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3.5-Dimensionalism and Survival A Process-Ontological Approach

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abide with me; fast falls the eventide;
the darkness deepens; lord, with me abide;

swift to its close ebbs out life's little day;
earth's joys grow dim, its glories pass away;
change and decay in all around I see –
o thou who changest not, abide with me.
I need thy presence every passing hour;

Where is death's sting? Where, grave, thy victory?
I triumph still, if thou abide with me.

(H.F. Lyte 1793–1847)

Process Ontology

In this paper I will ask whether the religious hope of surviving one's natural death can be expressed and at least partially explicated within the framework of a process ontology. The central idea of process ontology is the critique of the notion of "substance". This notion seems, however, indispensable if it is to be really me, the identical person, which has survived death. It is the very definition of a substance to be that which endures through time. But how can the subject survive death if it is not a substance?

The relationship between process ontology and the notion of immortality has mostly been debated within the framework of Whiteheadian process theology. Whitehead's notion of God played a key role in this debate. Because God does – in his "consequent nature" – preserve all contingent events of creation, several options were available to think even of subjective phenomenal experience as forever maintained in God.¹ In what follows, however, the relationship of process ontology and the hope for resurrection will be analyzed independently of the problematic Whiteheadian notion of God. No simple "re-enactment" of Whitehead's philosophy is intended, rather a transformation with some "creative novelty". The main focus will be on establishing connections between themes of current analytic metaphysics and traditional Whiteheadian process ontology, ranging from the identity of particulars through time, the mind-body problem, and the metaphysics of time, to the reality of abstract objects. The theory sketched here uses Whiteheadian ideas in some crucial aspects, but places them within the debate of contemporary metaphysics. Most process philosophers are realists about processes and idealists about substances.² Process ontology assumes processes with a mind-independent unity and identity. Some of these are directly given in experience.

1 For a detailed survey of these theories see Tobias Müller, *Gott, Welt, Kreativität. Eine Analyse der Philosophie A.N. Whiteheads* (Paderborn: Schöningh, 2009), pp. 269–94.

2 See Nicholas Rescher, *Process Metaphysics. An Introduction to Process Philosophy* (New York: SUNY Press, 1996), pp. 58f.

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Substances, however, are theoretical constructs which are not directly given in experience, but are rather the result of an abstraction. It is this central thought of process philosophy that will be exploited here in order to find middle ground in the metaphysical debate between endurantists and perdurantists.

The Problem of Becoming: Metaphysics between Heraclitus and Parmenides

In his magnum opus “Process and reality” Whitehead criticizes modern metaphysics for not adequately representing the riches of human experience.³ This charge is often made against analytic philosophy, arguably the liveliest field in contemporary metaphysics. In “utterances of religious aspiration”⁴ Whitehead saw a particularly fruitful source of human experience that ought to be discussed in metaphysics. Can analytic metaphysics adequately conceptualize these “utterances of religious aspiration”? This is the question that will be pursued here by focusing on an aspiration most central to christianity, the hope for survival. Whitehead presents a surprising interpretation for the biblical verse “abide with me; fast falls the eventide” (Luke 24:29) that has found a “wealth of expression” in the first two lines of a famous hymn.⁵

Here the first line expresses the permanence, “abide”, “me”, and the “Being” addressed; and the second line sets these permanences amid the inescapable flux. Here at length we find formulated the complete problem of metaphysics. Those philosophers who start with the first line have given us the metaphysics of “substance”; and those who start with the second line have developed a metaphysics of “flux”. But, in truth, the two lines cannot be torn apart in this way.⁶ The remark “in truth, the two lines cannot be torn apart in this way” expresses in a nutshell the theoretical framework of this paper. The technical expression “3.5-dimensionalism” refers to the attempt to keep these two lines together. The goal will be to find a middle ground between the extremes of absolute flux and changeless invariance through time. In analytic metaphysics these opposing positions are labeled “perdurantism” (the “4d-view”) and “endurantism” (the “3d-view”). According to the 3d-account, concrete enduring particulars like animals have spatial but no temporal parts. They are extended in space but not in time. If, say, you meet a human being you meet this entire person, not a temporal part of her at that specific point in time. This is the view of classic substance metaphysics. a substance that endures through time undergoes only accidental change. It endures as a numerically identical entity through time. In contrast, perdurance is a continuity of temporal parts in which certain structural similarities are preserved. By adding time as the fourth dimension, the perdurantist claims that concrete particulars have temporal parts. One never encounters an object in its entirety; rather one is in contact with one of its time-slices. The concrete particular is thus not an enduring substance but a four-dimensional space-time worm which comprises all temporal stages of this individual (the “worm-view”). Or it is claimed that the concrete particular is not even this thing extended in space and time, but collapses ultimately into a mere sequence of causally connected stages without assuming any genuine unity (the “stage-view”). In both cases the traditional substance view has been abandoned. The idea of substances has been challenged by many contemporary philosophers. The worldview advocated by the sciences, especially relativistic physics, was clearly in favor of a four-dimensional account (the “block universe”). Given these developments, the relevance of the recent debate on resurrection in analytic metaphysics becomes

3 Alfred N. Whitehead, *Process and Reality, corr. edn* (New York: The Free Press, 1978).

4 Whitehead, *Process*, p. 208.

5 He refers to the hymn by Henry Lyte. There is some evidence that Lyte wrote it in 1820 after visiting a dying friend, who, on his deathbed, kept murmuring the passage from Luke: “Abide with me; fast falls the eventide”.

