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Eternal Recurrence and the Identity of Indiscernibles

Matan Schapiro

Abstract: Three tenets of Stoic doctrine seem jointly incompatible: causal determinism, the identity of indiscernibles, and eternal recurrence, according to which every world-cycle ends in a return to the pure active principle and then develops again into the same qualified objects and sequence of events that comprise a world-order. On the strong version of recurrence, each event in a given period happens indiscernibly, so that the same individuals recur with no difference. Yet if counterpart cycles contain wholly identical events and properties, then time, as a mere measure of motion, adds no distinguishing feature, and the temporal qualities of identical changes will themselves be identical. The paper maintains all three commitments uncompromised by treating recurring world-orders in a higher-order timeline. A familiar alternative is to appeal to circular time. Yet a circular temporal structure threatens to collapse the basis for treating one cycle as succeeding another. I take a different route, in which a linear ordering avoids this difficulty while preserving the Stoic conception of time as dependent on change. The proposal assigns to the active rational principle an act of providential recognition at the point of transition between world-orders, which places the cycles in asymmetric succession and thereby secures token distinctness. The account serves as an interpretive supplementation within Stoic cosmology rather than as an explicitly stated doctrine in surviving Stoic texts.

Keywords: Stoicism, Cosmology, Determinism, Time, Identity, Eternal recurrence

DETERMINISM, THE IDENTITY OF INDISCRIBIBLES, AND ETERNAL RECURRENCE

Stoic cosmology and metaphysics present a trilemma under which one of three propositions doesn't hold without contradicting one of the remaining two. The first two are metaphysical assumptions and, by and large, non-negotiable pillars of the Stoic tradition. The third is the cosmological account of eternal recurrence:

1. Causal Determinism (CD): Events, as well as objects and their properties are causally determined. That is, everything that happens or exists, happens or exists necessarily in that very way.
2. Identity of Indiscernibles (IOI): If individuals *x* and *y* have a set of indiscernible properties, then *x* and *y* are one and the same individual. Conversely, numerically distinct objects must have some discernibly distinct features that set them apart.¹
3. Eternal Recurrence (ER): Each world-cycle ends by returning to its original state of the pure active principle, after which it develops into the qualified objects and sequence of events that comprise the world-order. This process recurs with every cycle.²

¹ We can also think of it as a biconditional: *x* and *y* are indiscernible if and only if *x* and *y* are numerically identical.

² ER was thought by ancient commentators to accommodate the tension between nature's eternality and matter's decaying. On the hand, nature is composed of destructible parts. On the other hand, the whole is indestructible. Something has got to give to avoid a paradox, and hence the meaning of 'destruction' renders equivocal between annihilation and something

The reading I offer seeks compatibility while maintaining these principles uncompromised. It does so by treating the recurrences of a world-order in a higher-order linear timeline. This is available by assigning an act of recognizing the transition from one cycle to another to the active, rational principle. Such an act differentiates one cycle of the cosmos from the other, along with any individual in them. While knowledge of an individual's trans-cyclical identity is opaque to the wise man, it is evident to providence.

The problem considered here sits at the intersection of three familiar Stoic commitments, causal determinism, the identity of indiscernibles, and the cosmological thesis of eternal recurrence as it is reported in the strongest form in Nemesius' *De natura hominis*.³ Barnes (2011/1978) remains a central point of reference, since it motivates the thought that if time is only a measure that follows motion, then type-identical events yield times that are not distinguished in virtue of what occurs at them. Long's (1985) later treatment, and Hudson's (1990) response, develop a strategy that preserves strict recurrence without heterodoxical departures by placing world-cycles in linear succession rather than treating them as points on a single temporally closed curve. Gourinat (2002) approaches the question by distinguishing periodic time from strict circular time, and by emphasizing the consequence, that during conflagration, since there is no world, there is no time. This blocks the inference that recurrence requires the sort of circular structure that motivates Barnes' objection. Salles (2025) offers a different resolution by reversing the dependence relation between time and change, arguing that Stoic time can be treated as a primitive ordering, and thus can differentiate distinct stretches of time corresponding to distinct cycles even when the cycles are type-identical. The present paper proceeds with the more straightforward assumption that time depends for its identity on the events and changes that it measures. Within that constraint, the aim is to develop, in a more explicit way than earlier suggestions, the sequential strategy associated with Long and Hudson by proposing an ordering condition, grounded in Stoic providence and divine activity at the transition between world-orders. This provides token distinctness through ER while preserving CD and IOI.

We begin with a description of ER. The paper will assume this strong version of ER, uncompromising in its commitment to CD:

along the lines of natural change. The natural change that nature undergoes as a whole is this very destruction and recurrence of its exact same world-order, in infinite sequence. Cf. LS, 278–9. See Plutarch, *St. rep.* 1052C–D; LS 46E/SVF 2.604, Diogenes Laertius 7.14; LS 46J/SVF 2.589, Eusebius, *Pr. Ev.* 15.18.2; LS 46K/SVF 2.596. Aristotle criticizes this dialectical move as some Presocratics had developed it in *DGC* 1. For a comparison between Aristotle and the Stoics on this matter, see White (1980) and (2006), 127–33.

