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TITLE	From Here to Eternity: Two Absolutists (Newton, Clarke) and Two Relationalists (Leibniz, Kant of New Elucidation) on the Essence of Time with a Consideration of Their Similarities and Differences
YEAR	2024
VERSION	Publisher's PDF
CITATION	Helenius, V. 2024. From Here to Eternity: Two Absolutists (Newton, Clarke) and Two Relationalists (Leibniz, Kant of New Elucidation) on the Essence of Time with a Consideration of Their Similarities and Differences. Teoksessa Carruth, A., Haanila, H., Pylkänen, P. & Telakivi, P. (2024) TRUE COLORS, TIME AFTER TIME: Essays Honoring Valtteri Arstila. Turun yliopisto.

From Here to Eternity: Two Absolutists (Newton, Clarke) and Two Relationalists (Leibniz, Kant of New Elucidation) on the Essence of Time with a Consideration of Their Similarities and Differences¹

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A dispute about absolute and relative time in the eighteenth-century is famous and much discussed.² According to the *absolutist view*, endorsed by Newton and Samuel Clarke (1675–1729), time is an absolute entity, whose existence does not require other beings except God.³ In the *relationalist view*, which is endorsed by Leibniz and the pre-critical Kant, the absolutist position is denied since time is, the relationalists believe, a relational entity, which emerges from relations of beings. Later, Kant developed a groundbreaking theory of time and space in his transcendental idealism: They are the form of human cognition, that is, “a pure form of sensible intuition” and “the form of inner sense” (Kant 1996, 86 and 88). He also combines the aspects of the absolutist and the relationalist view.⁴ Andrew Janiak (2022, chapter 2.1) clarifies that Kant “attempts to engage the Leibnizian “relationalist” and the Newtonian “absolutist” conceptions of space with transcendental idealism”. Therefore, the dispute is relevant to the history of philosophy and especially concerning Newton’s and Leibniz’s philosophies and the background of Kant’s critical philosophy.

¹ This paper has undergone peer review.

² See e.g. Arthur 1994; Ballard 1960; DiSalle 2016; Futch 2008; Janiak 2008; Janiak 2014, xxix–xxxv; Janiak 2022; Melamed 2014; Meli 2014; Rynasiewicz 2022; Slavov 2022; Vailati 1997, 109–137; Yakira 2012.

³ See Janiak 2022, first chapter; Rynasiewicz 2022, third paragraph.

⁴ See Janiak 2022; Kant 1996, 71–75 and 85–104. Kant argues, *inter alia*, that time is not an empirical concept but “the formal a priori condition of all appearances generally[,]” and by it (with the concept of space) “we can draw a priori [...] synthetic cognitions[.]” (Kant 1996, 88 and 92.)

In this article, I examine the dispute by reviewing the views of the above-mentioned four philosophers. My aims are, first, to shed light on the philosophy of time by examining the views, and second, to argue that, in addition to the fundamental difference between the absolutist and the relationalist view concerning the ontological status of time, there are other differences, and that they share some features. The dispute happened within Newtonian classical mechanics and early modern *rationalism*, according to which reason is epistemologically or metaphysically primary in comparison with experience.⁵ Although the discussion about the essence of time in the eighteenth century was intertwined in modern physics and theories of force, I will focus here on ontological questions in the rationalistic framework. Regarding Kant, I discuss his writing *A New Elucidation of the First Principles of Metaphysical Cognition* (*Principiorum primorum cognitionis metaphysicae nova dilucidatio*, 1755)—hereafter “New Elucidation” for short. He revises two powerful metaphysical principles, the principles of contradiction and sufficient or determining reason, and offers noteworthy points about the philosophy of time.

First, since the subject matter of time is a complex whole,⁶ I propound a brief contextualization of the problematic nature of the philosophy of time. I consider this reasonable also because this article is a part of the *Festschrift* celebrating Professor Valtteri Arstila’s fiftieth birthday, and temporal experience is one of his central research interests.⁷ Furthermore, the contextualization also connects the dispute loosely to Kant’s critical philosophy. After this, I examine Newton’s, Clarke’s, Leibniz’s, and Kant’s views. Lastly, I propound critical remarks about their differences and similarities.⁸

1. What is time?

Augustine’s realization of time goes as follows: “[W]hat is time? If no one asks me, I know; if I want to explain it to someone who asks me, I do not know.” (Augustine 2019, 210.) This observation is insightful⁹ as it hits the nail on the

⁵ For more on rationalism, see Huenemann 2008.

⁶ See Emery, Markosian, and Sullivan 2020.

⁷ See e.g. Arstila 2018; Arstila 2022.

⁸ I am grateful to two anonymous referees for their comments and the editors of this *Festschrift*.