6 Whitehead, *Process*, p. 209.

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obvious. One important contribution of this debate was the development of models of survival that are compatible with a 4d-view of human persons. This is true in particular for those positions which, due to their physicalist assumptions, have to focus on bodily resurrection.⁷

The Internal Coherence of a Process

It is widely assumed that the human body is a sequence of non-identical physical stages. For something to count as one human body through time, all there has to be is the right kind of relation between those stages: immanent causation. This notion was already in use by the christian process metaphysician Borden Browne. He was influenced by Hermann Lotze and his critique of the notion of a substance was tightly integrated with his concept of immanent causation.⁸ The general idea is that a stage s_1 of a given concrete entity e causes a later stage s_2 of e . The question that arises immediately is how e can be construed as a persisting entity without assuming a non-changing 3d-substance. Without assuming such a 3d-substance there is no numerical identity through time for concrete entities like human persons. The mere repetition of the relevant properties (stable pattern) together with the right kind of causal connection establishes, however, a weaker form of identity which is often called “genidentity”.⁹ On this view, what we commonly regard as a single entity is strictly speaking a temporal series of different entities. Because these entities produce their successor causally while maintaining key properties, they can be considered “identical” in the weaker sense of genidentity.

This accords with Whitehead’s view. For him a concrete entity, even a person, consists ultimately of a sequence of (psycho-physical) events which produce each other causally while maintaining certain key properties. What we commonly see as an enduring 3d-substance is really a “society” of events ordered serially in time and thus a process. For Whitehead, an entity which endures through time is characterized by two features: a common element of form and a genetic relatedness that orders the events serially.¹⁰ There is a causal inheritance of the defining characteristics in the causal series. These enduring patterns, the form, is not sufficient for the individuation of the entity. If this were the case, all events that instantiated the same abstract form would be identical.¹¹ There remains the possibility of special forms whose instantiation generates individuals, a theory along the lines of aristotelian natural kinds.¹² The idea of fixed, clearly and non-vaguely delineated natural kinds is according to most process philosophers incompatible with the theory of evolution. Within the context of survival of one’s natural death, the question arises whether or not a surviving human

7 I have analyzed this development in Godehard Brüntrup, “Soul, Body and Survival. The Renaissance of Christian Materialism”, *Revista Portuguesa de Filosofia*, 65 (2009): suppl., pp. 317–35.

8 Borden Bowne, *Metaphysics: A Study in First Principles* (New York: Harper, 1882): “A change between things must depend on a change in things. Now when we remember that the only reason for positing things is to provide some ground for activity and change, it is plain that the changeless core is of no use and must be dropped as both useless and unprovable” (p. 51).

“Interaction cannot be conceived as a transitive causality playing between things; it is rather an immanent causality in a fundamental unitary being” (ibid., p. 83).

For the most recent developments see Zimmerman, “Immanent Causation”, *Nous 31, Supplement: Philosophical Perspectives 11: Mind, Causation, and World* (1997): pp. 433-71.

9 The concept “genidentity” was originally developed in Kurt Levin, *Der Begriff der Genese in Physik, Biologie und Entwicklungsgeschichte. Eine Untersuchung zur vergleichenden Wissenschaftslehre* (Berlin: Springer, 1922).

10 Whitehead, *Process*, p. 34.

11 I am not pursuing the interesting idea of individual essences here. It seems hard to square with the basic intuitions of process philosophy, where the individual event is not fully determined by any pre-existing essence.

12 I am thinking of something like Michael Loux, *Metaphysics. A Contemporary Introduction*, 3rd edn (New York: Routledge, 2006).

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being can remain a member of the biological species homo sapiens. The basic entities in (Whiteheadian) process ontology are individuated by their own unique perspective on the world as a whole, not by instantiating a particular form.

Can 3D-Objects Emerge from 4D-Structures?

It could be argued that an individual as a 3d-object somehow emerges from the repetition of similar events. But even if a stable pattern somehow emerges in this way, it is by no means implied that this pattern is a new 3d-entity without temporal parts. In process metaphysics, objects enduring in time are, to use a term of Rescher's, "stability waves in a sea of process"¹³, patterns of activity that emerge from a base that is in constant flux. It is much more natural to view these stability patterns as higher-level processes than to construe them as entities without temporal parts.

The thesis that genuine 3d-entities could somehow emerge from a 4d-base is not the thesis of 3.5-dimensionalism at issue here, but rather the thesis that both the 3d- and 4d-views are true on different ontological levels. But does this idea really make sense? If an entity that were truly numerically identical through time (that is, without having temporal parts) could emerge from a constant flux of non-identical entities, we would have a mysterious and unintelligible emergence. We might as well imagine the emergence of a concrete entity like a tree from a configuration of abstract entities like prime numbers. Such a claim is not really intelligible. A true process ontology can introduce enduring 3d-entities only at the price of incoherence. The same argument can be made against the idea that the higher-level 3d-substances are somehow constituted by the underlying series of non-identical events. Constitution theory has recently been made popular by Baker and others.¹⁴ It builds on the old Aristotelian notion that a bronze statue coincides with a lump of bronze by being at the same location in space and time, while not being identical to that lump. Can process ontology make use of this idea? Could an enduring 3d-entity without temporal parts coincide with individual events in a series without being identical to them? That sounds initially promising. But constitution theory is not substance dualism. The enduring 3d-entity cannot be ontologically independent and then miraculously interact with the underlying events. If that cannot be the case, then we get back to the idea that enduring 3d-entities somehow "emerge" from an underlying process that is just a series of non-identical events. The intelligibility of this idea has already been questioned.