³ Nemesius, *De natura hominis*, 111:14–25; LS 52C/SVF 2. For a general background on the intersection of Stoic physics and cosmology, see White (2006), 131–51. Particular attention to the physical transition from *ἐκπύρωσις* to *διακόσμησις* (the qualified world-order) is provided in Hensley (2021). Its focus is cosmogony: how the conflagration is extinguished and the four elements characterize the cosmos. White (1985) explores the differences between a Stoic, determinist version of cosmic cycles and an Academic version which is open to an indeterminist interpretation. He argues that both raise problems concerning identity across worlds, though I do not pursue the associated questions about free will here.

The Stoics say that when the planets return to the same celestial sign [. . .] where each was originally when the world was first formed, at set periods of time they cause conflagration and destruction of existing things. Once again the world returns anew to the same condition as before; and when the stars are moving again in the same way, each thing which occurred in the previous period will come to pass indiscernibly. For again there will be Socrates and Plato and each one of mankind with the same friends and fellow citizens; they will suffer the same things and encounter the same things, and put their hand to the same things, and every city and village and piece of land return in the same way. The periodic return of everything occurs not once but many times; or rather, the same things recur infinitely and without end.

Nemesius, *De natura hominis*, 111:14–25; LS 52C/SVF 2.625 ⁴

The description initially provides the cosmological conditions under which one world-cycle turns to the next.⁵ This is the period of ἐκπύρωσις, the conflagration of the world. We might think of the planets as the hands of a universal clock, whose position indicates when it is time for the world to return to its pure state of the divine fiery element, before beginning the process of condensation into qualified objects once again. We might also think about them as somehow causally responsible for the conflagration. The difference is not significant since in both cases the events happen as part of providential necessity.⁶

The description also explicitly mentions that everything taking place will happen with no difference (ἀπαράλλάκτως) from its previous instance. If no difference means no discernibility (and vice versa, since biconditionally dependent), then ἀπαράλλάκτως renders indiscernibility.⁷ And finally, such a transition from the qualified state of nature to pure fire and back to the same world-order (διακοσμήσις) recurs infinitely into the future.

The connection between the strict causal determinism of Stoic physics and the identity conditions of a recurring world-order is reflected in the physical description of god as the seminal principle in the form of pure fire. As one of the two principles of nature, god is assigned the role of the active and rational principle, working on passive matter.⁸ During

⁴ Οἱ δὲ Στωικοὶ φασιν ἀποκαθισταμένους τοὺς πλανήτας εἰς τὸ αὐτὸ σημεῖον κατὰ τε μήκος καὶ πλάτος, ἔνθα τὴν ἀρχὴν ἕκαστος ἦν, ὅτε τὸ πρῶτον ὁ κόσμος συνέσθη, ἐν ῥηταῖς χρόνων περιόδοις ἐκπύρῳσιν καὶ φθορὰν τῶν ὄντων ἀπεργάζεσθαι καὶ πάλιν ἐξ ὑπαρχῆς εἰς τὸ αὐτὸ τὸν κόσμον ἀποκαθίστασθαι, καὶ τῶν ἀστέρων ὁμοίως πάλιν φερομένων ἕκαστον 'τῶν' ἐν τῇ προτέρᾳ περιόδῳ γενομένων ἀπαράλλάκτως ἀποτελεῖσθαι· ἔσεσθαι γὰρ πάλιν Σωκράτην καὶ Πλάτωνα καὶ ἕκαστον τῶν ἀνθρώπων σὺν τοῖς αὐτοῖς καὶ φίλοις καὶ πολίταις, καὶ τὰ αὐτὰ πείσεσθαι καὶ τοῖς αὐτοῖς συντεύξεσθαι καὶ τὰ αὐτὰ μεταχειριεῖσθαι καὶ πᾶσαν πόλιν καὶ κώμην καὶ ἀγρὸν ὁμοίως ἀποκαθίστασθαι· γίνεσθαι δὲ τὴν ἀποκατάστασιν τοῦ παντὸς οὐχ ἅπαξ, ἀλλὰ πολλάκις, μᾶλλον δὲ εἰς ἄπειρον καὶ ἀτελευτήτως τὰ αὐτὰ ἀποκαθίστασθαι. Unless otherwise said, all translations are from LS.

⁵ I generally use the term 'world-order' to refer to the qualitative state of the cosmos, and 'world-cycle' when the context concerns temporal status. The difference is rhetorical more than technical, so the terms should be interchangeable for present purposes.

⁶ For historical background on the influences for the doctrine of eternal recurrence, dating back mainly to the cosmologies of Heraclitus, Empedocles, and the Pythagoreans, see, for example, Barnes (2011/1978), Long (2006/1985), and White (2006), 146.

⁷ Cf. LS, 307.