⁹ See e.g. Aristotle 1957, 373–427; Melamed 2014; Plato 1929, 75, 77, 79, 81 and 83. For an overview about philosophy of time, see Emery, Markosian, and Sullivan 2020. For more on Augustine’s conception of time, see Hausheer 1937.

head, so to speak, regarding the subject matter: “Time” is, I believe, by nature something, which is, on the one hand, familiar to us but, on the other hand, surprisingly difficult to explain.¹⁰ To be precise, time is experienced in normal circumstances¹¹ as the passage of time.¹² Accordingly, we can distinguish our past experiences from our present experiences and, because of this, we can effortlessly use time related indexicals, such as “yesterday” and “now”.¹³ Despite our temporal experiences, the theorizing of time has turned out to be difficult. One of the reasons is that a question about the essence of time leads to some of the most fundamental philosophical issues, such as what kind of ontological status time has, and how temporal experience, perception and consciousness are related to one another.¹⁴

The philosophy of time arises from experience of *change* and *permanence*. For example, I see a withered flower, which was blooming earlier. In that case, the flower as an object of perception has certain permanence over time (granting the flower is one and same flower at various times), whereas its perceptible states (blooming, withering) indicate its variable properties. Along with these kinds of observations, one could deduce that our experience of time emerges because of the permanent and variable things in the world. Nonetheless, this duality may not be true. For example, Parmenides has claimed that change is impossible as everything is immutable by essence,¹⁵ and Heraclitus has denied not only the Parmenidean view but all permanent features of the world since, for him,

¹⁰ See Melamed 2014.

¹¹ In certain psychological disorders, such as some forms of schizophrenia, (normal) temporal experience is disturbed. An important philosophical question is to what extent these experiences reflect reality.

¹² For more on the passage of time, see Maudlin 2007, 104–142; Styrman 2023.

¹³ Plato describes, in my view strikingly, time and tenses as follows: “For simultaneously with the construction of the Heaven [the Demiurge, i.e. the divine craftsman] contrived the production of days and nights and months and years, which existed not before the Heaven came into being. And these are all portions of Time; even as “Was” and “Shall be” are generated forms of Time, although we apply them wrongly, without noticing, to Eternal Being. For we say that it “is” or “was” or “will be,” whereas, in truth of speech, “is” alone is the appropriate term; “was” and “will be,” on the other hand, are terms properly applicable to the Becoming which proceeds in Time, since both of these are motions; but it belongs not to that which is ever changeless in its uniformity to become either older or younger through time, nor ever to have become so, nor to be so now, nor to be about to be so hereafter, nor in general to be subject to any of the conditions which Becoming has attached to the things which move in the world of Sense, these being generated forms of Time, which imitates Eternity and circles round according to number.” (Plato 1929, 77.)

¹⁴ See Arstila 2018; Arstila 2022.

¹⁵ For more on Parmenides’ arguments, see Laks and Most 2016b, 43, 45, 47, 49 and 51.

everything is fluid by essence.¹⁶ In that case, either our experiences of the passage of time and change are illusory, or everything is changing all the time, in which case our experiences of temporally persistent things are false.¹⁷ Nevertheless, both possibilities are problematic because there obviously are—I return now to the dualistic view—both variable (e.g. mental states, blossoming and withering of flowers) and lasting (my existence, ordinary concrete objects, such as stones and cats) objects in the world.¹⁸

Kant's problematization in *The Critique of Pure Reason* is as follows:

Time cannot be intuited [*anschauen*]¹⁹ outwardly, any more than space can be intuited as something within us. What, then, are space and time? Are they actual beings? Are they only determinations of things, or, for that matter, relations among them? If so, are they at least determinations or relations that would belong to things intrinsically also, i.e., even if these things were not intuited? Or are they determinations and relations that adhere only to the form of intuition and hence to the subjective character of our mind, so that apart from that character these predicates cannot be ascribed to any thing at all? [Kant 1996, 77.]

Kant highlights the problematic nature of time well: It is not obvious by experience whether time is a real being or an inner thing of human perception and cognition? Consequently, the problem requires a deeper analysis. Kant's own answer to the question in *Inaugural Dissertation* is, I believe, generally illustrative concerning the essence of time:

¹⁶ For more on Heraclitus' dynamic monism, see Laks and Most 2016a, 159, 169, 171, 177, and 179.

¹⁷ See Laks and Most 2016a, 153, 155 and 157.

¹⁸ Regarding the dualism, Plato (1929, 49) has famously combined variability and permanence of the world as follows: There is a primary permanence behind perceived change, so that these invariant things are "really existents", whereas variable things are secondary and objects "of opinion with the aid of unreasoning sensation". (See Plato 1929, 49, 51 and 53.) For him, variable things are temporal and secondary in the ontological hierarchy, whereas invariable things are primary in the hierarchy and atemporal as they exist always. The first also are subordinate to causality and experience and reflect the permanent things.

¹⁹ "[I]ntuition is that by which a cognition refers to objects directly, and at which all thought aims as a means. Intuition, however, takes place only insofar as the object is given to us; but that, in turn, is possible only [...] by the mind's being affected in a certain manner." (Kant 1996, 71 and 72.) See also Kant 1996, 366. According to Janiak, "intuition" is for Kant a conscious, objective representation, and it differs from sensation (Janiak 2022, chapter 2.2).