The most basic individuals in process metaphysics are then only the momentary events. If each of these events is causally connected to the following event in the sequence, then the talk of a temporally enduring object can be justified, but only in the sense of genidentity, not that of strict numerical identity. In this context Whitehead often uses "vibration" and "rhythm" as metaphor. An enduring object¹⁵ gains its inner determinations by the rhythmic process of inheriting properties from its predecessors and by its own creative novelty. This stable rhythmic pattern of its history constitutes the enduring object, which is not a 3d-object but a higher-level process. Whitehead knew that this account was in full accordance with contemporary science. A stable resonance or vibration in a quantum field may constitute what we call a particle. This particle does not exist as a 3d-substance without temporal parts. It is, however, the appropriate connection, the "thread of persistence",¹⁶ and thus the stability of the pattern, and thus the genidentity of the underlying events,

13 Rescher, p. 53.

14 Lynne Rudder Baker, *The Metaphysics of Everyday Life: An Essay in Practical Realism* (Cambridge: Cambridge University Press, 2007).

15 Whitehead, *Process*, p. 279.

16 Peter Simons, "The Thread of Persistence", Ch. Kanzian (ed.), *Persistence* (Heusenstamm: ontos, 2008), pp. 165-84.

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that justify the talk of a particle enduring in time.

In what follows, a process ontology of the kind just outlined will be assumed without much further argument. It is the backdrop for the main argument of this paper. What will be shown, however, is why the account developed here differs from traditional worm or stage 4d-views. The aim of the 3.5d-view is to locate a middle ground between the “abide with me” and the “fast falls the eventide”. Before we can get to this, a few more topics need to be covered at least very briefly because they are central to understanding a process ontology in a broadly Whiteheadian tradition: the metaphysics of time, the mind-body problem, and the metaphysics of abstract objects. All of this will be done only insofar as it serves to answer the question whether the idea of surviving one’s natural death can be made intelligible within an ontological framework that wants to manage without the notion of enduring 3d-substances. This seems to make survival impossible, not only in the world to come but already in this world. If I am a series of momentary psycho-physical events then I do, in a certain sense at least, die even now at each passing moment. That is a very provocative thought. It makes death lose its unique status. This idea of radical becoming only makes sense in a presentist conception of time.

Presentism

Presentism is the common-sense and intuitive view of time. Only the present exists; the future does not yet exist, and the past no longer exists. The past seems to exist in a certain way, because statements about the past are commonly regarded as semantically bivalent (either and only true or false). What makes them true or false if the past no longer exists? In the current debate the presentist view has been on the defensive due to a criticism which David Lewis has formulated in an exemplary fashion.¹⁷ Lewis denies that the only intrinsic properties of an object are those it has at the present moment. By intrinsic properties I mean those that a thing has independently of its relations to other objects. Assume that Peter is now blind but could still see ten years earlier. The same person cannot be blind and sighted. The natural solution to this problem is to relate those properties to a point in time. A person can be “seeing-at- t_1 ” and “blind-at- t_2 ”. But then we are no longer dealing with intrinsic properties, because we have defined them in relation to a point in time. Thus, for Lewis the only sensible solution is to construe persons as 4d-objects. The metaphysics of time that is most consistent with this view is the eternalist picture. In the same way as no spatial point has a special status, no point in time (here, the present) has a special status. The common-sense triad of past, present, and future (the A-series) is replaced by the duality of earlier and later (the B-series). A central problem of this picture is that it does not leave room for contingent facts. An entity has its properties necessarily, because there is no open future with alternative possibilities. This view is certainly at odds with both our common-sense view and Christian tradition as it is usually understood. Thus, even though the account proposed here is at the most fundamental level a 4d-view, it nevertheless supports a presentist conception of time which is usually associated with a 3d-view. This requires a version of the stage-view, as opposed to the worm-view, where the stages are very brief. This move, though somewhat surprising in the contemporary debate, is nonetheless characteristic of a process ontology of radical becoming.¹⁸ The philosophical motivation for this lies in the attempt to take our temporal existence seriously, to be a “serious tensor”. Not only do we

¹⁷ David Lewis, *On the Plurality of Worlds* (Oxford: Blackwell, 1986), pp. 202f.

¹⁸ In the current debate, Galen Strawson has advocated a similar view and claimed that the “Persistence Belief is not experientially natural.” see Galen Strawson, *Selves: An Essay in Revisionary Metaphysics* (Oxford: Oxford University Press, 2009), p. 221.

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regard the future as non-existent, but we experience the past as something which no longer exists. But what about the critical questions concerning presentism? The first is: what makes sentences about the past true or false? This question can easily lead to erroneous ontological claims. If we claim, say, that there once were people that do not exist today, does this imply that the people of the past still somehow exist? No, it only implies that some people, who do not exist today, were existing in the past. To have existed in the past is not the same as never having existed, but it does not imply actual present existence. A second and more difficult question seems to be the one raised by Lewis. Can the only intrinsic properties of a person be the ones the person has here and now? Lewis answered in the negative, but in what follows I will, in a certain sense, offer a positive answer. But before we can get to this, our sketch of a process metaphysics will have to be fleshed out further by some remarks on the mind-body problem.