⁸ In Stoic ontology only bodies have causal efficacy, and thus everything that can affect or be affected is a body. Conversely, if something is not a body (ἀσώματος), it cannot act or be

the state of ἐκπύρωσις, when the world is reduced to the fiery element, it returns to its seed-like stage of development. The fire, being divine and rational in its function, reorganizes the cosmos according to its internal plan:

At certain fated times the entire world is subject to conflagration, and then is reconstructed afresh. But the primary fire is as it were a sperm which possesses the *logoi* of all things and the cause of past, present, and future events.

Eusebius, *Pr. Ev.* 15.14.2; LS 46G/SVF 1.98.⁹

From a physical perspective, god is in the form of the fiery element, which is analogous to the seed of the cosmos. Since the qualified world ultimately reduces itself back to the same seed, it grows back into the same world-order, according to the same divine plan. Taking the qualitative identity between each world-cycle along with IOI, there follows the (problematic) identity between world-cycles.

INDISCERNIBILITY, TIME, AND IDENTITY

Identity between recurring individuals may be summed up as following from two central features: first, an infinite recurrence of the world-cycle, and second, a strict identity between world-cycle counterparts and any objects within them.¹⁰ Let's turn to the second of these two features, briefly examining a debated puzzle reflecting Stoic assumptions involved in IOI:

Chrysippus. . . having first established that it is impossible for two peculiarly qualified individuals to occupy the same substance jointly, he says: 'for the sake of the argument, let one individual be thought of as whole-limbed, the other minus one foot. Let the whole limbed one be called Dion, the defective one Theon. Then let one of Dion's feet be amputated'. The question arises which one of them has perished, and his claim is that Theon is the stronger candidate. . . 'Necessarily', says Chrysippus, 'For Dion, the one whose foot has been cut off, has collapsed into the defective substance of Theon, and two peculiarly qualified individuals cannot occupy the same substrate. Therefore, it is necessary that Dion remains while Theon has perished.'

acted upon. The world and all the substances within it are composed from two 'principles', passive matter and active breath (πνεῦμα), often assigned the physical embodiment of rational fire. These corporeal principles provide the metaphysical structure of anything in nature. 'Matter' provides the role of the unqualified aspect of an individual, while the rational principle qualifies it. Stoic ontology has these as corporeal principles with a causal relationship, each with its exclusive function of acting and being acted upon: Diogenes Laertius, 7.134; LS 44B/SVF 2.300, Sextus Empiricus, *M.* 8.263; LS 45B/SVF 2.363 and 9.211; LS 55B/SVF 2.341.

⁹ ἔπειτα δὲ καὶ κατὰ τινὰς εἰμαρμένους χρόνους ἐκπυροῦσθαι τὸν σύμπαντα κόσμον, εἴτ' αὖθις πάλιν διακοσμεῖσθαι. τὸ μὲντοι πρῶτον πῦρ εἶναι καθαπερεὶ τι σπέρμα, τῶν πάντων ἔχον τοὺς λόγους καὶ τὰς αἰτίας τῶν γεγονότων καὶ τῶν γιγνομένων καὶ τῶν ἐσομένων. See also Diogenes Laertius, 7.135–6; LS 46B/SVF 1.102, Aetius 1.7.33; LS 46A/SVF 2.1027, and Origen, *Cels.* 4.14; LS 46H/SVF 2.1052.

¹⁰ Further discussions concerning recurrence and identity can be found in Origen, *Contra Celsum* 4.68; LS 52G1/SVF 2.626 and 5.20; LS 52G2/SVF 2.626, Simplicius, *In Phys.* 886.12–16; LS 52E/SVF 2.627, and Plotinus, *Ennead* 5.7.1, where the possibility of numerous individuals produced from a single archetype of a soul is raised (and summarily rejected).

Philo, *De Aeternitate Mundi*, 48–9; LS 28P/SVF 2.397¹¹

IOI involves two central notions in Stoic philosophy: an ontological principle, that an individual is individuated by a peculiarly qualifying property (*ιδίον*), and an epistemological principle, that individuating properties are discernible under the right conditions.¹² The peculiarly qualifying property (*ιδία ποιότης*) of an individual grants it particularity and persistence in identity. This general issue of identity becomes especially pronounced once recurrence is introduced, as the challenge imposed by strict discernibility now spans across entire world-orders: the very explanatory resource that explains numerical distinction and the ability to discern between non-identical individuals collapses if subjects are perfectly identical in each iteration of the cosmos.

From a physics standpoint, the peculiarly qualifying feature is characterized by the special tension (*ἔξις*) of an individual's soul (*πνεῦμα*). Since no two souls have the exact same tension, the individuals can be identified as distinct by a sufficiently attentive observer.¹³

The Dion-Theon puzzle illustrates this, although in a somewhat confusing way. It involves a case not of two identical individuals being in separate bodies, but two different individuals occupying the same substance. It might be better to think about this case as a part to whole relation.¹⁴ Dion is the whole, and Theon is the part. If the whole is made identical to the part, the whole and the part collapse into the same thing. This example reflects the pressure introduced by IOI on any notion of two qualitatively identical individuals — determining that there cannot be such a case.