Time is not something objective and real, nor is it a substance, nor an accident, nor a relation. Time is rather the subjective condition which is necessary, in virtue of the nature of the human mind, for the coordinating of all sensible things in accordance with a fixed law. It is a pure intuition. [Kant 1992b, 393.]²⁰

According to the passage, time is a prerequisite for human experience. It is, therefore, not a real thing, that is, “objective and real, nor [...] a substance, nor an accident, nor a relation”, but a condition and foundation of the experience itself. Janiak (2022, chapter 1) explains that time is “causally inert” for Kant. I add that this feature can be seen as a distinctive feature of time in general since I acknowledge that time is a thing, which is clearly experienced, but which does not have causal power—it is not the case that time causes our ageing but that we are getting older in time *by various factors*. Accordingly, time is a mind-dependent entity in Kant’s view, as temporal experience requires conscious being. In that case, the analysis of time concerns the human mind and its operations essentially. Furthermore, time seems to be a *sui generis* entity, let it be real or not, which deserves special attention.²¹

Regarding the peculiarity of time, the distinction between *absoluteness* and *relationality* of time is important, which is a theme of this article. First, if time is an absolute entity, its existence does not require other things, except, possibly, God. However, absolute time does not have to be a substance, in which case it has ontological independence to a lesser extent. Second, (1) if time is a relational entity, then the existence of many things is required because relational things always depend on the existence of other things—the property of relationality requires many existing things, so that there can be relations altogether.²² Furthermore, in relational time (2) the passage of time is defined as *the change in the objects in space*. Regarding this, Leibniz’s description of relational time is as follows:

[Relational time] is the order of existence of things possible successively. As a physical body is to space, so the status or series of things is to time. The

²⁰ Cf. Kant 1996, 73.

²¹ See Futch 2008, 30.

²² I clarify that an absolute entity can have inner relations, so that it is an independently existing compositional thing.

body and the series of things add to space and time, motion or action and passion, and the principle of motion. [Leibniz 1989, 536.]²³

2. Newton on the Essence of Time

Newton was against Descartes' view of space.²⁴ Regarding space and time, he endorses the absolute view, according to which both are absolute entities. What is Newton's "absolute time"? He argues in *On Gravitation (De gravitatione*, date unknown) that

[1] [*a*]bsolute, true, and mathematical time, in and of itself and of its own nature, without reference to anything external, flows uniformly and by another name is called duration. *Relative, apparent, and common time* is any sensible and external measure (precise or imprecise) of duration by means of motion; such a measure – for example, an hour, a day, a month, a year – is commonly used instead of true time. [...] [2] In astronomy, absolute time is distinguished from relative time by the equation of common time. For natural days, which are commonly considered equal for the purpose of measuring time, are actually unequal. Astronomers correct this inequality in order to measure celestial motions on the basis of a truer time. It is possible that there is no uniform motion by which time may have an exact measure. All motions can be accelerated and retarded, but the flow of absolute time cannot be changed. The duration or perseverance of the existence of things is the same, whether their motions are rapid or slow or null; accordingly, duration is rightly distinguished from its sensible measures[.] [Newton 2014, 84 and 85. Italics added.]

Newton begins here by describing absolute and *relative time*. Most importantly, time is, for him, absolute in essence; it is that kind of entity, which does not depend on bodies and their effects. Absolute time is also a *dynamic* entity in that sense that it flows or passes uniformly everywhere, and a *quantitative* entity as it is "mathematical", which means that it is measurable. Furthermore, absolute time can be identified with "duration", which refers to the continuity of things, time

²³ See also Ballard 1960, 61.

²⁴ See DiSalle 2016; Janiak 2008, 130–162; Janiak 2014, xviii–xx; Rynasiewicz 2022, third chapter.

intervals, and the amount or quantity of absolute time.²⁵ However, Newton points out that absolute time is understood *relatively* in everyday life by observations and measurements of motion, movement, permanence, and change. For example, let us think about the function of the hourglass: The flowing of sand in various hourglasses depends on the volumes of their glass bulbs and the amount of sand. Therefore, there are various kinds of relative measurement methods of absolute time by these devices. Nevertheless, Newton admits that the measurement of motion may not ever be an exact measurement method of absolute time since movement is always variable but the flow of time constant since, as he argued, the flow of absolute time cannot ever be changed.