Pan(-proto-)psychism

Process ontology as such is neutral with regard to different positions in the mind-body debate. A dualism of mental and physical processes could be assumed just as easily as a monism of merely physical processes. A broadly Whiteheadian process ontology needs mental properties to secure the connection of events that happen sequentially in time. For Whitehead, causation is a “simple physical feeling”.¹⁹ Each event is informed by a fundamental act of prehension of its immediate past and is to a certain extent determined by that act. The temporal relations are constituted in this way. Similar to the *Monadology* of Leibniz, the spatial relations are also constituted by being “prehended” from the point of view of a particular actual entity. In addition, proto-mental properties are needed to explain the receptivity by which simpler events are enabled to bind into a higher-level more complex events. I cannot give an elaborated account of this ontology here.²⁰ One key intuition, however, needs mentioning: a process ontology that works with physicalistically conceived fundamental events collapses ultimately into a kind of atomism of those events. Higher-level events are mere conglomerates of these. This criticism of process ontology was prominently raised in theology by Pannenberg, who saw process ontology as a strictly atomistic philosophy of nature.²¹ But this account is inadequate. How can the relations that enable the combination and unification of several fundamental events be grounded in the intrinsic nature of these events? Unity in space and time at a level higher than the most basic events becomes possible only if somehow the intrinsic properties of the basic events ground those relations. In Leibniz’s metaphysics, all external-relational properties (“denominations”) are grounded in intrinsic properties (or denominations). The best candidates for such absolutely intrinsic properties are those which somehow make possible a mental or proto-mental representation of the environment. Leibniz’s account thus results in a kind of pan-experientialism, in which each monad is a “living mirror” which represents the universe from a perspective. This representation is not merely a passive mirroring but is actively involved in the constitution of the universe. It is not surprising that event ontologies, from Whitehead’s classic account to Rosenberg’s more recent one, emphasize the mental as fundamental rather than as high-level structure emerging from an entirely non-experiential “Cartesian” matter.²² The Cartesian

19 Whitehead, *Process*, p. 236.

20 For a more detailed account see ch. 8 of my *Das Leib-Seele-Problem* (Stuttgart: Kohlhammer, 2008) and in English my “Natural Individuals and Intrinsic Properties”, Ludger Honnefelder, Edmund Runggaldier, and Benedikt Schick (eds), *Unity and Time as Problem in Metaphysics* (Berlin and New York: Walter de Gruyter, 2009), pp. 237–52.

21 Wolfhart Pannenberg, *Theologie und Philosophie* (Göttingen: Vandenhoeck, 1996), pp. 353.

22 Gregg Rosenberg, *A Place for Consciousness. Probing the Deep Structure of the Natural World* (Oxford: Oxford University Press, 2004). see also William Seager, “Rosenberg, Reducibility, and Consciousness”, *Psyche*, 12 (2006): pp. 1–15.

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“bifurcation” of completely mindless matter and a purely mental soul is but a conceptual abstraction. Contemporary debates on the possibility of resurrection are occurring within this Cartesian framework. Classical Christian philosophy, at least in its Aristotelian version, emphasized the unity of different substances, one of which is material and the other non-material. The ontology developed in this paper is in many respects close to this “compound dualism”. It denies, however, the Aristotelian/Thomistic thesis that it is only substantial forms, enduring and somehow untouched by change, that secure the identity through time of the material beings that are configured by these forms. This account fails to capture the materiality and the temporality of natural existence. The entire metaphysical “work” of identifying a substance is being done by an Aristotelian “form”, something which, in virtue of its abstract nature, is not really a temporal entity.²³ We are, as Brian Leftow has put it eloquently, “souls dipped in dust”.²⁴ Hylomorphism is thus not really a compound dualism, since the counterpart of forms is mere prime matter. The view advocated here regards us not as souls dipped in dust but as processes made from material with proto-mental properties, “made from mind-dust”, in William James’s words. The thought that mental or proto-mental properties can be found at a level less complex than the level of animals strikes one initially as strange. It is, however, an idea with a venerable history in philosophy.²⁵ The prima facie strangeness is caused by the intuition that, if this idea is correct, then even very simple entities would have mental states that are relevantly similar to human mentality. But this is a misunderstanding. Similarity is not a transitive relation. Between the lowest, least complex and the highest, most complex levels there are many intermediate levels. With regard to its mental or proto-mental properties each level is similar to its neighboring levels but not necessarily similar to levels that are more distant. Because similarity is not transitive, it is possible that ontological levels that are far removed from each other are no longer similar with regard to their mental properties.²⁶ This critique of the Cartesian bifurcation is aimed at the very notion of mere Cartesian matter, and in consequence allows for a metaphysical picture of the human person as a genuine psycho-physical unity. Only as such can a human person survive. Instead of a dualism we have here a bipolarism such that each concrete individual has both physical and mental properties. The notion of a clear-cut duality of the mental and the physical is the product of an abstraction. If one takes that abstraction to be ultimately real, one commits what Whitehead terms a “fallacy of misplaced concreteness”. It was Russell, among others, who argued that physics captures only those relational and formal properties of matter which can be expressed mathematically. Everything we know of the intrinsic properties of matter is derived from our experience of mental properties.²⁷ Without delving deeply into this metaphysical issue, a point must be emphasized which is salient in the context of this paper. It does not suffice, according to this metaphysics, for a concrete particular to be a temporally stable configurational pattern in space. A mere aggregate like a cloud formation or a wave is such a stable configuration. A true individual represents the world from a perspective. It has its unity not only by the stability of its spatial configuration but primarily by the uniqueness of its perspective on reality as a whole. This is a highly relevant feature of a theory of survival in a process-ontological context. Survival means primarily the persistence of a certain perspective on the world. The question is, however, whether a broadly Whiteheadian process ontology has the conceptual

23 For a critical evaluation of compound dualism see Brüntrup, “Soul, Body and Survival”, pp. 317–35.

24 “Because what there is to the body if it is abstracted from the soul - prime matter - hasn’t the stature to be a partner in any sort of dualism. It cannot even exist on its own.” see Brian Leftow, “Souls dipped in dust”, in K. Corcoran (ed.), *Soul, Body, and Survival*, pp. 120–38, 137f.