That indiscernible individuals are identical is not obvious. The Academic skeptics wondered how the Stoics can seriously believe that no two grains of wheat have ever been identical throughout all of time.¹⁵ But for the Stoics the consequence would simply be

¹¹ Χρύσιππος... προκατασκευάσας ὅτι ‘δύο ἰδίως ποιά ἐπὶ τῆς αὐτῆς οὐσίας ἀμήχανον συστήναι’, φησὶν ‘ἔστω θεωρίας ἕνεκα τὸν μὲν τινα ὀλόκληρον, τὸν δὲ χωρὶς ἐπινοεῖσθαι τοῦ ἑτέρου ποδός, καλεῖσθαι δὲ τὸν μὲν ‘ὀλόκληρον Δίωνα, τὸν δὲ ἀτελῆ Θεώνα, κάπειτα ἀποτέμνεσθαι Δίωνος τὸν ἕτερον τοῖν ποδοῖν’. Ζητούμενου δὲ, πότερος ἔφθαρται, τὸν Θεώνα φάσκειν οἰκειότερον εἶναι. τοῦτο δὲ παραδοξολογούντος μᾶλλον ἐστὶν ἢ ἀληθεύοντος. πῶς γὰρ ὁ μὲν οὐδὲν ἀκρωτηριασθεὶς μέρος, ὁ Θεών, ἀνήρπασται, ὁ δ’ ἀποκοπεί τὸν πόδα Δίον οὐχὶ διέφθαρται; ‘δεόντως’ φησὶν: “ἀναδεδράμηκε γὰρ ὁ ἐκτμηθεὶς τὸν πόδα Δίον ἐπὶ τὴν ἀτελῆ τοῦ Θεώνος” ‘οὐσίαν, καὶ δύο ἰδίως ποιά περὶ τὸ αὐτὸ ὑποκείτην ἀτελῆ τοῦ Θεώνος οὐσίαν, καὶ δύο ἰδίως ποιά περὶ τὸ αὐτὸ ὑποκείμενον οὐ δύναται’ εἶναι. τοιγαροῦν τὸν μὲν Δίωνα μένειν ἀναγκαῖον, τὸν δὲ Θεώνα διεφθάρθαι.’

¹² Sedley (1982) stresses the Stoics’ commitment to a peculiarly qualifying property as a mechanism for stable identity of individuals through change. These principles belong within the wider Stoic attempt to isolate a criterion of identity in response to skeptical puzzles such as the Growing Argument. Epicharmus’ Growing Argument (αὐξανόμενος λόγος) is found at Plutarch, *De sera numinis vindicta* 559B and *Vita Thesei* 23. Similar variations include Anon. *In Plat. Theaet.* 70.5–7 and Plutarch, *Comm. Not.* 1083A. See Sedley (1982), 256 and footnote 6.

¹³ See Sextus Empiricus, *M.* 7.247; LS 40B/SVF 2.65, Plutarch, *Comm. Not.* 1077 D–E; LS 28O, Simplicius, *In. Ar. Cat.* 222, 30–3; LS 28H/SVF 2.395. Cf. LS p.174.

¹⁴ See LS, 175.

¹⁵ For example, Plutarch, *Comm. Not.* 1077C–E; LS 28O complains that the Stoics disallow that two numerically distinct individuals be indiscernible.

absurd: if we posit that the two individuals have the exact same peculiarly qualifying properties, then they are the same individual. The puzzle arises when this single individual is thought to occupy two substances, existing as two separate bodies, such as in the Dion-Theon puzzle. The trouble for Academics is, of course, that whatever it is that distinguishes between the individuals must be discernible. Whereas according to the Academic response, the indiscernible difference does not entail the objects' collapsing into the same identity (the objects may look the same, have the same qualities, but are not the same thing), in the Stoic view it does entail this consequence. So, following from IOI is the constraint that an individual can't occupy two separate bodies. Let's consider the consequences for ER.

Suppose we compare *Socrates in world-cycle_j* (= *Socrates_j*) and *Socrates in world-cycle_k* (= *Socrates_k*). Because the sequence of events and the objects in the world are determined to happen in the exact same way, any world-cycle is entirely identical in its features (objects and properties, events) to any other. *Socrates_j* and *Socrates_k* are identical in all of their features. So, *Socrates_j* and *Socrates_k* are one and the same thing. We may also substitute Socrates with any other thing in the world *salva veritate*. It turns out that *any* object we put up for comparison is rendered identical to any of its instances in any other world-cycle. It then immediately follows that one world-cycle is perfectly identical to another.

What is it then that makes a world-cycle *this* world-cycle rather than any other? And similarly, what is that makes some individual in that world-cycle *that* individual rather than any of its counterparts? We might be tempted to say, 'nothing at all'. They are simply one and the same individual. But this would undermine the notion of recurrence altogether: either something is regenerated or it is not. A substance is meant to persist through change, and so going back to earlier stages of a change for the same substance would be absurd. The acorn that turned into a tree may repeat the exact same process in a future recurrence, but it cannot be said to be *this* tree that turned into *that* acorn. To prevent such anarchy in natural development, there must be a separation between tokens of the process. Consider Stobaeus' following report on Chrysippus' account of time:

Chrysippus said time is the dimension according to which the measure of speed and slowness is spoken of; or the dimension accompanying the world's motion.