I sum up that Newton's absolute time is a dynamic and non-causal entity, which is manifested by permanence and change in the world, and a homogenous or uniform entity since the flow of time happens identically everywhere. However, absolute time is understood relatively and is measured by relative methods, from which follows the common conceptions of relative times.²⁶

Newton's view raises questions, especially philosophical, such as "What kind of entity is absolute time in essence?" Accordingly, many philosophers criticized his view.²⁷ One reason for this is that Newton was principally a mathematician, physicist, and natural philosopher and not a metaphysician who develops an exact metaphysical system, like Spinoza and Leibniz. Regarding the criticism, Robert DiSalle (2016, 41) points out that Newton's aim is only to describe *the structure of time* by his theory—the characteristic of the Newtonian absolute time is not "the distinct individuality of its moments" but its temporal equality and objectivity—and that he gives a definition of absolute time within his mechanics and, in fact, does not try to prove it. As for Newton's defence, Janiak (2008, 9 and 139) argues that Newton is, in the end, "systematic and philosophical without articulating a philosophical system[.]" and that his "philosophical critics did not meet Newton on his own ground – they did not determine what conception of space, time, and motion was presupposed by, or fitted most closely with, Newton's own laws of motion." Consequently, one question is how well Newton's

²⁵ Newton's view of absolute space and time has also been called *substantivalism* (in contrast to Leibnizian relationism) (Rynasiewicz, 2022, third paragraph; Slavov 2022, 13). Concerning *primitivist* accounts, according to which the passage of time is primitive, see Maudlin 2007, 104–142; Styman 2023.

²⁶ See Rynasiewicz, 2022, first paragraph and chapter 5.1.

²⁷ See DiSalle 2016, 34; Janiak 2008, 139.

views were understood by the critics.²⁸ Regarding this, Leibniz's and Clarke's correspondence is one significant source.

3. Leibniz, Clarke, and the Dispute About the Essence of Time

During Newton's lifetime, Clarke and Leibniz disputed about the essence of time in their famous correspondence (1715–1716). Clarke defends Newton's view, whereas Leibniz rejects it and endorses the view of relational time. Interestingly, both agree with *the principle of sufficient reason* and use it in their argumentation. According to the powerful principle, everything has a reason or cause.²⁹ The principle is associated with rationalism³⁰ since the intelligibility of the world, which is a premise of rationalism, requires that everything must have a reason or cause, which explains its existence.³¹ It follows that time must be an explicable entity. At this point, it should be noted that Leibniz's and Clarke's views represent *moderate rationalism* since both accept a posteriori knowledge,³² and that Newton's connection with the principle and rationalism is complex.³³

I begin with Leibniz's view since he offers his argument first in the correspondence. Leibniz's endorsement of relational time and main argument against absolute time are as follows:

[1] As for my own opinion, I have said more than once that I hold space to be something merely *relative* [*relatif*], as time is: that I hold it to be an order of co-existences as *time is an order of successions*. [...] [2] Supposing anyone should ask why God did not create everything a year sooner, and the same person should infer from thence that God has done something concerning which 'tis not possible there should be a reason why he did it so and not otherwise; the answer is that his inference would be right if time was

²⁸ See Janiak 2008, 1–10; Janiak 2014, vii–xiii and xii–xxvi.

²⁹ See Leibniz 1989, 677, 678, 680, and 683–685. It should be noted that the principle is somewhat ambiguous; for example, Leibniz uses the word “reason” (*ratio*) and Clarke “reason” and “cause” (see Vailati 1997, 81), but these may be not identical as “reason” may be more extensive regarding, in addition to events, also propositions.

³⁰ See Della Rocca 2010.

³¹ It is to be noted that the principle has variants (see Melamed and Lin 2023, first chapter). For more on the principle, see Della Rocca 2010; Melamed and Lin 2023.

³² Concerning Leibniz, see Huenemann 2008, 1–4; Leibniz 1989, 645 and 646. Concerning Clarke, see Vailati 1997, 81; Yenter and Vailati 2021, chapter 2.2.

³³ See DiSalle 2016, 55 and 56; Janiak 2008, 49, fn. 87; 138, and 165. For interpretations of Newton's views, see DiSalle 2016; Janiak 2008, 11–49.

anything distinct from things existing in time. For it would be impossible there should be any reason why things should be applied to such particular instants rather than to others, their succession continuing the same. But then the same argument proves that instants, considered without the things, are nothing at all and that they consist only in the successive order of things, which order remaining the same, one of the two states, viz., that of a supposed anticipation, would not at all differ, nor could be discerned from the other which now is. [Leibniz 1961, 363; Leibniz 1989, 682 and 683. Italics added.]

Leibniz claims, first, that time and space are relational entities.³⁴ In this view, time emerges by means of the relations of actual (temporal) beings. Therefore, I use the term “relationalism” in this article. However, according to Michael Futch (2008, 30), Leibniz’s view can also be called *reductionism* because, Futch argues, “[s]pace and time are not independently existing entities or structures in their own right, and spatial and temporal facts are not grounded on facts about such independent structures.” In relational time, existence of two or more beings are required, so that time can emerge because one existing thing could not have external relations at all—Kant deals with this idea more closely, as we will see below. Importantly, it is to be noted that time is not a real being for Leibniz: It is secondary to individual substances or *monads*, which are basically ideal and unextended beings.³⁵ Ballard (1960, 61) clarifies that “[s]pace and time are definitely not relations among individual monads[.]” Namely, it is true that the world consists of the ideal monads, which are real beings, external to God, and causally “windowless”,³⁶ but the visible world including space and time is a phenomenon, which emerges from the fundamental monadic level. In other words, relational time is manifested only in the phenomenal world, which differs from the fundamental monadic reality.