25 David Skrbina, *Panpsychism in the West* (Cambridge, MA: MIT Press, 2005).

26 See also Brüntrup, “Is psycho-physical emergentism committed to dualism? the Causal Efficacy of Emergent Mental Properties”, *Erkenntnis*, 6 (1998): pp. 1–19.

27 Bertrand Russell, *The Analysis of Matter* (London: Routledge, 1992), pp. 270, pp. 402.

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resources to explicate the possibility of survival as the persistence of a perspective.

Survival in Process Ontology

What constitutes a human person on this process-ontological account? A person is a being that can relate to itself as itself, which has a reflective self-relation. Human persons are distinguished from other higher-level animals by the fact that they are endowed with a first-person perspective, the ability to distinguish between themselves as seen from the third person perspective and as seen reflectively from their own perspective. Linguistically this capability is displayed by the use of pronouns like “I” which the person uses to refer to herself. Persons are able to attribute thoughts to themselves as their own thoughts and to reflect on them as such. They thus have self-consciousness, not simply phenomenal consciousness. In process-ontological terms the human person is not a 3d-substance but, diachronically, a series of momentary events featuring both mental and physical properties. Synchronically, this is a hierarchical ordering of higher-level events constituted by lower-level events, where a person’s stream of consciousness is located at the highest level. At lower levels are entities ranging from biological cells all the way down to elementary particles. Only present events exist actually; these are partly determined by their immediate past, which leaves, before ceasing to exist, a mark on the next event. The structural similarity (common form) and the causal connection (genetic relatedness) of the events enable us to speak of a process that endures through time. There is, of course, no numerical identity between the events so connected, only genidentity in the sense given above. The classical notion of a 3d-substance has thus been completely abolished. Within the presentist metaphysics of time the 3d-view cannot simply be replaced by a 4d-view on which a four-dimensional wormlike entity is extended through space-time. Each personal event which grows organically from the past is thus a re-enactment of its predecessor, without being fully determined by it and thus allowing for the possibility of creative novelty. In spite of this close genetic relatedness of the events, the person seems to become something transient that exists for a moment only to cease to exist in the next moment, a process of mere becoming. The concept of a person identical through time, which has dominated Western metaphysics, seems to have been given up entirely. A victory for Heraclitus? In our biblical quote “Abide with me; fast falls the eventide”, the second half of radical becoming would be eliminating the first of permanence. In this case nothing would have been gained in comparison to a stage version of the 4d-view. The stages, however, would be momentary and thus very short. In any case, my prior stages would actually be temporal counterparts of me. A true unity of the person could only be conceived by adopting a worm-view instead of the stage-view. But this requires abandoning presentism, since the worm exists in a way that attributes no special ontological status to the present.²⁸ The situation seems hopeless. The abandonment of the classical notion of a substance seems to imply that everything dissolves in a constant flux. Is there middle ground between these alternatives?

Abstraction and Permanence

Whitehead famously remarked that “to be an abstraction does not mean that an entity is nothing. It merely means that its existence is only a factor of a more concrete element of nature.”²⁹ With that in

28 See Theodore Sider, *Four-Dimensionalism. An Ontology of Persistence and Time* (Oxford: Clarendon, 2003).

29 Alfred N. Whitehead, *The Concept of Nature* (Cambridge: Cambridge University Press, 1920), p. 171.

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Gasser, Georg (ed.): Personal Identity and Resurrection. London: 2010, 67-85.

mind, let us return briefly to Whitehead's idea that it is a common form of serially ordered events that allows for the recognition of an enduring object. Whitehead writes that the form is a complex eternal object.³⁰ Eternal objects in Whitehead's terminology are abstract entities. If eternal objects have structuring "impact" in the world by some kind of formal causation, then we have arrived again at a Hylomorphic aristotelian view. There would be something like a timeless forma substantialis which constitutes an enduring 3d-object. If this substantial form were doing all or most of the metaphysical work in the individuation of a concrete particular, a substance ontology would be re-established. This is, of course, incompatible with process metaphysics. In what follows the ontological status of those abstract objects or forms will thus be "downgraded" to a non-primary or derivative status. The ontological primacy remains with the actual events. For this purpose it is essential to clarify what is meant by "abstract". Typically, abstract entities can be realized at different places and at different times. Concrete particulars, which we might call "continuants" to avoid the loaded notion "substance", can also exist at different points in time but not simultaneously at different points in space. One and the same person can exist in 2005 and 2010 but not simultaneously at two locations in space. Continuants are thus similar to universals with respect to multiple temporal and non-simultaneous spatial realizability.³¹ Following a tradition that reaches from the neo-Platonists to Leibniz, Whitehead assumes that all basic entities are concrete entities. Abstract entities are not self-grounded; their existence depends on the activity of thinking performed by concrete entities. This position that is located between realism and nominalism is often called conceptualism. But if, in the tradition of neoplatonism, it is the divine mind that secures the existence of abstract objects, one might as well speak of a realist position. As noted earlier, continuants are indeed similar to universals in that they are able to be instantiated at different times. If abstract entities are conceived as entia rationis, entities that are dependent on thinking concrete entities, then a middle ground between a pure 4d- and a pure 3d-view is indeed possible. At this point one can refer to the abovementioned thesis by Nicholas Rescher: process philosophers are realists with regard to processes and idealists with regard to substances.³² In the following we will build on this basic intuition.

