival (which is what we are naturally **(p.360)** interested in in the first place), what matters, according to Parfit, is rather the mere fact of there being *any*—somehow traceable and sufficiently rich—psychological link between us and our successors, of whatever individual strength and whatever the actual number of successors might be (see Parfit 1987, ch. 12). I thus might survive as more than one person if psychological continuity happens to take a branching form.³ In such a case the question of numerical identity turns out to be what Parfit calls an 'empty question': there is no fact of the matter we could refer to in order to discern whether or not numerical identity obtains. And this in turn reveals that, even when statements of personal identity, meaning numerical identity, do have a determinate truth value, this is not because some metaphysically deep further fact makes them true or false. The very existence of persons is the opposite of a metaphysically deep fact; it consists in nothing but 'the existence of a brain and body, and the occurrence of a series of interrelated physical and mental events' (ibid., 211; see also 216). All apparently personal facts, so Parfit claims,

can be fully redescribed in an impersonal way, without anything real being missed (ibid., 211–12, 225).⁴

Non-reductionism (also known as ‘the simple view’) directly opposes to the eliminativist tendency inherent in reductionism. This opposition includes a resistance against the idea that persons might branch or fade out—an idea considered to be incompatible with their being subjects of experience. The latter point is crucial. Against Parfit’s impersonalism, non-reductionists insist that there *is* something missing in descriptions referring only to chains of interrelated mental events, namely an indication of exactly *whose* states these events are, in other words *who* experiences them. Thus knowing, for instance, that a branching of my psychology will result in two persons being psychologically continuous with me does not tell me anything about whether *I* will be one of these persons and, if so, which one of them. According to the defender of the simple view, it is clear that I can be only *one* of these two persons, as there is no such thing as partial survival. I have the experiences either of the one or of the other person, but not of both. Personal identity is numerical identity. If so, however, given that both postbranching persons stand in exactly the same relations of psychological continuity to me, it cannot be psychological continuity that makes it to be the case that I survive as the one rather than the other person.⁵ Hence (so runs the conclusion drawn by the non-reductionists) personal identity must be a deep further fact, not contained in any empirical descriptions and not reducible to any empirical relations such as ones of psychological continuity.⁶

Non-reductionism avoids the difficulties of standard psychological reductionism without sacrificing the assumption that personal identity is numerical identity, as **(p.361)** Parfitian reductionism does. The ‘trick’ for achieving this consists in denying the possibility of any empirical analysis of ‘personal identity’. Indeed the appeal to subjective experience that underlies this move captures certain deeply rooted intuitions about the nature of self-consciousness and subjectivity. One need only think of Kant’s famous claim that the identity of the ‘I’ is logically entailed by any statements about personal identity, thus supposedly evading any ontological account for fundamental (‘transcendental’) reasons.⁷ In the same manner (though not equally restrictively as Kant with regard to the purely logical nature of the identity in question),⁸ contemporary non-reductionists emphasize the primitive identity of the first-person perspective or subjective experience (see Swinburne 1984; Baker 2012; and Nida-Rümelin 2006).

However, hesitation to accept non-reductionism as the solution to the problem of identity stems precisely from its hostility towards empirical, objective explanation. The truth is that non-reductionism does not deliver *any* informative explanation of personal identity at all. Instead, all seemingly informative explanations put forward by non-reductionists turn out to be utterly circular: saying that the identity of the person consists in the identity of the person’s

subjective perspective or, more traditionally, in the identity of the person's soul (see Swinburne 1984: 27ff.) is just a disguised way of saying that the identity of the person consists in the identity of the person, given that there is no way of specifying constitutive identity conditions for subjective perspectives or souls.⁹

The search for a convincing metaphysical account of what appeared to be a natural assumption—that persons persist through time—thus ends in a mixture of confusion and frustration. Skimming through the options available in recent literature, one is confronted with a choice between (a) an explanatorily pleasingly rich theory type that, however, turns out to eliminate what it was meant to explain by literally explaining it away, and (b) an appealingly conservative theory type that, however, appears to save its explanandum only by mystifying rather than explaining it. This is an impossible choice to make without betraying either one's everyday conviction that personal identity is a trustworthy part of reality, or one's commitment to the idea that reality is amenable to rational explanation. Is there a way out of this dilemma?¹⁰

3. The Thing-Ontological Roots of the Dilemma: Substances, Bundles, and the Disappearance of Change

The good news is that there is a way out of the personal identity dilemma; one that has been overlooked so far. However, this way out is somewhat hidden. In order to **(p.362)** find it we need to better understand the dilemma's logic first; in other words, we need to understand *why* it has been overlooked so far. This requires digging a bit deeper into the metaphysics underlying the controversy about personal identity.

The first thing to discover in the course of this journey back to the dilemma's roots is that the debate's antagonists, reductionism and non-reductionism, operate on the basis of two opposing ontological theories of what persons are.

Non-reductionism takes persons to be substances, that is, some sort of a discrete self-identical particular. The traditional form, in which the substance theory of the person is employed for a non-reductionist account of personal identity, is substance dualism, according to which persons are immaterial souls attached to a body (see again Swinburne 1984: 27ff.).¹¹ But, even in the more recent versions of non-reductionism, which try to keep their distance from substance dualism, the substance theory of the person is still at work: here the first-person perspective or the subjectivity of a person takes over the role traditionally played by the immaterial soul substance, the role of a self-identical substratum underlying any change attributable to the person (see Baker 2012 and Nida-Rümelin 2006).¹² Note that numerical identity is built into the very definition of a substance, so that in assuming that persons are substances we have already presupposed their identity, either as a matter of logic or, in the case of substance dualism, as a further fact belonging to an immaterial, 'meta-physical' world.

Reductionism, on the other hand, assumes that persons are composed of different states or events, thus being a bundle of those states or events. The bundle theory of the person, which goes back to David Hume,¹³ figures especially prominently in Parfitian reductionism. According to Parfit, as we have heard, a person is just a series of physical and—most importantly—mental events that are tied together through certain empirical continuity relations—most importantly, psychological continuity (or relation R). Parfit explicitly rejects the view of persons as ‘Cartesian egos’ that exist separately from those physical and mental events (Parfit 1987: 223 ff.). Note that in Parfit’s reductionist picture, as there is no underlying self-identical substratum to which the fluctuating physical and mental events can commonly be ascribed, personal identity cannot be numerical identity.¹⁴ I become my own successor whenever a new event occurs; ‘I’ am a series of ‘successive selves’ (Parfit 1987: 302ff.).