Second, Leibniz argues in the passage against absolute time that if time would be absolute, as Newton and Clarke believe, then God could not have a

³⁴ See Leibniz 1989, 703–705. See also Arthur 1994; Emery, Markosian and Sullivan 2020, chapter 2; Futch 2002, 1 and 2. For more on Leibniz’s view of time and its interpretation and problems, see Futch 2002; Futch 2008.

³⁵ See Leibniz 1989, 636, 643–645 and 647–649. For more on Leibniz’s *phenomenalism*, see Adams 1994, 217–261.

³⁶ See Leibniz 1989, 643. Monads operate in accordance with *the pre-established harmony* (see Leibniz 1989, 651).

sufficient reason for the moment of the creation concerning God’s chosen order of succession of contingent beings—these are possible and actual but not necessary—since absolute time is in essence a homogeneous and uniform entity, and, consequently, all different moments of time are equal. Here, Leibniz (1989, 687) uses *the principle of indiscernibles*, according to which “[t]here is no such thing as two individuals indiscernible from each other”. Therefore, Leibniz thinks that the moment of creation would be arbitrary for God in absolute time since every moment of time would be perfectly similar, but this is not compatible with God’s freedom, omniscience, and perfect rationality.³⁷

In my view, Leibniz’s argument is ingenious: It seems plausible that if contingent existence precedes absolute time, so that the homogenous and uniform time is prior to contingent (temporal) beings, then God cannot have a sufficient reason for the moment of creation—there cannot be, simply, a rational reason for God’s choice since every moment of time is basically indistinctive in absolute time. The second strength of Leibniz’s view is as follows: It is possible that the Newtonian absolute time, which is a *sui generis* ontological category, is an unnecessary metaphysical postulate. If so, it can be rejected by Occam’s razor, according to which unnecessary postulates must be rejected as a simpler theory is preferable.³⁸ Leibniz’s view does not have this problem since relational time is not a real being but a phenomenon.

Regarding Clarke, there is a consensus that he was Newton’s follower,³⁹ and he undoubtedly echoes Newton in the correspondence by arguing for the absoluteness of time. For example, he states that “the parts of time are as exactly alike to each other as those of space; yet two points of time are not the same point of time, nor are they two names of only the same point of time” (Leibniz 1989, 692) and claims explicitly that time is “*absolute* and unvaried [q]uantity” (Leibniz 1961, 430. Italics added).

To begin with, Clarke describes time—to be precise, *duration*—as follows: It is an immense, immutable, eternal, and necessary consequence of the existence of God (Leibniz 1989, 692 and 693), so that (absolute) space and time are not separate from God. They are namely, he explains, “caused by and are immediate and necessary consequences of his existence. Without them [God’s] eternity and ubiquity (or omnipresence) would be taken away” (Leibniz 1989, 693).

³⁷ See Leibniz 1989, 639, 640, and 646–648.

³⁸ For more on Occam’s razor in the philosophy of time, see Maudlin 2007, *passim*.

³⁹ See Yenter and Vailati 2021, chapter 2.1.

Regarding this view, the following point is important: God is not, for Clarke, a temporal being, but time follows from his existence. Clarke explains elsewhere in the correspondence that space is a *property*, and that it cannot be identified with God. I remark that the same applies, naturally, to time. Therefore, time and the existence of God are fundamentally intertwined in Clarke's (and Newton's) view: Time is not an essential property of God, like his omnipotence and eternity, not at least in the strict sense—apparently, God would exist even if there would be no contingent beings or time. Instead, time is that kind of independent and consequential property, perhaps a logical accident (i.e. contingent property) or a predicable (“*x* is a temporal being”),⁴⁰ which is a necessary consequence of God's existence. In other words, God is not a temporal being, but temporality and (absolute) time follows from his existence, in which case they, so to speak, go hand in hand.

Clarke's counter argument against Leibniz's relational time goes as follows:

[I]f time was nothing but the order of succession of created things [like Leibniz believes], it would follow that if God had created the world millions of ages sooner than he did, yet it would not have been created at all the sooner. Further, space and time are quantities, which situation and order are not [Leibniz 1989, 685].