In the process-ontological account presented here, we saw that momentary events are related by genidentity if they are connected in the right way. Two conditions must be met: causal dependence and common form. We could speak of "immanent causation". What is relevant here is the common form as a multiply realizable abstract entity. Entities connected by the relation of genidentity share this common form. The abstract entities remain unchanged through the unfolding process. They are invariants of the genidentity relations. Abstract entities are assumed to be ontologically mind-dependent. The analysis of the process of abstraction will then tell us more about the exact nature of these entities. For the time being it suffices to analyze abstraction in the human mind, thus sidelining the difficult issue of abstract entities dependent on the mind of God. The classic view of abstraction as a filtering of common characteristics in a multitude of similar cases was replaced in more recent philosophy by a conception that can be traced back to Frege. In his "Grundlagen der Arithmetik" Frege noted that many of the singular terms referring to abstract entities derive from functional expressions. We speak of the "number of objects", and the "direction of objects". "number of" and "direction of" are incomplete ("ungesättigte"), functional expressions.³³ The genuine discovery by Frege was that, typically for functional expressions that single out abstract

30 Whitehead, *Process*, p. 34.

31 See Peter Simons and Joseph Melia, "Continuants and Occurrents", *Proceedings of the Aristotelian Society, Supplementary Volumes* 74 (2000): pp. 59–92.

32 See Rescher, pp. 58f.

33 Gottlob Frege, *Die Grundlagen der Arithmetik. Eine logisch mathematische Untersuchung über den Begriff der Zahl* (Breslau: Wilhelm Koebner, 1884), here in particular §62ff.

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objects, there are equations of the following structure:

$f(a) = f(b)$, iff $a \text{ r } b$,
where r is an equivalence relation.

To use Frege's example:

the direction of $a =$ the direction of b , iff a is parallel to b .

the number of F s = the number of G s, iff there are just as many F s as G s.³⁴

The meaning of "number" is determined by the equivalence relation "just as many" or "equinumerous". Frege merely hinted at this theory of abstraction, and only recently has it been more fully developed by Crispin Wright and Bob Hale.³⁵ Because equivalence relations are reflexive, symmetrical, and transitive, they can be used to introduce continuants that preserve their identity through time. But we are dealing with a theory of abstraction. continuants become abstracta in a very specific sense. Peter Simons makes use of this Fregean intuition when he introduces continuants in his ontology, which is basically a 4d-account that does not recognize 3d-substances.³⁶ It might be useful to clarify the basic idea a little more. Take a number of objects over which an equivalence relation has been defined, say, an equivalence relation with regard to their mass. It may be called "equi-massive". Then reformulate using Frege's analysis. But this time we begin with the equivalence relation:

" a is equi-massive to b "
can be conceptually transformed into
" $\text{the mass of } a = \text{the mass of } b$ ".

Thus, the abstract idea of mass has been introduced, and the term "mass" refers to it. Now let's apply this procedure in the context of this paper. Let's call entities that are endowed with a mental or proto-mental perspective on the world "perspectival". We define an equivalence relation over the set of entities that are perspectival:

" a is equi-perspectival to b "
can be conceptually transformed into:
" $\text{the perspective of } a = \text{the perspective of } b$ ".

This can be done for first-person perspectives as well:

" a is first-person-equi-perspectival to b "
can be conceptually transformed into:
" $\text{the first-person perspective of } a = \text{the first-person perspective of } b$ ".

So far we have been working within the framework of the theory of abstraction developed by Frege, Hale, and Wright. In the context of personal identity through time this account needs to be expanded because a and b exist at different points in time:

34 See the excellent presentation of this topic in: <http://plato.stanford.edu/entries/abstract-objects/>.

35 See, for instance, Bob Hale and Crispin Wright, "The Meta-Ontology of Abstraction", in David Chalmers et al. (eds), *Metametaphysics. New Essays on the Foundations of Ontology* (Oxford: Clarendon 2009), pp. 178–212.

36 See Simons, "The Thread of Persistence".

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“the first-person perspective of a at t1 = the first-person perspective of b at t2 ”
can be conceptually transformed into:

“the first-person perspective of a at t1 = the first-person perspective of b at t2”.

The first-person perspective is the identity criterion for persons. Two persons are identical if they have identical first person perspectives on the world (such that they are able to use the personal pronoun “I” to refer to themselves). One thus arrives finally at:

“the person at t1 = the person at t2”.

Personal Identity

What has been developed above is - in a nutshell - a theory of personal identity. The most striking feature is that, according to this account, the concept “person” refers to an abstract object that was introduced by an equivalence relation. The question that immediately comes to mind is this: how can two events featuring a perspective considered to be equi-perspectival? Identity of perspective must not be used to ascribe the relation of being equi-perspectival, because that would entail a vicious circle. The abstract notion of a perspective ought to be derived. The equivalence relations must thus be introduced independently of the abstract entities that will be derived by these equivalence relations. This is where process ontology developed above helps fill the gaps. A suitable equivalence relation stands in need of certain stable patterns and the appropriate causal connection.

Because these two elements are sufficient for establishing genidentity, they are also sufficient to establish equivalence relations. The “Thread of Persistence” between the events in a temporal sequence is genidentity. Genidentity, as Whitehead points out,³⁷ rests on the appropriate causal connection and a common element of form. The thread of immanent causation thus established allows for a multitude of momentary events to be joined into an enduring, stable process. But the process is not yet a 3d-object; it is a stable and rhythmic repetition of similar events. The 3d-object, according to the key claim, does not exist independently of the mental abstraction that works with equivalence relations. It is an ens rationis. A thinking mind can make use of the equivalence relations that are based on causal relations and common forms, this is a mental process that results via abstraction in a 3d-continuant. Continuants are abstract objects which can be realized at several points in time and non-simultaneously at several spatial locations. They are well-founded in the reality of the appropriately related events. It is thus by our mental activity that we introduce into the world the stability that withstands the eroding power of the Heraclitean flux. This account does indeed imply a sort of Berkeleyan idealism with regard to 3d-substances. Their being is partially a “being conceived” as continuant. To the question that was raised against Berkeley as to what happens with them if nobody is thinking of them, the theists among the process metaphysicians might well answer just like Berkeley: God secures their existence with his omnipresent mind. One could, however, bite the bullet and grant that there are no 3d-substances in the world that exist independently of the human mind. The introduction of substances might then be conceived as the “original sin” of Western metaphysics.³⁸

Taking stock: Rescher’s claim that process philosophers tend to be idealists with regard to

37 Whitehead, *Process*, p. 34.

38 This view has been advanced recently by Lorenz B. Puntel, *Structure and Being* (University Park, Pa: Penn State University Press, 2008).