(p.363) Given these ontological commitments of reductionism and non-reductionism, the dilemma of the personal identity debate doesn’t come as a surprise: substances resist any informative analysis of their numerical identity, just as naturally as bundles of mental events defy the idea of numerical identity. But there is more to the story. This becomes clear once we recognize the antagonism between the substance theory and the bundle theory of the person as a special case of a more fundamental antagonism between substance ontology on the one hand and Humean ontology on the other. This latter opposition shapes the general debate on persistence in metaphysics by underlying the competition between so-called endurantist and perdurantist accounts of persistence. Insofar as personal identity itself evidently is just a special case of persistence, it is worth having a closer look at the controversy on persistence in current metaphysics.¹⁵

The canonical definition of the two main competing accounts of persistence, perdurantism and endurantism, has been given by David Lewis. According to Lewis, something ‘perdures’ iff it persists ‘by having different temporal parts, or stages, at different times, though no one part of it is wholly present at more than one time’, whereas something ‘endures’ ‘iff it persists by being wholly present at more than one time’ (Lewis 1986: 202). Perdurantism thus sees persisting entities as four-dimensional objects, composed of different space-time slices, so that no single stage makes up the entity as a whole, but only all stages together. Perduring entities are bundles of numerically different occurrences, concordant with a Humean picture of reality as consisting of ‘loose and separate’ discrete existents of whatever sort (things, events, matters of fact, particular properties or ‘tropes’, etc.).¹⁶ This is opposed to the endurantist view, where the persisting entity is a three-dimensional object, having only spatial parts and being present, as a whole, at each time it exists. Enduring entities are substances, as invoked by traditional substance ontology.

Lewis presents perdurantism and endurantism as suggested solutions to what he calls the ‘problem of temporary intrinsics’: how is it possible that persisting things change their intrinsic properties, given that, according to Leibniz’s law, numerical identity implies the identity of (at least all) intrinsic properties? Lewis’ sympathies lie with perdurantism: to avoid conflict with Leibniz’s law, so he argues, we simply need to distribute the different properties to different entities (Lewis 1986: 204), namely to the persisting entity’s temporal parts, which are interrelated by spatio-temporal continuity relations rather than by numerical identity (Lewis 1986: 218).¹⁷

Lewis’ rationale, in short, is this: persistence cannot be strict numerical identity, as numerical identity turns out to be incompatible with change; so, if there is change, and we believe there is, then we have to abandon the idea that persistence is **(p.364)** numerical identity. Only if we were willing to sacrifice the intrinsicness of the persisting entity’s properties could we keep thinking that things stay the same over time in the sense of numerical identity, even though they change. We would then need to assume that properties such as my being anxious, or the doormat’s being dirty, actually are disguised relational properties, containing a relation to a particular time (‘anxious-at-t’, ‘dirty-at-t’)—which is the standard approach chosen by endurantism.

I take it that both perdurantism’s and endurantism’s efforts to do justice to the change involved in persistence remain strikingly unsuccessful. In fact, change disappears from the ontological picture of reality there as here; and, as I have argued elsewhere in more detail (Meincke forthcoming b and 2018b), it is this surprising similarity—being grounded in the shared belief that identity and change are incompatible with each other—that accounts for both perdurantism’s and endurantism’s ultimate failure as explanations of persistence.

The complaint that perdurantism eliminates change rather than explaining it is not new. John M. E. McTaggart has famously argued that any theory of change that denies the passage of time, regarding time as analogous to space instead, fails by not admitting of changing facts and by collapsing temporal change into spatial variation (see McTaggart 1927: § 316).¹⁸ This criticism applies also to Lewis’ eternalist four-dimensionalism. However, even more disastrous than perdurantism’s problematic stance on time is the very act of splitting persisting entities up into bundles of numerically different discrete entities that themselves by definition do not change (‘(spatio-)temporal parts’).

Lewis’ answer to the question of how a persisting thing changes its intrinsic properties, given the Leibnizian requirement that, in order to be identical, any things *a* and *b* need to have the same intrinsic properties, is that persistence is not identity. Neither is there one thing having different properties nor are there any two things having the same properties. All there is is different things with different properties, and, as Lewis puts it, ‘[t]here is no problem at all about how

different things can differ in their intrinsic properties' (Lewis 1986: 204). But this, in effect, is saying that there is neither change nor persistence, strictly speaking: different things are different things rather than one and the same thing and, if this is so, there is simply nothing *that changes*. And nothing *that persists*, either. Hence, even if setting aside the McTaggartian concerns—that is, even if we, *contra factum*, could be sure about perdurance being (or at least involving) some sort of genuinely temporal relation—perdurance is still not persistence, as we have lost the idea of *something* persisting through time.¹⁹

What about endurantism? As is well known, Aristotle invented the concept of a substance exactly for the purpose of making intelligible how things can stay the same even though they change. He distinguished between so-called accidental properties, which can change over time without the substance's identity being affected, and so-called essential properties, for which this is not true. Change is thus essentially **(p.365)** grounded in non-change; we have to assume that there is an unchanging self-identical core—an essence—that defines a substance's identity and remains unaffected by any change attributable to the substance. Change happens on the substance's surface only, so to speak. This situation is not altered in principle if we deprive the substance of its essential properties, assuming that the substratum of change is a bare particular. We still end up with a view that marginalizes change and, as Peter Geach has astutely observed, is plainly self-contradictory: against the endurantist's mantra that endurantism delivers the only coherent account of change at all, insofar as it provides what was missing in perdurantism—something *that changes and persists through time*—we have to acknowledge that the enduring substance is something that supposedly changes exactly by not changing itself, and the other way around—something that does not change itself because it is what changes.²⁰

The only way to get rid of the contradiction is to get rid of change altogether. This is what happens in those versions of endurantism that (unlike Aristotle's account of change) fully comply with Leibniz's law by time-indexing the substance's properties (so-called relationalism). Postulating that properties are disguised relations to times removes their incompatibility and thus makes it possible to attribute all of a substance's properties to the substance at any time, so that Leibniz's law is fulfilled. However, as Johanna Seibt has rightly observed, if something has the same properties at any time of its existence, it does not change. It is not true that this thing has some properties at some times that it does not have at others.²¹ And, finally, even though being numerically the same at any time we refer to it, this thing still does not persist through time. Saying that something has all of its properties at all times of its existence corresponds to how we talk about abstract entities. A number, for instance, has all its properties at any times, but that is exactly because a number does not persist through time; it does not exist in time at all (or at least it does not have the sort of temporal existence that concrete objects have). An enduring substance, in the

(p.366) relationist picture, has all its time-indexed properties, as it were, eternally and is numerically self-identical, as a brute atemporal matter of fact.

We thus arrive at the very same type of dilemma as encountered in the debate on personal identity: while endurantist accounts of persistence bluntly presuppose what would have needed explanation—the numerical identity of the persisting entity qua substance—perdurantist accounts lose their explanandum by fragmenting the persisting entity into a bundle of numerically different things, called ‘temporal parts’. As we have seen, this dilemma directly reflects the different strategies chosen by endurantism and perdurantism to square identity and change, which both theories regard as incompatible: to overstate it a bit, endurantists say that change must go; perdurantists say that identity must go. However, either choice comes ultimately at the same price. Saving identity by making it dubiously immune to change, as endurantists are inclined to, turns persistence into a mystery that jeopardizes its reality. Abandoning identity in order to make sense of change, as in perdurantism, amounts to eradicating change as well, in a paradoxical reversal of what originally was intended and with the same result of persistence being corrupted. Persistence—identity through time—and change fall together.