First, Clarke argues that temporal determination and scheduling would not be possible for God without absolute time; if time would be a relational entity and merely the order of succession of contingent things in the Leibnizian manner, God would not have been able to create the world at his desired moment of time. It seems, therefore, that relational time is conceptually possible for Clarke, but then, as he obviously thinks, God cannot have knowledge of the moment of time of creation. In other words, there would not be a sufficient reason for it. To be precise, God would not have temporal knowledge and a conception of transcendental time—this refers to temporality before the creation—in relational time, despite the created beings themselves having temporal relations *ex hypothesi*. Consequently, Clarke concludes that time must be absolute. Second, he specifies that time is a quantity, like space, but situation and order are not. I interpret that time is a measurable entity for him, like for Newton, whereas situation and order are primarily qualitative entities: Although situation and order are compositional

⁴⁰ Cf. Baumgarten 2014, 109 and 112.

entities, they form qualitative unities. For example, it is not reasonable to ask which of two situations or orders is greater or lesser (in the quantitative sense).

To sum up, Newton and Clarke endorse the view of absolute time (or duration). According to the first, absolute time is a quantitative, dynamic, and homogenous or uniform entity but not a substance, and it is experienced relatively and can be measured by relative methods. The latter clarifies that time is absolute, immense, immutable, eternal, property, quantity, and a necessary consequence of God. In that case, time follows from the existence of God, but he is not a temporal being himself. In this view, time precedes bodies and has, thus, ontological independence. As for Leibniz, he disagrees with them and argues for relational time: Time emerges along with contingent beings (to be precise, phenomenal bodies) and depends completely on theirs and God's existences. Both Leibniz and Clarke accept the principle of sufficient reason, which entails that time must be an intelligible entity as everything is explicable by the principle. Accordingly, the dispute happens within the framework of rationalism. According to Leibniz's argument, the Newtonian absolute time cannot be true since then God could not have a sufficient reason for the moment of time of the creation as absolute time is indistinguishable in essence. According to Clarke's counterargument, the Leibnizian relative time cannot be true because then God could not perform temporal determination for the creation in absolute time—God would lack, respectively, a sufficient reason for the creation concerning its temporal determination. Hence, both use the principle in their argumentation. In my view, Leibniz's argument has the following strengths for the two above-mentioned reasons (i.e. Leibniz's argument against absolute time and the possibility that absolute time is an unnecessary postulate). However, although Newton's aims were more practical and scientific, his view is not straight away philosophically worse, as Janiak (2008, 9 and 139) and DiSalle (2016, *passim*) have remarked.

4. Kant on Time in *New Elucidation*

Regarding Kant's philosophical development, he prepares the ground for his critical philosophy in his pre-critical period, in which he also deals with the philosophy of time.⁴¹ *New Elucidation* is an early writing of this period, and he discusses Leibniz's, Christian Wolff's (1679–1754), Alexander Gottlieb Baumgarten's (1714–1762), and Christian August Crusius' (1715–1775) views

⁴¹ See Kant 1992b, *passim*.

and revises the principles of contradiction and sufficient or determining reason in the rationalistic framework. Regarding the philosophy of time, Kant offers some additions and clarifications to the Leibnizian view of relational time. Especially a derivative of the principle of determining reason, *the principle of succession*, is metaphysically truly relevant, as we will see below.

Kant's principle of determining reason is a hybrid of Leibniz's, Wolff's, and Crusius' views of the principle of sufficient reason; he aims to improve their views of the principle by revision. Kant's own view is based on the concepts of *determining* and *ground*, which he (1992a, 11) explains as follows: "[D]etermining" is "to posit a predicate while excluding its opposite", and "ground" is "[t]hat which determines a subject in respect of any of its predicates." Thus, Kant endorses the Leibnizian *subject-predicate structure*, according to which all truths are analytic, so that all possible predicates (e.g. wisdom) of the subject A (e.g. Socrates) belongs the concept of A (e.g. the complete individual concept of Socrates).⁴² The principle itself states that everything has a determining ground, which is either *antecedently* or *consequentially determining ground*: The first, "the ground of being or becoming", enables the intelligibility of the determined beings, and the latter, "the ground of knowing", enables knowledge about them. (Kant 1992a, 13.) Kant argues elsewhere in *New Elucidation* that every contingent being must have an antecedently determining ground.⁴³

Kant discusses several things in *New Elucidation*, which are related to the philosophy of time. First, he claims that the principle of determining ground holds true as "[n]othing is true without a determining ground" (Kant 1992a, 13. Italics removed). This implies, I note, that also time is an intelligible entity as temporal phenomena of the world must have determining grounds (i.e. the grounds of being or becoming and knowing for temporal experiences and change). Indeed, Kant explains the existence of time by the principle of succession, which is a derivative of the principle of determining ground.

Second, Kant argues that nothing has the ground or cause of its existence within itself since, then, a thing would be its own ground or cause. This is impossible because, Kant (1992a, 14) explains, "the concept of a cause is by nature prior to the concept of that which is caused, the latter being later than the former, it would follow that the same thing would be simultaneously both earlier and later

⁴² See e.g. Adams 1994, 57–63; Leibniz 1989, 267–269, 310 and 311. Cf. Kant 1996, 51. Kant's own description is as follows: "Every true proposition indicates that the subject is determinate in respect of a predicate" (Kant 1992a, 13).