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substances was spelled out by drawing on a theory of abstraction originally introduced by Frege. The result was an abstractionist view of 3d-continuants. Continuants without temporal parts are thus abstractions that we introduce in order to structure our physical environment and possibly even more so our social environment. Their introduction is not arbitrary but is founded in the causal relations among events that generate stable patterns through uniform repetition. This relatedness is strong enough that we may speak of genidentity and immanent causation. Sentences about 3d-substances that are thus ontologically committed to the existence of continuants are not strictly speaking false. In the same way, talk about centers of gravity is not false in physics, even though centers of gravity are abstractions that do not exist strictly speaking. The continuant is not, however, simply identical to a sequence of momentary events which constitutes its life. That would amount to a pure 4d-view. It seems that the 3.5d-view suggested here can prove more fruitful than a 4d-view for understanding our social practices. The 4D-view entirely drops the notoriously difficult notion of a substance and settles instead for a sequence of time slices or stages that are connected in the appropriate way. The account suggested here can introduce ontologically well-founded 3d-continuants over and above the 4d-base introduced by abstraction. They are thus ontologically dependent on minds and as such differ from classically construed 3d-substances. It is this position between the two well-established camps of 3-dimensionalism and 4-dimensionalism that justifies the talk of the 3.5-dimensionalism featuring as the somewhat provocative title of this paper. One advantage of this view is that it does not require dropping, and in fact provides good reason to maintain, our common-sense 3d-metaphysics. It is a practical necessity to introduce time-invariant fixed points in our common-sense world view.

The classical notion of a substance serves this purpose. A revisionist metaphysics implying that there are no entire persons as such but only time-slices of persons or person stages is hardly sustainable in a life lived according to customary social standards. On the abstractionist view advocated here, however, the continuants are fully present at each passing moment. They are a special kind of abstract entity and can thus be present at different times and different places (non-simultaneously). In the case of personal identity this is of the utmost importance. A single first-person perspective cannot be shared by two events which exist at different spatial locations. The most difficult issue arises, however, when one contemplates the possibility of fission. What happens if two or more spatially separated personal events are connected in the right way to a sequence of earlier personal events? this is a deep puzzle that cannot easily be solved within a metaphysical account that assumes a 4d-view at the most basic level. Seen from point of view of the persons existing after the fission, several continuants overlap in the past. This is admittedly problematic. In this respect the 3.5d-view does better than the traditional 4d-view, because the continuants are entia rationis and thus mind-dependent. From each point of view, there is thus indeed only one person in the past, and there is no deeper mind-independent level of overlap.

Surviving Natural Death

The question that prompted this paper was whether abandoning the classical notion of a substance would render the religious notion of possibly surviving one's natural death unintelligible. With the metaphysical framework of process ontology now in place, it will now be shown that this religious hope can indeed be explicated without the reference to the notion of 3d-substances. In an ontology of radical becoming, death loses something of its uniqueness. As demonstrated above, dying is happening constantly in the transition from one momentary event to the next. The fact that we are not worried by this fact is grounded in the experience that in natural life each experienced moment

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seems to have an immediate successor which is connected to the earlier one in a way appropriate for establishing genidentity. The concept of genidentity is associated with the concept of immanent causation. The general idea is that a stage s_1 of a concrete particular e generates or brings about a later stage s_2 of e itself. In the case of persons: a human person P which exists at a time t_3 is genidentical to a human person which exists at t_1 if the temporal stages that lead to t_3 are immanently causally connected with the temporal stage of P at t_1 . This is the case in our daily experience. The events do have the causal power to bring about their immediate successors. The stream of consciousness which makes our first-person perspective a phenomenal experience, is just this sort of chain of serially ordered events. This is a process which, under normal circumstances, self-perpetuates during the span of a human natural life.³⁹ In the moment of death this causal chain ends abruptly. A subsequent moment of phenomenal experience from the first-person perspective cannot be brought about by the earlier events. Natural life comes to an end. In these circumstances, it seems impossible to survive one's natural death. The dying organism lacks the causal powers to generate a subsequent state that would be able to secure the survival of the first-person perspective. From a Christian point of view this metaphysical analysis hardly comes as a surprise, because human beings are not naturally equipped to survive their natural death. A divine action is needed. The earthly human existence, according to the metaphysical account presented here, is a series of momentary psycho-physical events which are complex enough to sustain a first-person perspective. If God wanted to secure my survival, it would suffice that He created a successor event such that it was connected with the last momentary stage of my earthly existence in the appropriate way. In light of what was developed above this means, first, stability of structure, that is, the endurance of a common form. God would have to create an event that was in relevant aspects sufficiently similar to my earthly existence. The successor must be a human person and not some kind of wildly different being. Most importantly then, the successor must be endowed with a first-person perspective. But one can only reasonably assume that this perspective endures if there is an immanent causal connection bridging the gap, that is, if there is such a connection between my final earthly event and the first event of my afterlife. Only when genidentity is established can numerical identity through time be established, and the latter is established by an act of abstraction using the appropriate equivalence relations. But this is precisely what seems to be impossible. My last earthly event lacks the causal power to bring about all by itself the first event in the afterlife. Here divine concurrence is required. But if the causal chain runs "through" God, then we can no longer speak of immanent causation; we would rather have to admit that an external force is doing the work. Genidentity is thus not preserved. At this point the relevance of recent debates on the compatibility of materialism and survival becomes obvious. Dean Zimmerman has pursued the question whether, in the case of a newly created body in the afterlife, immanent causation could be preserved, even though the causal chain is mediated by God.⁴⁰ This depends, obviously, on the notion of immanent causation that is being applied, especially which kind of determinants are admissible. If God's intervention is causally necessary but not causally sufficient to bring about the person in the afterlife, then immanent causation might be preserved. Assume God wills and realizes by divine decree: Let there be a person whose first-person perspective on the world is exactly like the one of the person who has just died. In this case God would be necessary for bringing about the successor, but He would not be causally sufficient. The reason is that God does not directly determine how the first-person perspective on the world of the deceased person looks; it is instead determined by the life of the person who has died. The "thread of persistence" really runs "through" God in this case.