The disappearance of change on both sides, followed by a collective breakdown of persistence, is no accident. Instead, endurantism and perdurantism about persistence, and accordingly non-reductionism and reductionism about personal identity, rest upon ontologies that conform to the commonly assumed incompatibility between identity and change by debilitating the latter from the outset. At the root of the dilemma of persistence, and hence of the dilemma of personal identity, lies a shared fundamental commitment to a view of the world that gives priority to unchanging things while taking change and process, if it allows them to exist at all, to be secondarily derived from things.²² Substance ontology and Humean ontology are thus not so different after all. They rather turn out to be versions of the same overall ontology that takes static entities—things—to be the building blocks of reality: either bigger things (‘substances’) or smaller things (‘(spatio-)temporal parts’, matters of fact, events or particular properties) that compose bigger things (‘four-dimensional objects’, ‘property bundles’).²³

The analysis of the metaphysical issues underlying the debate on personal identity thus reveals that reductionism and non-reductionism fight along a dividing line that remains within the boundaries of the same ontological framework: whether personal identity is taken to be unanalysable or spelled out in terms of empirical relations, we end up with the idea of a person as being a thing, whose identity has to be secured by somehow outwitting change. The result is rather disconcerting: if non-reductionism is right, we persist, if not as a matter of logic, then thanks to some deep, metaphysical **(p.367)** further fact outside time, and in that sense ‘forever’; if reductionism is right, our persistence

is limited to the duration of one instant in time, the duration of a single 'successive self', which is to be replaced by another one. In other words, we have to accept that 'change', if there is any,²⁴ either does not affect one's identity at all or makes one literally a different person in each moment it is assumed to occur.

This clearly contradicts our natural view that there is indeed something like transtemporal identity but that this identity is not to be taken for granted. That persons, as we believe, exist longer than a single moment in time does not mean that they are eternal; nor does the possibility of changes being such that they affect my identity imply that every change does so. I take it that what I would like to call our 'metaphysical conviction', the conviction that change neither automatically destroys our identity nor (in principle) never affects it,²⁵ is a pretty strong motivation to go on looking for a convincing theory of personal identity, one that vindicates this conviction. Such a theory would have to be radically different from the approaches hitherto taken, in that it would need to allow for the ontological reality of change first of all. This would entail overcoming the idea that identity and change are incompatible, given that we seem to have failed to give a convincing account of personal identity (as one of persistence in general) to the extent that we have failed to recognize change as a possible friend of persistence rather than as its enemy only.

In the remainder of this chapter I shall therefore defend the thesis that developing a satisfying account of personal identity, which does not suffer from the difficulties of current accounts, will require no less than a metaphysical new beginning: the static thing ontology reductionism and non-reductionism are committed to needs to be replaced with some version of process ontology.

4. A Way Out: Persons as Biological Processes

Reductionist and non-reductionist theories of personal identity, just as perdurantist and endurantist theories of persistence in general, share the view that identity is opposed to change. How can persons stay the same *even though* they change over time? How can there be identity *despite* the fact of change? The common response to this question, which guides and shapes both the general debate on persistence and the special debate on personal identity, is: it cannot. If there is identity, then this is because there is no real change; if there is change of some sort, then there is no identity. This is to say that change can under no circumstances be among the truthmakers of personal identity statements. Nobody is the same *because* she changed over time but only *despite* the fact that she changed over time, if that indeed was the case. Change can be only a falsemaker of personal identity statements.

But this is utterly false. Just think of all the changes that are happening in my body while I'm writing these lines. My heart is pumping blood through my arteries, my lungs are filling with air, thereby oxygenating my blood, my cells,

dependent on their momentary position in the cell cycle, are growing or undergoing division, food is **(p.368)** travelling through my gastrointestinal tract, propelled by peristaltic waves and other mechanisms, and, not to forget, neurons are firing up in my brain as my thoughts develop into some sort of insight, materializing in more or less comprehensive sentences. How could I dismiss all this as irrelevant? Well, reductionists and non-reductionists may reply, if it is relevant to your existence as a person (which might be contested)²⁶ and if it is change (which is a bit harder to deny), then either it is a mystery how you manage to continue existing despite all this or, actually, you aren't you any more. But this completely ignores the fact that those biological processes have the function of keeping me alive (and that the mental operations in my head have the function of keeping me mentally and intellectually alive, which seems likewise important). I go on existing as the same because myriads of complicated, interconnected biological processes *make me* do so.

Process ontology enables us to make sense of this. According to process ontology, existence has to be spelled out in terms of processes rather than things — 'of modes of change rather than fixed stabilities', as Nicholas Rescher (1996: 7) puts it. This is not to deny that there are stabilities in the world, but rather to insist that these are themselves constituted by processes, that is, by change.²⁷ Insofar as organisms, human or other, are concerned, process ontology finds here an ally in contemporary systems biology. Systems biology teaches us that organisms are complex systems of organized and stabilized processes. From a process-ontological perspective, this is not really striking news. If reality consists of processes all the way down, then organisms, likewise, are processes. What is special about them?

Systems biology has a story to tell about this. That story is centred on the question of how organisms manage to demarcate themselves from their environment. Nature is full of processes of all kinds indeed, tending in their totality towards a state of maximum entropy. Yet there are some processes that are so organized that it seems justified to distinguish them, each one as a system on its own, from other, surrounding processes. These processes form integrated complex hierarchies, distinct dynamic unities, which depend, for their distinct existence, on a constant interaction with that from which they are distinct: with the processes constituting their 'environment'. A dynamic system such as an organism persists by maintaining a controlled exchange of matter and energy with the environment, so as to keep itself as a whole in a thermodynamically far-from-equilibrium state, minimizing entropy inside by increasing it outside.²⁸

(p.369) The particular importance of metabolism when it comes to understanding organic identity, the special mode of persistence that characterizes living beings as opposed to non-living ones, has also been observed by the German philosopher Hans Jonas.²⁹ Jonas stresses that metabolism is not a peripheral activity engaged in by a persistent core of the

organism, but rather 'the total mode of continuity of the subject of life itself' (Jonas 1966: 76). Thus, unlike a car whose identity is independent of the fuel that runs through it, a metabolizing system is, wholly and continuously, the result of its own metabolizing activity. Living systems *persist by metabolizing*, in other words by constantly rebuilding and maintaining themselves through an exchange of matter with their environment.³⁰

Jonas argues that we, however, are justified in claiming that metabolism is the 'mechanism' of an organism's persistence only if we acknowledge the fact that the organism does not coincide with its changing material constitution. Otherwise, given the all-pervasiveness of metabolism, we would simply find nothing but constantly changing configurations of particles of matter. For Jonas, this means recognizing that organic identity is an identity of form rather than of matter: it is the form in which particles of matter are organized within the process of metabolism, and *only* the form of this process that stays the same over time. The organism persists precisely by *not* remaining the same matter. If its matter were to remain the same for any period of time, that would be the end; the organism would be dead (see Jonas 1966: 75–6). Form emancipates itself from matter insofar as it becomes the cause of the flow of matter through it, thus actively sustaining its own identity.³¹ At the same time it remains dependent on matter, insofar as there would be no form without matter arranged in such and such a way over time (see Jonas 1966: 80).