Stobaeus 1,8 (42); LS 51B/SVF 2.509¹⁶

On my reading, Stoic time derives from motion and exists in some attenuated sense, similarly to Plato and Aristotle. For Aristotle, time is defined as a measure of motion, existing in whatever capacity things in the quantity category exist. Chrysippus makes time the dimension (διάστημα) that follows (παρακολουθοῦν) motion. This is quite similar to Aristotle, who also describes time as following (ἀκολουθεῖ) motion.¹⁷ The salient point here is that time is defined as the measure of motion. Since time is not a corporeal body it doesn't exist (ὑπάρχει) in a strict sense. Whichever features it has, it only has them as a

¹⁶ 'Ο δὲ Χρύσιππος χρόνον εἶναι κινήσεως διάστημα, καθ' ὃ ποτὲ λέγεται μέτρον τάχους τε καὶ βραδύτητος· ἢ τὸ παρακολουθοῦν διάστημα τῇ τοῦ κόσμου κινήσει.

¹⁷ *Physics* 4.11. It is, of course, not impossible that Stobaeus is conflating Aristotelian and Stoic views. See Salles' revision of Stoic time's dependence on change, discussed further down.

measure of motion.¹⁸ So, if the changes going on in the counterpart cycles are identical, then so are the temporal qualities accompanying those changes. Time adds nothing to an event but only reflects the change that takes place.¹⁹ If identical events have the same temporal qualities, then again, the transition from a single event to the entire world-order makes it a general feature of Stoic nature. We find that any world-cycle, which is simply a recurrence of the same world-order, has the exact same temporal qualities.²⁰

When time is thought of as circular, phrases like ‘what has been will be’ describe the basic temporal relation between past and future events.²¹ But what is that makes something before or after another? If it is the event itself that takes place again and again, and is therefore both before and after everything else, then the object of reference is not time but the event taking place in time. The Atlanta 1996 Olympic games took place before those of Tokyo 2020, but they will happen after them once again. Barnes argues that circular time for ER is not only problematic as a temporal structure, but that the causal relations implied between the final moment of a dying world and the first moment of a regenerated one never gets off the ground. More concretely, we may formulate the following: if *world – cycle_j* is followed by *world – cycle_k*, then the final moment of *j* must cause the appearance of *k*. But, nothing in a circular timeframe seems to allow that one is prior to the other. Conditions for individuation of one cycle succeeding another, which is essential for being in this type of causal relation, are unmet.²²

There are, however, more congenial ways to think about time in a way that is not straightforwardly linear. Gourinat²³ distinguishes between a genuinely circular time, understood as a single closed circle (κύκλος) without beginning or end, and a periodic structure (περίοδος), which he understands to characterize Stoic recurrence. On his reading, Stoic time is marked by a sequence of periods, each beginning with reconstitution and ending in conflagration. Because time is defined as the extension of the motion of the world, and during conflagration there is no world, there is no time of the conflagration. This precludes the time of the cosmos from linking its beginning to its end, thereby avoiding the inference that recurrence requires a single temporally continuous circle whose end point must be causally responsible for its beginning.²⁴ Gourinat bases his reading on a classification of reliable and biased sources, the latter being mainly by later Christian and Aristotelian influenced authors. I take no stand on the broader exegetical question of which sources are closest to early Stoic doctrine. The present argument simply

¹⁸ More specifically, time belongs to the class of an incorporeal ‘something’. Since only bodies can act and be acted upon in Stoic ontology, time itself, along with void, place and predicates (λέκτα) are not causally efficacious. Such incorporeals do not strictly exist (ὑπάρχειν) but are rather relegated to a mode of ‘subsistence’ (ὑφείσθηκέναι). See also Stobaeus 1.105, 17–106, 4, and 1.105, 8–16; 51D.

¹⁹ Long (1985) states that this is just what circular time amounts to: being exactly the same in each cycle: p. 29. Also LS, 312.

²⁰ For a study on the relation between Chrysippus’ idea of time and necessity, see White (1983).

²¹ Long (1985), 29–30; Hudson (1990), 154

²² See Barnes, 420–2, 426–8, and footnote 63.

²³ pp. 221–4.

²⁴ Although separated by the rupture of conflagration, Gourinat still takes world-cycles to stand in relations of before and after.

proceeds by taking as its target the strongest recurrence hypothesis reported in Nemesis and then asking what follows for the individuation of cycles under strict recurrence.

I also, as should be stressed, make no claim about the general question of circular time's coherency. My concern is only whether such a temporal framework can supply the type of asymmetrical ordering and causal priority that Stoic cosmology seems to require. And indeed, the degree to which circular time can facilitate the required framework for such a view is a sticking point for interpretation. My view is that whatever merit circular time might have, it raises obvious difficulties. An interpretation that does not rely on circular time offers a simpler and more intuitive path towards making eternal recurrence maximally compatible with Stoic metaphysics.