39 I am neglecting the question whether there are other causal determinants. There might be an external metaphysical force sustaining this process like Whitehead's creativity or a divine concurrence like a *creatio continua*.

40 Zimmerman, "Falling Elevator", chapter 2 of this volume.

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Gasser, Georg (ed.): Personal Identity and Resurrection. London: 2010, 67-85.

The obvious and pressing question is now: is the newly created person in the afterlife identical to the deceased earthly person? In the line of the argument given above, the answer is affirmative. Owing to the immanent causal connection secured by divine concurrence there is genidentity between the two personal events. And since from the first-person perspective of the surviving person a 3d-continuant can be abstracted with the relevant equivalence relation (equi-perspectival), the surviving person can be conceived as a continuant without temporal parts. In order to do this in the most efficient way, it would be helpful if the surviving person had a mental representation of his/her entire life experience. In a near-death experience people often have a vivid experience of their temporal existence in a kind of simultaneity that defies description. That is probably the closest analogy we can get for the experience to integrate the fullness of one's earthly life into the life to come. Complete and radical psychological discontinuity (of memory and character) is hard to reconcile with the idea of survival. Survival means that the fullness of experience is somehow integrated in and preserved by the life to come. But the continuant is not identical to its life. In that respect the view advocated here is different from a 4d-account. By the very process of abstraction one disassociates oneself from the mere sequence of events which elapse like a movie made from individual frames, and thus integrates them as experiences of one and the same person (a continuant). The unity of the person is again established by a mental act, an act of abstraction. Subjectivity replaces the old notion of substance. Again, the Berkeleyan problem of what then remains of the person independently of the human mind might be resolved by taking into account mental acts of recognition and individuation by God.

What happens to bodily resurrection in this process-ontological account? It seems that we end up in a position that is relevantly similar to Lynne Baker's constitution theory, in which the identity of the first-person perspective is what exclusively ensures survival. The body does no metaphysical work.⁴¹ In our account, the "thread of persistence" was woven by causal relations and by a common element of form. The analysis of the mind-body problem within the framework of process ontology repudiated the cartesian "bifurcation" of mind and body, defending instead a psycho-physical bipolarism. Does this psycho-physical bipolarity belong to the indispensable characteristics of a human person that must somehow be preserved as a common element of form in order to ensure that the "thread of persistence" is not severed? This seems to be the case. Human persons are endowed with senses and thus experiences that are sensual in character. Could a human being survive as a spirit without any sensual experience at all? Humans have a clear conception of "inside" and "outside", notions that would not make sense to a pure spirit without sense experience or something similar. If humans cannot become angelic spirits in the afterlife without ceasing to be human persons, then some kind of bodily existence needs to be preserved. It is not necessary, however, that the resurrected body be numerically identical with the biological body we now possess. It might well be a body of a radically different kind.

Finally, and in closing, a few remarks on time and eternity. On a presentist metaphysics of time, the claim that human persons exist temporally implies that only the present is fully real and given in its fullness. The richness of my past exists only inasmuch it is preserved in my present; as such it is no longer existent. No human being experiences my pain of 20 years ago, I may only re-enact its experience now. My future experiences are not yet real. It is only the abstract idea of an enduring person (without temporal parts) which integrates this process of radical becoming into a true unity. A unity which is not simply the agglomeration of all my experiences, but the integral unity that makes it possible to speak of each of those experiences as mine, the experiences of an enduring subject of experience. As a tribute to our temporal existence, we need the idea of a 3d-substance in order to prevent our life from disintegrating into a series of episodes. It is hard to imagine the life to

41 Lynne Rudder Baker, "Persons and the Metaphysics of Resurrection", *Religious Studies*, 43 (2007), pp. 333–48.

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come is simply an endless repetitive addition of more and more moments in time. This is a thought that many may find hard to bear. Personally, I picture eternal life more like a “filled moment”, an eternal “now”. That is just a metaphor, of course, for our imagination is incapable of picturing an existence outside of the time known to us. But if this is so, then we will not in the afterlife need the abstract idea of an enduring substance without temporal parts which integrates the temporal flux of our existence. We need it in this life, so as not to be drowned in the flux of ever new events. If in the life to come there is no time that flows in this way, then we can lay the question of substances and 3D-objects to rest. It is a question that makes sense only in the natural world. It has thus been shown that the religious hope of surviving one’s natural death is not necessarily tied to the idea of substances as conceived in classical metaphysics. the idea of resurrection can be formulated independently of substance metaphysics.