The emancipation of form from matter explains why metabolism is a function of the organism rather than the organism being a function of the changing matter (see Jonas 1966: 78). One implication is that I am not straightforwardly identical with those processes to which I owe my life (blood circulation, cell division, digestion, and so on). I am rather a higher-order process relying on a manifold of lower-order processes—I am a processual form. This insight nicely complements the story told by systems biology; for, if I were indeed to coincide with the changing flow of particles of matter as they take place, for instance and most basically, in metabolism, there would **(p.370)** be no point in distinguishing the kinds of processes involved in that from the rest of the processes in the world. Those processes would just drown in the overall ocean of process, amalgamated with their brothers and sisters. But in reality the processes in question are such that it does make sense to distinguish them from other processes, namely because they give rise to something in relation to whose persistence they seem *functional*.³² They give rise to me, a human organism. And I, in turn, make use of them in order to maintain my existence.³³

What Jonas and systems biology offer us is a surprisingly robust notion of an individual within an entirely process-ontological framework.³⁴ Organisms, according to this picture, are organized systems of processes, namely more or less integrated, 'stabilized' ones.³⁵ It is because of this kind of integration, because of the specific (synchronic and diachronic) unity that organisms

exhibit,³⁶ that we might be tempted to see them—mistakenly—as things.³⁷ In fact, however, biological identity is thoroughly and irreducibly processual. There is no identity of the organism beyond the one it produces itself by maintaining a controlled exchange of matter and energy with the environment. And there is no organism—no form—beyond this process of producing identity, because exchanging matter and energy with the environment is just the way in which the organism exists at all. Organisms exist processually, and hence persist through time.³⁸

It is the thoroughly processual nature of the existence and persistence of organisms that finally enables us to overcome the dogma that is so deeply entrenched in the **(p.371)** debate on personal identity and persistence: the dogma that identity and change exclude each other. Recognizing organisms as processes allows for identity and change to engage in a constructive interaction instead. This does not mean that the two dwell in harmony with one another. On the contrary, according to the picture drawn by systems biology and by the ‘philosophical biology’ envisaged by Hans Jonas,³⁹ identity and change enter into a dynamic relationship that is as full of tension as it is productive: biological identity is identity *despite* change, insofar as it is the identity of a form that emancipates itself from the changing matter; but at the same time it is identity *by virtue of* change, as there would be no identical form without the ongoing change of matter.

Change thus appears as both a truthmaker and a falsemaker of the identity of organisms. It is the former insofar as biological identity occurs only if changes of a specific sort take place, namely changes that are functional to the generation and maintenance of a biological form; and it is the latter insofar as it is not so difficult to think of dysfunctional processes of change that destabilize form.⁴⁰ There might be constellations where the change of matter ‘eats up’ identity, thus disrupting the existence of the entity in question; there might be others where the identity of form successfully suppresses disruptive kinds of change so as to ensure its own continuation. This is to say that the interplay in which identity and change are being caught rests on an ontological priority of change: no ‘suppression’ of change is ever more than a limitation of it, given the fact that identity, first of all, has arisen from change. Identity is always identity *by virtue of* change and as such manages, at least temporarily, to perpetuate itself *despite* change. Identity is an emergent phenomenon, emergent from change.

Hence identity is nothing that we could take for granted. What the balance of power between identity and change looks like depends on numerous factors, internal (organic) as well as external (environmental). It is a changeable, not to say fragile balance, requiring constant activity to be maintained, as well as benevolent circumstances. Survival doesn’t come for free; it is the result of tremendous efforts every day and is always on the edge of failure. Internal disorders and disturbances of the complex system of coordinated processes that

constitute an organism might easily become life-threatening dangers. Sudden changes in their ecological niches can wipe out whole species from one day to the next. And who fails to eat will die just the same. Our 'metaphysical conviction' makes perfect sense: we are as entitled to believe in the transtemporal identity of persons as we have to accept that nothing lasts forever and that what has been born by processes after a while will be taken back by them.

5. Conclusions

Hume, finding himself unable to give a satisfactory answer to the question of personal identity, hoped to get rid of the problem by declaring the question to be **(p.372)** abstruse. Showing this to be a premature manoeuvre was the aim of the foregoing considerations. There is no need to throw in the towel. We do not have to ban personal identity as a subject from academic curricula; neither do we have to give up metaphysics altogether. On the contrary, Hume was completely right when he, whether affirmatively or dismissively, referred to some 'most profound metaphysics' as being in charge here. Yes, we need such a metaphysics—namely a suitable one.

On the basis of the observation that current accounts of personal identity and of persistence in general run into a dilemma because of their underlying commitment to a static thing ontology, we have tested the hypothesis that we need a radically different ontological framework in order to overcome this dilemma. The radically different ontological framework that has been proposed here is process ontology, an ontology that takes process to be the heart of things. According to this view, change is prior to stasis, the latter in fact being no more than a limiting case of the former. Change is everywhere; it is the sediment out of which organized formations of processes arise—some of which might then appear to be thing-like to us. But only by committing a rude abstraction from reality can we take things at face value.⁴¹ The truth about our world, as process ontology insists, is that process, change, is the 'essence' of whatever there is.

Within the traditional debate, the question of personal identity has been raised from a perspective that takes exactly the opposite to be true. It is a perspective that, tacitly assuming that stasis is the default state of the world, takes for granted the existence of things such as persons and then wonders how it is possible that there is change and, given that there is (as we tend to believe), how it is possible that things nevertheless stay the same over time. Hereby it turns out that, alas, they don't; at least not in the sense of numerical identity as defined by Leibniz's law. Whoever wants to stick to a notion of identity in accordance with Leibniz's law has only the choice between cutting identity down to point-like momentary temporal parts of things postulated exactly for that purpose and expatriating identity from the realm of temporal reality. In either case identity appears as something not requiring, and not allowing, informative

explanation; if not some non-empirical ‘further’ fact, identity is believed to be a logical affair and therefore to be ultimately trivial, not to say boring.⁴² Nothing could be further from the truth. But, after all, it is a result that comes as no surprise, given the starting assumption that things are the primary furniture of the world.

In fact Leibniz’s law itself can be seen as a paradigmatic expression of a thing-ontological view of reality, insofar as it excludes process and change from the start. If identity requires an identity of properties, it follows that, if there are self-identical things, no such thing ever changes. Admitting change (as seems plausible with respect to temporal reality) amounts, accordingly, to denying identity over time. **(p.373)** Nothing obeying ‘the law of time’ would then ever stay the same, which is the consequence drawn by Parfitian reductionism and Lewisian perdurantism, according to which all we can find in spatio-temporal reality are atomized ownerless events (mental or otherwise) loosely connected through relations of continuity.⁴³ This is just the other extreme of an inherently thing-ontological view of the world. It is a view that throws the baby identity out with the bathwater, as opposed to a view that, on the basis of the same fundamental ontological commitments, keeps the baby safe and warm (but dirty) outside the water of time.

Shouldn’t we be able to do it better? Instead of trying to account for the possibility of change without thereby jeopardizing the presumed identity of things, let’s see what happens when we start from the opposite assumption: the assumption that change, not stasis, is the default state of the world. What happens first is that we have to modify the question of personal identity. It needs to be put like this: ‘How can persons change in such a way that they persist, at least for a certain time?’ Or: ‘What kind of changes are needed in order for there to be the same person over a certain time?’ Reformulating the question in this way enables us to account for identity *in terms of* change, that is, to make a constructive use of change in an explanation of transtemporal identity rather than keeping change outside, as something that, if it were allowed in, would simply and straightforwardly annihilate identity.