⁴³ See Kant 1992a, 17–20.

than itself.” This does not require a temporal order between causal things necessarily, but Kant’s view has, however, a connection with temporality as follows: A thing, which causes itself, would have two categorically separate states, a state when it is a cause for itself (whatever this means, like “a being plans its own forthcoming existence”), and a state when it is a caused beings by its own causation. Concerning this subject, Kant (1992a, 14) deduces that God, who is a necessary being, does not have an antecedently determining ground since he exists due to necessity; in that case, God is eternal.

Third, Kant gives a short argument for the existence of one God, which has a connection to the philosophy of time. My shortened version of it is as follows: (1) Let us suppose that finite contingent beings would exist only in time, so that they would form together an entire contingent reality, and that there would be no absolute necessary being—the traditional view is that an absolute necessary being contains all possibilities and is, thus, the origin of all contingent *realities*.⁴⁴ In the above-mentioned case, the contingent existences, according to Kant (1992a, 16), “would be a repetition made a number of times[.]”(2) This is, nonetheless, untrue since the idea is against the concept of absolute necessity: Only one absolute necessary being can guarantee the reality of possible beings consistently. (3) It follows that only one absolute being exists necessarily, God. Now, let us pay attention to the description “a repetition made a number of times”. This refers to that kind of contingent existence, which would not exist due to an absolute necessary being. Regarding the subject matter of time, the contingent existences in question can consist of, I argue, repeatable temporal beings. Then, the same contingent beings and events could exist repeatedly, such as Plato writes *Republic* repeatedly in various times (I return to this idea below). Kant’s surely would deny this: Repeatable temporal beings are not possible since the existence of the absolute necessary being prevents their possibility for the above-mentioned reason, that is, only one absolute necessary being exists certainly but contingent beings do not, in which case they need a ground for their consistent existence, which is one and only one necessary being.

Fourth, Kant (1992a, 37) introduces the principle of succession in the last part of *New Elucidation*. According to it, “[n]o change can happen to substances except in so far as they are connected with other substances; their reciprocal dependency on each other determines their reciprocal changes of state.”⁴⁵

⁴⁴ See Leibniz 1989, 646 and 647.

⁴⁵ Cf. Baumgarten 2014, 144.

Therefore, change is possible only by the mutual interaction of substances. This implies of Kant's endorsements of *substance pluralism*, according to which many substances exist,⁴⁶ and a view that interaction between substances can only enable change and the passage of time. Indeed, Kant concludes that, because of the principle, "if the connection of substances were cancelled altogether, succession and time would likewise disappear" (Kant 1992a, 37). In that case, time is possible by means of the existence of many substances and their mutual interaction. If only one substance would exist, it would be a completely static and unchanged being (Kant 1992a, 37).

Kant also deduces two important things by the principle of succession, which are related to the philosophy of time: (1) There must be (external) bodies, which enable our inner changes, and (2) God is essentially immutable since he is free from dependency including external relations and an organic body. (Kant 1992a, 39.) In sum, by the principle of succession, the existence of time follows from interaction between substances, the external world and bodies are true, and God is an immutable and unextended being.⁴⁷

5. On Similarities and Differences Between the Absolutist and the Relationalist View of Time

Lastly, I propound comparative remarks about the views of Newton, Leibniz, Clarke, and Kant. I begin with *objectiveness* and *subjectiveness of time* and their connection with the dispute. I agree with the Augustinian point of view, according to which the passage of time is experienced subjectively as conscious temporal experiences, which presupposes perceiving conscious subjects.⁴⁸ However, since time is also a common and shared object, it has an objective and an intersubjective aspect. Consequently, there is scientific knowledge (e.g. different species operate within different time scales) and terminology (e.g. the standardized units of time) about time, in which physics (e.g. the concepts of space-time and arrow of time) and subjective (the phenomenology of time) and intersubjective (e.g. necessary conditions and the concept of time) analysis of time are related. Regarding the dispute, I conclude that the absolutists and the relationalists conceive of time as an

⁴⁶ See Kant 1992a, 40–45.

⁴⁷ Regarding space, see Kant 1992a, 40–45.

⁴⁸ Our temporal experience may be intuitive knowledge (like the proposition "I exist", which is, to be sure, the most foundational knowledge). See Kant 1996, 88; Kant 1992b, 393. However, cf. Arstila 2018.

objective entity regardless of its ontological status: Although time is experienced subjectively and has relative features, such as it can be measured by relative methods, like by hourglasses, it is, above all, a shared object in both standpoints; time is for Newton a scientific object, and for Leibniz a phenomenal object. However, I emphasise that Newton deals with time more objectively by his technical terms and laws of motion of his mechanics.⁴⁹

Second, I return to the duality of change and permanence. The absolutists and the relationalists would obviously accept that these features belong to the world. Nevertheless, the first consider time as a dynamic entity, which encompasses temporally enduring beings, and which manifests change indirectly and is “causally inert”. As for the relationalist view, time completely depends on the existence of God and the interaction between bodies, so that change and time result from the existence of substances and their internal activity.⁵⁰ Then, time is an epiphenomenon of monadic (i.e. substantial) primary existence and, likewise, causally inert. Now, the causality of the world is temporally oriented by experience (this is, however, not necessarily true, as Parmenides has argued), so that the order of events in the passage of time is irreversible. As far as I can tell, both the absolutists and the relationalists agree with this: The first because absolute time makes its way only in one direction, and the latter because God has created the dynamic substances, of which follow the dynamic and variable world.