Before moving on to characterize this idea, let us revisit the dialectics. Rather than square IOI with recurrence by individuating *prima facie* identical world-cycles, a different strategy for diffusing the puzzle has been suggested by ancient commentators. Namely, by granting minor differences in accidental features of an individual and its counterparts, individuation of counterpart substances is supplied directly.²⁵ Such a strategy explains away the tension by relaxing causal determinism's grip on the sequence of events comprising the world-order. For example, allowing relative qualities to differ between *Socrates_j* and *Socrates_k*. Socrates, under such a reading, maintains his peculiar identity as an individual, yet with discernible differences between recurring counterparts.²⁶ The heresy of such a solution pertains to CD, since some things, however slightly, turn out differently between world-cycles. Another way would be to grant some leniency with respect to IOI: there might be two qualitatively identical individuals, yet numerically distinct. But, as we have seen with the Dion-Theon puzzle, the Stoics are devoted to the discernibility of peculiarly qualified individuals, and such an approach simply disregards the principle.

²⁵ For a detailed discussion concerning the cosmological characteristics and authority of eternal recurrence in Stoic tradition, see the debate between Salles (2005) and Hensley (2021). Briefly, Salles addresses the question of why god would destroy the world in the first place, if that world is the product of divine, purposeful creation. Salles reconstructs Cleanthes' version of the conflagration, arguing that Cleanthes understands the state of cosmological fire as a side-effect of the world's preservation, which is achieved through heat. The resulting conflagration is, on Cleanthes' account, not a purposeful event, but an inevitable consequence of the mechanical means for nature's preservation. Because the world is created according to divine rationality, it follows that the exact same world-order is then regenerated. Conflagration is thus a compromise between the physical constraints of preservation and destruction: god preserves the world with heat, heat destroys the world, god regenerates the world, and so on. With respect to Stoic tradition, Hensley argues against Salles' claim that Cleanthes had a different notion of the conflagration's character and its purpose than that of Zeno and Chrysippus, but rather that they all shared the same cosmogonic theory.

²⁶ Alexander of Aphrodisias, *Ar. An. Pr.* 180–1; LS 52F/SVF 2.624, Origen, *Cels.* 4.68, 5.20; LS 52G/SVF 2.626. Some reports are vague about the specific level of identity between recurring worlds, for example Lactantius, *Div. Inst.* 7.23; LS 52B/SVF 2.623.

LINEAR SUCCESSION AND DIVINE RECOGNITION

While a possible reading might turn to relax one or more principle of the trilemma, this paper's standard of adequacy is to preserve a meaningful sense for eternal recurrence on the one hand, yet, on the other hand, do so without compromising the soundness of CD and IOI. Admittedly, this requires a bit of artistic liberty, although kept at a minimum and within standard concepts of Stoic thought. Before articulating my own view, I should compare it with an alternative recently advanced by Salles (2025). While I agree with Salles' motivation to disentangle the seeming paradox without resorting to a heterodox version of eternal recurrence, I resist his revisionary approach to the identity conditions of time.

Salles treats the recurrence problem as relying on an Aristotelian assumption about time, namely that time depends on change for its identity.²⁷ Given this general idea of time's dependence on change, nothing individuates one world-cycle from another in temporal terms. In other words, any given world-cycle occupies the exact same temporal position as any other. As Salles articulates the case, if the battle of Austerlitz occurs on December 2, 1805 in one world-cycle and then recurs on December 2, 1805 in a later world-cycle, with the two battles qualitatively identical (and therefore type-identical), then the times of those events are not distinguished by any difference in what occurs at them.²⁸ As shown earlier, the principle is extended from a single event to a world-cycle: if time's identity hangs on the goings-on of a world-cycle, the recurrence of type-identical events from generation to conflagration yields a recurrence of the exact same times for supposedly distinct world-cycles.

Salles' strategy is, then, to reject the dependence claim by reversing the explanatory direction. Rather than taking time to be grounded in change, he proposes that change depends on time, and so time supplies a primitive ordering within which events occur.²⁹ This reconstruction is motivated in part by appeal to Philo *DAM* 52–54, which, in Platonic vein, links time to measured cosmic motion and criticizes those who define time as taking place beyond the motion of the cosmos, namely, during the conflagration. On Salles' reading, this supports a conception of Stoic time in which time is not individuated by the events occurring within it, as their view diverges from the Platonic (or Aristotelian) idea of motion-dependence. This yields a single linear timeline running through the infinite series of world-cycles, which supplies the framework for a distinction between stretches of time: temporal differentiation is a primitive feature of reality, not one that depends on difference in type-events.³⁰

My understanding of the issue is rather aligned with Barnes, which understands Stoic time as lacking an existence in its own right and therefore as something whose distinctness hangs on the events associated with it.³¹ The result is that successive times are distinct if and only if the events that occupy them are type-different, which requires a variation in

²⁷ Salles (2025), 154–73. Aristotle's assumptions about time's derivation from change are especially pronounced in *Physics*, 4.10–11 and 6.1–2.