If ‘things’—persons included—are actually organized hierarchies of stabilized processes (as it turns out), then there is no difficulty in making sense of the fact that transtemporal identity can be lost, just as it needs (first of all) to be gained: processes, and clusters of processes, stabilize and destabilize. This is what it means to be a dynamic system: to rely on the dynamics of constitutive processes that themselves rely on environmental processes they are entangled with. However, the fact that identity needs to be gained and can be lost does not undermine its being identity. There is really something that stays the same over time in some robust sense. This is the specific arrangement of processes—the processual ‘form’—and it stays the same over time for exactly as long as it displays some kind of successful activity to maintain itself, something that can

be described by biology as part of a scientific investigation into the mechanisms of organic stabilization and destabilization.⁴⁴ The process view thus allows for an informative explanation of our identity over time that evades the unfortunate alternative between either mystification or elimination and thereby meets our metaphysical conviction.

And it has further advantages, which I would like to briefly mention here.

One is that there simply is no ‘problem of temporary intrinsics’. While one might find it puzzling how one and the same *thing* can have different intrinsic properties at (p.374) different times, there is in principle no mystery to one and the same *process* having different intrinsic properties at different times, as this is just part of what it is to be a process. This is another way of saying that the identity of a process cannot be an identity that conforms to Leibniz’s law. According to the process view, the fact that Leibniz’s law excludes process and change from the start counts against its applicability to temporal reality and the persisting entities therein or, more accurately and weightily, against a view of the world according to which it would be so applicable. The conclusion to be drawn from this is that we should stay away from Leibniz’s law in our account of persistence, while still working with a robust notion of identity along the lines explained.⁴⁵

Another advantage of the bioprocess view is that it allows us to relax about vagueness. That natural processes tend to have vague boundaries goes without saying. The crucial point is that there’s nothing wrong with that; like the change of intrinsic properties, vagueness just lies in the nature of processes. And because there is nothing wrong with it, there is no need to give up on identity altogether (as suggested by Parfit) when it comes to making sense of the widely discussed puzzle cases of personal identity. Admitting that the beginning as well as the end of the existence of a person might be (or unavoidably are) fuzzy does no harm, if we conceive of persons as higher-order processes emergent from lower-level processes. This fuzziness does not undermine the person’s identity at other times, nor does it involve an ontological mystery. Compare this to the situation of a thing. At the same time, to exist and not to exist (as one is forced to say of a persisting entity) in vague cases is quite an odd state to be in, for a thing—but not necessarily for a process. Also, there are still informative things to say in vague cases from a bioprocessual perspective. Rather than being caught in a logical perplexity with no resources for solving the matter, as in the notorious scenarios of the personal identity debate, we now find questions of vagueness transforming themselves naturally into questions of processual constitution, which to some considerable extent is just an empirical issue.⁴⁶ Focusing, within a bioprocessual framework, on organization and functional unity rather than on naked continuity is especially promising with regard to branching cases.⁴⁷

‘Well’, someone might say now, ‘everything that you told us may be true, and indeed it sounds quite convincing; but you still haven’t presented a solution to the personal identity dilemma, as you haven’t been talking about personal identity at all. **(p.375)** All you have proposed is a sophisticated process account of biological identity, but biological identity isn’t personal identity.’ Here is my reply: personal identity is about persons, and I find it hard to deny that *human* persons at least are some sort of organism, that is entities described and investigated by biologists. This is not to say that mental capacities aren’t crucial when it comes to distinguishing persons from non-persons, nor do I want to deny the ‘transcendental’ logic inherent to subjectivity, as stressed by Kant and his followers. However, first, mental capacities are not reserved only to humans, and so, if ‘personal identity’ is meant to refer to the identity of human persons exclusively, the analysis would have to focus on something different as being the relevant distinctive feature—the *differentia specifica*—anyway. And, second, I agree with Kant that the transcendental logic of subjectivity does not provide sufficient resources for the *ontological* understanding of personal identity.⁴⁸ I take it that these resources, at least as the basic constitution of (human) personal identity is concerned, are provided by biology.

This chapter’s ambitions thus have been located at a more fundamental level, following broadly this line of argument: in order for there to be a human person, there must be a human organism first of all, whatever the exact relationship between the two may be; so, if persons are organisms, let’s see what follows for the concept of personal identity from a processual account of what an organism is. What we have found pursuing this path has been instructive enough and invites to be complemented by further investigations into the more specifically ‘personal’ aspects of personal identity. In this regard, my suggestion is to focus in particular on the phenomenon of personality in human persons.⁴⁹ Here we will actually encounter the same processual constitution that is characteristic of the underlying biological level, including the distinctive dialectic between identity and change: personal identity in the sense of keeping (and ‘being’) the same personality over time is the process of maintaining identity *despite and by virtue of* change (see Spann 2014b and Meincke 2016), a process that critically involves interactions with other persons, that is, with the social environment in which human persons are situated. Persons are processual from head to toe. I leave it to future endeavours to combine the bioprocessual approach as sketched here with an elaborated non-Cartesian holistic view of the human person so as to complete the ‘most profound metaphysics’ required, as Hume rightly surmised, for a way out of the personal identity dilemma.

Acknowledgements

This chapter was funded by the European Research Council, grant agreement number 324186 (‘A Process Ontology for Contemporary Biology’). I am indebted to John Dupré, Antony **(p.376)** Galton, and David Wiggins for inspiring

discussions and for helpful comments on an earlier draft. I also would like to thank two anonymous referees for their helpful comments.

References

Bibliography references:

Baker, L. R. (2012). Personal Identity: A Not-So-Simple Simple View. In G. Gasser and M. Stefan (eds), *Personal Identity: Complex or Simple?* (pp. 179–91). Cambridge: Cambridge University Press.

Bouchard, F. and Huneman, P. (2013). *From Groups to Individuals: Evolution and Emerging Individuality*. Cambridge, MA: MIT Press.

Campbell, R. J. and Bickhard, M. H. (2011). Physicalism, Emergence and Downward Causation. *Axiomathes* 21: 33–56.

Collier, J. (2006). Autonomy and Process Closure as the Basis for Functionality. *Annals of the New York Academy of Science* 901: 280–90.

Craver, C. F. and Bechtel, W. (2007). Top-Down Causation without Top-Down Causes. *Biology & Philosophy* 22, 547–63.

Dupré, J. A. (1993). *The Disorder of Things: Metaphysical Foundations of the Disunity of Science*. Cambridge, MA: Harvard University Press.

Dupré, J. A. (2012). *Processes of Life: Essays in the Philosophy of Biology*. Oxford: Oxford University Press.

Dupré, J. A. (2014). Animalism and the Persistence of Human Organisms. *The Southern Journal of Philosophy* 52: 6–23.