Third, the absolutists and the relationalists accept the distinction between contingent and necessary beings.⁵¹ Regarding the philosophy of time, if a necessary thing is a temporal being, it exists at every moment of time, whereas a contingent temporal being exists only at some moments of time.⁵² Alternatively, a necessary thing can be atemporal and immutable, as we have seen. Both postulate the necessary God and the contingent world. However, time is necessary for the absolutists in that sense that absolute time follows from the existence of God; according to Clarke, the existence of God and time are intertwined since time is a

⁴⁹ See Janiak 2008, 139.

⁵⁰ See e.g. Leibniz 1989, 643 and 644; Kant 1992a, 32–34 and 37–45.

⁵¹ Both contingent beings (e.g. Plato) and necessary beings (e.g. arithmetic truths, God) are possible as they are not contradictory themselves, but only the denial of the latter leads to contradiction. In other words, contingent and necessary things are possible, but the first could have been merely a possibility, that is, a non-actual possible thing. Regarding time, if a necessary thing is a temporal being, it exists in every moment of time, whereas a contingent temporal being exists only at some moments of time.

⁵² One question is whether or in what way God, if he exists, is a temporal being. For more on this question, see Ganssle 2024; Spinoza 2002, 182–186.

“immediate and necessary” consequence of God (Leibniz 1989, 693), as I explained above. Regarding Leibniz’s view, time is, on the one hand, a contingent entity in that sense that the actual world, *the best possible world*, is not necessary.⁵³ On the other hand, time is necessary in that sense that monads are internally changing entities (Leibniz 1989, 643–645). The same applies to Kant’s view, albeit more distinctly: Every possible world with two or more monadic substances is necessarily mutable and temporal, as we saw above.

Fourth, I discuss the possibility of repeatability of beings in time. In metaphysics, entities are thought to be unique, that is, particulars, such as individual beings (e.g. Plato or Da Vinci’s Mona Lisa excluding all replicas of the painting, however identical they may be to the original one) or repeatable, that is, universals (e.g. redness, which is instantiated in many objects). Regarding the philosophy of time, I claim that it is possible, correspondingly, that there are *unique* and *repeatable temporal beings*: The first are temporally unique because they have unique existence in time. For example, if time has only one direction (“the arrow of time”⁵⁴) and dimension, individual (temporal) beings can only be temporally unique since every moment of time is a unique event or situation. Consequently, physical processes, *inter alia*, are irreversible. As for repeatable temporal beings, they can exist at various times. Regarding this possibility, one thing is clear in Newton’s case: If individual beings, such as Socrates, are repeatable in time granting their basic conditions are not violated,⁵⁵ such as internal consistency and individuality, these have different temporally determined existence inevitably due to the nature of absolute time, which is a dynamic and “flowing” entity in essence. The case is different in Leibniz’s case: It seems that Leibniz’s God can repeat, at least in principle, *compound individual beings* of the actual world, such as Socrates, by creating and destroying them again and again since time is merely a consequence of active substances;⁵⁶ the world is eternal for Leibniz at least in that sense that monads are ideal beings and, possibly, eternal in a sense—every monad has origin but not necessarily end—but monadic compounds, such as stones and cats, have temporary existence.⁵⁷ It seems,

⁵³ See Leibniz 1989, 648.

⁵⁴ Cf. Kant 1996, 259–276.

⁵⁵ Concerning identity, Kant denies Leibniz’s principle of indiscernibles, according to which every external and internal property of an individual is essential for it (see e.g. Leibniz 1989, 307 and 308; cf. Adams 1994, 106–109); accordingly, internally identical things can exist simultaneously (Kant 1992a, 35 and 36).

⁵⁶ For more on this subject matter, see Adams 1994; Koistinen and Repo 1999.

⁵⁷ See Leibniz 1989, 636. Cf. Leibniz 1989, 643.

therefore, that Leibniz's God can arrange substances in such a way that the same compounds are repeated because there is no absolute time, which would bind contingent beings in the flow of time, like in Newton's case.

I conclude that although the absolutist and the relationalist view of time are not compatible by their fundamental differences, they share many points of contact, such as that time is not a substance and that the principle of sufficient (or determining) reason is needed for the demonstration of its essence. Differences between the standpoints also are occasionally delicate, such as the relative features of time.

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