²⁸ Salles (2025), 161.

²⁹ He endorses this view on grounds beyond this particular issue. See his 2005 and 2018.

³⁰ Salles (2025), 173.

³¹ This has to do with the incorporeal status of time in Stoic ontology. See also Salles (2025), 167.

their quality, i.e., what actually goes on. In short, different events are necessary for different times. To address the problem articulated by the initial trilemma, the aim is to supply a basis for token distinctness under strict recurrence that does not require treating times as independently individuated, and so does not depend on the exegetical question of whether Salles' rereading of Stoic time is correct.

Proceeding from the assumption that the time of each cycle depends for its identity on the events taking place during that time, what is required is some individuating feature for every world-cycle. This can be provided by a recognition act of divine intellect. When *world – cycle_j* reaches the state of conflagration, divine intellect is aware of that process. That divine intellect is active during the conflagration is not speculative and can be regarded as a standard feature of Stoic cosmology. This is explicit, for example, both in Seneca and the final part of Nemesisius' testimony that I quoted above:

What kind of life will a wiseman have if he is abandoned by his friends and hurled into prison or isolated in some foreign country or detained on a long voyage or cast out onto a desert shore? It will be like the life of Jove, at the time when the world is dissolved and the gods have been blended together into one, when nature comes to a stop for a while; he reposes in himself given over to his thoughts.

Seneca, *Ep.* 9.16, LS 460³²

The gods who are not subject to destruction, from their knowledge of this single period, know from it everything that is going to be in the next periods.

Nemesisius 111:25–112:2; LS 52C/SVF 2.625³³

While Seneca's description is interested in the ethical status of the wiseman rather than in cosmology, it suggests that the activity taking place during the conflagration is god's thinking. What does this activity of divine intellect precisely amount to? Presumably, it may include reflecting on the state of the universe. Divine intellect would then recognize the world-cycle transformation — the fact that *world – cycle_j* has just ended and *world – cycle_k* is beginning. But this still doesn't amount to a distinction between world-cycles. It could just as well be argued that the divine intellect is aware of the world-cycle's *sameness* to its counterparts. What could make the world-cycles distinct is the very act of recognition at the transition marked by conflagration.

In similar vein, Long describes the observation of world-cycles by god as one of watching the same film repeatedly.³⁴ This gives the right idea about the relation between world-cycles having circular time with respect to one another but taking place in a linear sequence of cosmic time. The following analysis adds a conceptual mechanism to Long's

³² 'Qualis tamen futura est vita sapientis, si sine amicis relinquatur in custodiam coniectus, vel in aliqua gente aliena destitutus, vel in navigatione longa retentus, aut in desertum litus eiectus?' Qualis est Iovis, cum resoluta mundo et dis in unum confusis paulisper cessante natura adquiescit sibi cogitationibus suis traditus. Tale quiddam sapiens facit; in se reconditur, secum est.

³³ τοὺς δὲ θεοὺς τοὺς μὴ ὑποκειμένους τῇ φθορᾷ ταύτῃ, παρακολουθήσαντας μᾶ περιόδῳ, γινώσκειν ἐκ ταύτης πάντα τὰ μέλλοντα ἔσεσθαι ἐν ταῖς ἐξῆς περιόδοις

³⁴ Long (2011), 280.

general idea. Fortunately, not much is required to produce the distinction between world-cycles and thus place them in linear order. Suppose *world – cycle_j* has ran its course and is now in the state of conflagration. That *world – cycle_j* has ended and *world – cycle_k* now begins is recognized by divine intellect. Let's call the recognition that takes place in the conflagration following *world – cycle_j* as *recognition_j*. This is now a feature assigned to *world – cycle_j*, provided by the recognizing act itself. Similarly, *world – cycle_k* is followed by a state of conflagration which involves *recognition_k*. We now have a feature for *world – cycle_j* and *world – cycle_k* that set them apart (so $j \neq k$).

Following from that, each individual substance belonging to *world – cycle_j* is qualified by belonging to that world-cycle: *Socrates_j* was put to death at 399 B.C.E_j, while *Socrates_k* died in 399 B.C.E_k, and so on. While the idea might seem circular, it is not: the divine rational principle is not aware of a pre-existing sequence of world-orders, but brings about such sequence by recognizing each transition as the completion of one world-order and the initiation of the next. The act itself of recognizing recurring worlds thereby secures token distinctness in the cosmological chain.

One might still object that such an act of recognition does not genuinely supply a distinguishing feature but merely relocates the same difficulty to a higher level. If world-cycles are identical, then the corresponding acts of providential recognition may seem identical as well, in which case the distinction between world-cycles once again collapses. On this reading, the recognizing act is only one more identical event within a recurring world-order. The present proposal, however, does not require that each act of recognition contains some further intrinsic feature by which it differs from its counterparts. The claim is rather that the providential act itself constitutes the asymmetrical succession of one world-cycle to the next, without presupposing an order in which the cycles are already distinct. While the acts are type-identical in content, they remain token-distinct as constitutive of different transitions in the cosmological sequence. The distinction at issue is not available to human cognition but characterizes the activity of divine intellect itself.