Galton, A. (2006). On What Goes On: The Ontology of Processes and Events. In B. Bennett and C. Fellbaum (eds), *Formal Ontology in Information Systems* (pp. 4–11). Amsterdam: IOS Press.

Galton, A. (2012). The Ontology of States, Processes, and Events. In M. Okada and B. Smith (eds), *Proceedings of the Fifth Interdisciplinary Ontology Meeting* (pp. 35–45). Tokyo: Keio University Press.

Galton, A. and Mizoguchi, R. (2009). The Water Falls but the Waterfall Does Not Fall: New Perspectives on Objects, Processes and Events. *Applied Ontology* 4: 71–107.

Geach, P. (1979). *Truth, Love and Immortality: An Introduction to McTaggart's Philosophy*. London: University of California Press.

Hume, D. (1964). *A Treatise of Human Nature*, vol. 1, ed. by A. D. Lindsay. London: Dent and Dutton.

Hume, D. (1966). *A Treatise of Human Nature*, vol. 2, ed. by A. D. Lindsay. London: Dent and Dutton.

Hume, D. (1975). *Enquiries Concerning Human Understanding and Concerning the Principles of Morals*, ed. by P. H. Nidditch. Oxford: Clarendon.

Jonas, H. (1966). *The Phenomenon of Life: Toward a Philosophical Biology*. Evanston: Northwestern University Press.

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

Love, A. (2012). Hierarchy, Causation and Explanation: Ubiquity, Locality and Pluralism. *Interface Focus* 2: 115–25.

Meincke, A. S. (2010). Körper oder Organismus? Eric T. Olsons Cartesianismusvorwurf gegen das Körperkriterium transtemporaler personaler Identität. *Philosophisches Jahrbuch* 117: 88–120.

Meincke, A. S. (2015). *Auf dem Kampfplatz der Metaphysik: Kritische Studien zur transtemporalen Identität von Personen*. Münster: Mentis.

(p.377) Meincke, A. S. (2016). Personale Identität ohne Persönlichkeit? Anmerkungen zu einem vernachlässigten Zusammenhang. *Philosophisches Jahrbuch* 123: 114–45.

Meincke, A. S. (forthcoming a): Dispositionalism and the Problem of Persistence. In A. S. Meincke: *Dispositionalism. Perspectives from Metaphysics and the Philosophy of Science*. Dordrecht: Springer.

Meincke, A. S. (forthcoming b): How to Stay the Same While Changing: Personal Identity as a Test Case for Reconciling ‘Analytic’ and ‘Continental’ Philosophy through Process Ontology. In R. Booth and O. Downing (ed.), *Analytic-Bridge-Continental + (ABC+) Process Philosophy*. Berlin: de Gruyter.

Meincke, A. S. (2018a). Bio-Powers and Free Will. Unpublished manuscript.

Meincke, A. S. (2018b). The Disappearance of Change. Unpublished manuscript.

Maturana, H. R. and Varela, F. J. (1980). *Autopoiesis and Cognition: The Realization of the Living*. Dordrecht: Reidel.

McTaggart, J. M. E. (1927). *The Nature of Existence*, vol. 2. Cambridge: Cambridge University Press.

- Montévil, M. and Mossio, M. (2015). Biological Organisation as Closure of Constraints. *Journal of Theoretical Biology* 372: 179–91.
- Moreno, A. and Barandiaran, X. (2004). A Naturalized Account of the Inside-Outside Dichotomy. *Philosophica* 73: 11–26.
- Moreno, A. and Mossio, M. (2015). *Biological Autonomy: A Philosophical and Theoretical Enquiry*. Dordrecht: Springer.
- Nida-Rümelin, M. (2006). *Der Blick von innen: Zur transtemporalen Identität bewusstseinsfähiger Wesen*. Frankfurt: Suhrkamp.
- Nozick, R. (1981). *Philosophical Explanations*. Cambridge, MA: Harvard University Press.
- Olson, E. T. (1997). *The Human Animal: Personal Identity without Psychology*. New York: Oxford University Press.
- Parfit, D. (1987). *Reasons and Persons*, 3rd edn. Oxford: Oxford University Press.
- Rescher, N. (1996). *Process Metaphysics: An Introduction to Process Philosophy*. Albany, NY: SUNY Press.
- Seibt, J. (1997). Existence in Time: From Substance to Process. In J. Faye, et al. (eds), *Perspectives on Time* (pp. 143–82). Dordrecht: Kluwer.
- Seibt, J. (2008). Beyond Endurance and Perdurant: Recurrent Dynamics. In C. Kanzian (ed.), *Persistence* (pp. 133–64). Frankfurt: Ontos.
- Sider, T. (2001). *Four-Dimensionalism: An Ontology of Persistence and Time*. Oxford: Oxford University Press.
- Simons, P. (2000). Continuants and Occurrents. *Aristotelian Society* 74: 59–75.
- Spann, A. S. (née Meincke). (2013). Ohne Metaphysik, bitte?! Transtemporale personale Identität als praktische Wirklichkeit. In G. Gasser and M. Schmidhuber (eds), *Personale Identität, Narrativität und praktische Rationalität* (pp. 241–65). Münster: Mentis.
- Spann, A. S. (née Meincke). (2014a). Bio-Agency: Können Organismen handeln? In A. S. Spann and D. Wehinger (eds), *Vermögen und Handlung: Der dispositionale Realismus und unser Selbstverständnis als Handelnde* (pp. 191–224). Münster: Mentis.
- Spann, A. S. (née Meincke). (2014b). Persönlichkeit und personale Identität: Zur Fragwürdigkeit eines substanztheoretischen Vorurteils. In O. Friedrich and M.

Zichy (eds), *Persönlichkeit: Neurowissenschaftliche und neurophilosophische Fragestellungen* (pp. 163–87). Münster: Mentis.

Steward, H. (2013). Processes, Continuants, and Individuals. *Mind* 122: 781–812.

Steward, H. (2015). What Is a Continuant? *Proceedings of the Aristotelian Society* 89: 109–23.

Stout, R. (2016). The Category of Occurrent Continuants. *Mind* 125: 41–62.

(p.378) Swinburne, R. (1984). Personal Identity: The Dualist Theory. In S. Shoemaker and R. Swinburne (eds), *Personal Identity* (pp. 1–66). Oxford: Basil Blackwell.

Van Inwagen, P. (1990). *Material Beings*. Ithaca, NY: Cornell University Press.

Whitehead, A. N. (1978). *Process and Reality: An Essay in Cosmology*. New York: Free Press.

Wiggins, D. (2001). *Sameness and Substance Renewed*. Cambridge: Cambridge University Press.

Wiggins, D. (2016). Activity, Process, Continuant, Substance, Organism. *Philosophy* 91: 269–80.

Notes:

⁽¹⁾ Interestingly, Hume's own position on this matter is ultimately not entirely clear either, as evidenced by the famous 'Appendix on Personal Identity' in his *Treatise*, where he complains about the result of his philosophical analysis being no less absurd than the absurdities it was meant to overcome; see Hume 1966: 317. See also the detailed discussion in Meincke 2015 (ch. 3.1).

⁽²⁾ Proponents of standard psychological reductionism have attempted to cure the difficulties in the branching scenario by introducing a so-called non-branching clause, which requires in order for *b* identified at *t*₃ to be numerically identical with *a* identified at *t*₁ that there be no rival candidate *c* at *t*₃ standing in the same relation of psychological continuity to *a* as *b* does (see Nozick 1981: 29–70). This strategy, however, comes at the price of rendering numerical identity extrinsic, which involves a special kind of vagueness as well; see Meincke 2015 (ch. 2.2.1c). Vagueness has commonly been seen as a deal breaker for any theory of personal identity. This looks different from a process-ontological perspective, as I will show below.

⁽³⁾ Parfit invites us to recognize survival merely by relation *R*, even when taking a branching form 'as being about as good as ordinary survival' by numerical identity (see Parfit 1987: 215; also *ibid.*, 209); and he takes numerical identity to

obtain whenever relation R has its 'normal cause', namely an identical brain (see *ibid.*, 208).

(⁴) Parfit 1987: 280 and 502–3 appeals to Buddhism in this context. For a more comprehensive discussion of Parfit's views on personal identity, see Meincke 2015 (ch. 2.2.2) and Meincke 2016.

(⁵) Oddly enough, I have never come across any argument as to why I, according to the simple view, should survive at all rather than die in a case of branching. I suspect it has something to do with the adherence of many non-reductionists to substance dualism, together with the idea of the immortality of souls.

(⁶) For an exemplary version of this argument, see Swinburne 1984, discussed in Meincke 2015 (ch. 2.2.3).

(⁷) See Kant's critique of the so-called paralogisms of contemporary rational psychology in the Transcendental Dialectic of his *Critique of Pure Reason*.

(⁸) For a critical discussion of some modern variants of paralogistic arguments in the sense criticized by Kant, see Meincke 2015 (ch. 4.2).

(⁹) For criticism of Swinburne's refuge in the idea of an immaterial soul stuff in whose continuity the soul's identity is supposed to be grounded, see Meincke 2015 (ch. 2.2.3, 92ff.).

(¹⁰) In what follows I am looking for a way out that leaves metaphysics in charge, this being opposed to attempts to escape the dilemma by regarding personal identity as a practical reality, amenable in the first place (or exclusively) to practical explanations rather than to metaphysical ones. See Spann 2013 for a critique of such a practical approach.

(¹¹) Substance dualism goes back to Descartes. It inspired the early proponents of non-reductionism (Joseph Butler, Thomas Reid) and is still the prevailing productive source for recent versions of the view. The notion of substance itself, however, refers back to Aristotle. A small but growing number of non-reductionist theories of personal identity consider themselves to be (neo-)Aristotelian rather than Cartesian.

(¹²) In this view, self-consciousness resembles a self-identical container for fluctuating diverse contents. On the various appearances of the substance theory of the person, including biological adaptations in neo-Aristotelian and animalist theories of personal identity, see Meincke 2016.

(¹³) Hume famously countered contemporary substantialist theories of personal identity by insisting the self was 'nothing but a bundle or collection of different

perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement' (Hume 1964: 239).

(¹⁴) The only candidate for the role of such a substratum, the brain, is, at least according to the widest version of the psychological criterion defended by Parfit, neither a necessary nor a sufficient condition for survival; see Parfit 1987: 207ff. Still, the fact that Parfit allows for talk of 'numerical identity' whenever the physical and mental events that make up the person happen to be realized by an identical brain (see n. 4) might look like a striking reminiscence of the abandoned substance theory of the person.

(¹⁵) On the metaphysical problem of persistence, see also chapters 1, 2, 4, 6, and 7 in this volume.

(¹⁶) 'All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem *conjoined*, but never *connected*' (Hume 1975: 74). Compare Lewis' well-known definition of 'Humean supervenience' as 'the doctrine that all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another' (Lewis 1986: ix).

(¹⁷) The relation in question is frequently called 'genidentity' as well. Views of persistence that make use of some concept of 'genidentity' are presented in chapters 2, 4, 5, 7, and 11.

(¹⁸) See Sider 2001: 212–13 for the distinction of these two different aspects of McTaggart's critique.

(¹⁹) This has also been observed e.g. by Simons 2000: 65.

(²⁰) See Geach's hilarious remarks on what he calls the 'picture of the bedizened lady': 'Since we never meet with ladies who are clothes all the way through, but on the contrary know that if you actually did strip off all the clothes you'd get a naked lady, the theory of bare particulars has an appeal that the theory of characteristics tied together with one another never had... There are a number of pseudo-concepts introduced at different critical points in philosophy, to solve different problems or apparent problems, all having a strong family resemblance: "In the make-up of each individual thing there must be a bare particular, which has no qualities or relations precisely because it is the subject of inherence for these characteristics." "In any process of change there must be some changeless element, to act as a substratum of the process of change." ... In every case we have a conjoint assertion and denial, the negative member of which uses some piece of jargon; and either the jargon is meaningless, or the two conjuncts are flatly contradictory... A thing *B* changes, or undergoes change: but there must be in *B* something that does not change but is a *substratum presupposed* to the change... People will even say, with the air of

making things clear, that it is *just because* the substratum is *presupposed* to change that it undergoes no change, *just because* the bare particular is the *subject* or *bearer* of characteristics that it has no characteristics, etc., etc.! But either “being a subject or bearer of characteristics” and “being a substratum presupposed to change” are blown-up technical variants for “having characteristics” and “undergoing change”, or they are mere nonsense; and if we drop the jargon, then as I said we have flat self-contradiction, e.g. that a thing undergoes no change precisely because it does undergo change’ (Geach 1979: 46–7). I owe the knowledge of this passage to Antony Galton.

(²¹) See Seibt 1997: 155ff. and 2008: 139.

(²²) In a similar manner Johanna Seibt has diagnosed western metaphysics as being under the spell of the ‘myth of substance’; see Seibt 1997: 143 and chapter 6 in this volume; see also Seibt 2008: 133. I prefer the broader and more neutral term ‘thing ontology’, given the continuous antagonism between ‘substance ontology’ in the traditional narrow sense on the one side and Humean ontologies on the other.

(²³) For a more detailed discussion, which, among other things, emphasizes that four-dimensionalism, despite reconceptualizing things as processes, is *not* process ontology, see Meincke 2018b and Meincke forthcoming a.

(²⁴) As explained above, in neither constellation do we actually have a case of real change, metaphysically speaking.

(²⁵) See also Meincke 2015: 107–8, 192, 311.

(²⁶) Namely on the basis of a view of the human person as an essentially psychological being—a view that in fact underlies both psychological reductionism (standard and Parfitian) and classic non-reductionism. The psychological approach is being challenged by a growing number of biological theories of personal identity called ‘animalism’, according to which human persons most fundamentally are organisms and, hence, have biological identity conditions (see Olson 1997, drawing on van Inwagen 1990; Wiggins 2001). I take animalism to be a step in the right direction, but I remain unsatisfied with it as it stands. The reason is that the animalist theories put forward so far operate within the traditional thing-ontological framework. As a consequence, they run into the same dilemma as their psychological fellows: they either mystify our identity by identifying us with a biological substance whose identity cannot be further analysed or they dissolve us into a haze of atoms swarming around. see Meincke 2015 (ch. 2.3.1b) and Meincke 2010.