We now have a linear timeline containing the circular repetition of a world-order. What characterizes the recurrences as being in sequence is a relative position to their counterparts. Given the infinite number of recurrences, a world-cycle has no definite place in the chain of cycles. In other words, world-cycles have no cardinal value as terms, but only a relative position in asymmetrical sequence.³⁵ So, *world – cycle_j* is prior to *world – cycle_k* in virtue of the distinct act or recognition effected by divine intellect. The same mechanism explains how *world – cycle_j* is prior to *world – cycle_l*. That is, its relative position as before k is grounded on the act of recognizing the transition, and that transition is recognized as having occurred before l .³⁶

³⁵ I explicitly avoided referring to the world-cycles as having ordinal values. This would commit me to a set theoretical assumptions which I cannot defend. Therefore, I opt for the weaker notion of sequential arrangement. This should be sufficient for a meaningful token identity for any given world-cycle, which, in turn, yields the minimal requirement for a distinction between terms in asymmetrical ordering. I thank an anonymous referee for calling this issue to my attention.

³⁶ Shogry (2021) emphasizes the importance of expertise for the Stoics' ability to respond to skeptical challenges, arguing that competent discernment is domain-relevant, so even if certain cases seem especially difficult, a sufficiently able agent should, in principle, be able to

Whereas the position of a world-cycle in the cosmological timeline is indiscernible to the wiseman, it is necessarily recognized as such by providential reason. This should not compromise the Stoic ethical and epistemological ideal of the wiseman, as the action of assenting to an impression is the very thing that determines whether someone is acting according to reason, or whether he is being injudicious with his cognitive power.³⁷ The wiseman makes perfect use of his power of assent, and therefore reservation of judgment on this particular question agrees with Stoic epistemology and ethics.

As mentioned, Hudson offers an inchoate version along these same lines. I agree with his strategy of distinguishing between recurring individuals by their temporal index — the world-cycle to which they belong.³⁸ Two issues in his proposal call for further examination: First, it does not explain *how* there can be distinct recurrences of an individual in a linear timeline of a recurring world-order, only that this is the way in which individuals are numerically qualified. Second, Hudson takes advantage of an ambiguity in the interpretation of IOI and allows individuals to be indiscernible on the one hand, while, on the other hand, to still differ in properties. The property by which they differ is one of belonging to different cycles of the world-order. I suggest something similar but importantly different. The individuals, insofar as they have their inherent properties, are exactly identical, yet only from the perspective of rational providence are assigned different positions in the sequence of recurrences. In this way, we have an explanation of the mechanism by which they are minimally distinct, and we do so without compromising the strictness of IOI. Rather than relax the principle of IOI and allow *Socrates_j* to have a property different from *Socrates_k*, I weaken the sense in which Socrates has the property of being in a given world-cycle. It is not, strictly speaking, an attribute of Socrates, but only a quality which holds true of him from the perspective of divine intellect. The divinely assigned property is, presumably, ontologically weaker than any worldbound property, yet plausibly sufficient to yield token distinctness for a world-cycle.³⁹

CONCLUSION

This paper's proposal offers a way to relieve the tension between eternal recurrence, causal determinism, and the identity of indiscernibles without weakening any of the three commitments. The central claim is not that recurrent worlds differ through an intrinsic qualitative property, but that they are numerically distinct in virtue of their place within an asymmetric sequence. Stoic providence is understood as the activity of the divine intellect operating through conflagration and regeneration. This is the mechanism which supplies a relation of succession between world-cycles. Each recurrence stands after and before another, even if no cycle is intrinsically different from any other. The condition for

perceive a kataleptic appearance and thus distinguish between seemingly identical objects. Here I consider a case of divine, rather than human cognition.

³⁷ Cicero, *Acad.* 2.57; LS 40I

³⁸ Hudson (1990), 157.

³⁹ The idea that the transition marked by conflagration includes a providential recognition grounding a before and after relation differs from Aristotle's view that time depends on perception of motion, which presupposes motion's parts as having such order (*Physics* 4.14, 223a21–24).

token individuation is met by such an act of ordering, while leaving determinism and indiscernibility intact.

We should note that Stoic sources nowhere state that recurrent cycles are individuated by a providential ordering of this kind. This paper rather offers an extension of Stoic cosmological and metaphysical resources that are independently grounded in various texts, and in particular providence's work as causally responsible for the state of the cosmos, including during the conflagration. To maintain a strong form of recurrence along with unwavering determinism and indiscernibility, some additional account of numerical distinction must be supplied. The present reconstruction proposes that this can be done from within Stoic commitments, at the cost of an interpretive add-on, yet short of doctrinal revision. With interest of avoiding heterodoxical alternatives that compromise one of the three commitments, the reading provides a framework in which recurrence does not collapse into a single numerically identical world.

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