(²⁷) ‘A process is a coordinated group of changes in the complexion of reality, an organized family of occurrences that are systematically linked to one another either causally or functionally’ (Rescher 1996: 38).

(²⁸) For an elaborate version of this story, stressing the organism's characteristic autonomy and reflecting the state-of-the-art of systems biology, see Moreno and Mossio 2015. The influential source of inspiration in the background is Maturana and Varela's concept of autopoiesis (see e.g. Maturana and Varela 1980). When using the term 'systems biology', I refer to this particular branch of systems-biological thinking that regards itself as being opposed to reductionist concepts and practices of biology.

(²⁹) See Jonas 1966 (ch. 3). For Jonas, metabolism provides the key for understanding life itself. The ideas of Jonas are also discussed in chapters 7 and 8 in this volume.

(³⁰) Organisms are therefore, according to Jonas, strictly to be distinguished from machines. On the disanalogy between organisms and machines, see chapter 7 here.

(³¹) In the case of living systems, 'wholeness is self-integrating in active performance, and form for once is the cause rather than the result of the material collections in which it successively subsists' (Jonas 1966: 79). Labelled 'downward causation' or 'top-down causation', the causal role of form that Jonas has in mind has become a hot topic in contemporary philosophy of biology; see, exemplarily, Craver and Bechtel 2007 (critical rejection), Campbell and Bickhard 2011 (process-ontological defence), Moreno and Mossio 2015 (critical reformulation, in terms of organizational constraints, in their ch. 2), and Love 2012 (pluralistic defence).

(³²) Biological identity is 'functional identity', the organic form standing 'in a dialectical relation of *needful freedom* to matter' (Jonas 1966: 80). In systems biology the functional demarcating of an organism from the environment is commonly described as operational or organizational 'closure' (see Collier 2006; Montévil and Mossio 2015; and chapter 10 in this volume). For a systems-biological account of the 'inside-outside dichotomy' displayed by organisms that focuses on the constitution of 'active borders', see Moreno and Barandiaran 2004.

(³³) The task of spelling out what this means is, however, not a trivial one, as I have argued in Spann 2014a and Meincke 2018a.

(³⁴) 'Sameness while it lasts (and it does not last inertially, in the manner of static identity or of onmoving continuity), is perpetual self-renewal through process, borne on the shift of otherness. This active self-integration of life alone gives substance to the term 'individual': it alone yields the ontological concept of an individual as against a merely phenomenological one' (Jonas 1966: 79).

⁽³⁵⁾ 'More or less' as the strength of integration varies with the kind of organism at issue as well as with the level of description. A comprehensive overview of the manifold aspects of the processual nature of life is given by Dupré 2012 and 2014. See also chapter 1 in this volume.

⁽³⁶⁾ This is not to deny that to individuate organisms actually is the opposite of a straightforward exercise, given their plasticity, the omnipresence of symbiosis and social organization, the huge variety of life forms, and the multiplicity of possibly relevant criteria that give rise to quite diverse explanatory approaches to biological individuality within biology; see on these matters Bouchard and Huneman 2013; Dupré 2014: 9ff.; and chapters 1, 5, 9, 10 and 15 here. However, it still remains true that potential candidates for being an organism will be identified on the basis of an investigation of whether they exhibit some sort of functional unity in the sense described.

⁽³⁷⁾ Another relevant factor, apart from unity, is time. At least some slower processes are more likely to appear thing-like than faster ones. The relevance, for individuating processes, of the different timescales at which they take place has been stressed by Dupré (see e.g. Dupré 2014: 15–16).

⁽³⁸⁾ The processual character of 'form', as emphasized by Hans Jonas, distinguishes it from the Aristotelian idea of a form that, though conceivably a principle of activity (see Wiggins 2016: 272 and 280), remains static in itself. Form, according to Aristotelian hylomorphism, is only the cause of activity, whereas, according to the process view, it is also its result, thus always being in flux.

⁽³⁹⁾ See the subtitle of Jonas 1966.

⁽⁴⁰⁾ A striking illustration is the constant possibility of cancer in multicellular organisms, which indicates the enormous challenge of orchestrating the dynamics of cell differentiation. For a detailed discussion, see chapter 16 here.

⁽⁴¹⁾ For a defence of the slightly different view that things—'continuants'—supervene on processes, see chapter 2 in this volume.

⁽⁴²⁾ See Lewis 1986: 192–3: 'Identity is utterly simple and unproblematic. Everything is identical to itself. Nothing is identical to anything else. There is never any problem about what makes something identical to itself; nothing can fail to be. And there is never any problem about what makes two things identical: two things never can be identical.'

⁽⁴³⁾ Strikingly enough, even Whiteheadian process ontology is in danger of relapsing into thing ontology by construing process from fundamental discrete events ('actual entities'; see Whitehead 1978, esp. 61ff., and the critique by Rescher 1996: 89–90; see also chapter 2 in this volume). It is here that the

Leibnizian heritage of Whitehead's process ontology turns out to be unfortunate rather than helpful (on this issue, see also chapters 1 and 6 in this volume).

(⁴⁴) Depending on the level of abstraction and on explanatory purposes, the details of such descriptions might look different, potentially resulting in diverging diachronic identity statements about organisms (see n. 37). Yet such divergent results are never arbitrary but rather suggested by biological reality (see Dupré 2014 for a defence of this moderate form of pluralism under the title 'promiscuous realism').

(⁴⁵) See also Meincke 2018b. Spelling out the basic metaphysics of process identity is a core task for a prospective process account of persistence. Roughly, this means understanding certain processes as continuants and analysing transtemporal identity as a metaphysical and inherently temporal relation realized by continuant processes by virtue of their specific organization, as opposed to both the atemporal primitive identity of a substance and mere continuity between series of atomic entities of some kind. For a recent discussion of whether processes can be continuants, see Steward 2013 and 2015; and Stout 2016. Pioneering work towards a comprehensive ontology of processes has been done by Antony Galton (see e.g. Galton 2012, 2006; Galton and Mizoguchi 2009) and by Johanna Seibt (see e.g. Seibt 1997, 2008 and chapter 6 in this volume).

(⁴⁶) This is not meant to imply that an empirical analysis dissolves vagueness in any case, but only that we can at least provide empirical or empirically grounded explanations and descriptions of vague cases.

(⁴⁷) Branching happens all the time in living nature; but there are many different sorts of branchings with different sorts of functions, including branchings that are dysfunctional for a living system.

(⁴⁸) However, unlike Kant, I don't think that from this it follows that there cannot be any ontological account of personal identity at all. For a portrait of some of the endeavours, within the post-Kantian idealistic and phenomenological tradition of philosophy, to overcome Kant's negative verdict on the possibility of such an ontological account (and of metaphysics in general), see Meincke 2015 (ch. 3.3 and 4.3).

(⁴⁹) That this crucial aspect of personal identity has increasingly and no less unjustly become neglected in recent metaphysical debates is the result of a growing popularity of the substance theory of the person: see Spann (2014b) and Meincke (2016).

Access brought to you by:
