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NIETZSCHE

A Collection of Critical Essays
Edited by Robert C. Solomon



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MODERN STUDIES IN PHILOSOPHY

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NIETZSCHE

A COLLECTION
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ROBERT C. SOLOMON

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NIETZSCHE AND ETERNAL RECURRENCE

ARNOLD ZUBOFF

Nietzsche believed he could show that the course of the world after any given moment ultimately led back to that moment in a ring of eternal recurrence. All the moments of any man's life, then, must forever return. Nietzsche wrote that accepting this idea, that you must live just the life you live now again and again without end, "would change you as you are, or perhaps crush you. The question in each and everything, 'do you want this once more and innumerable times more?' would weigh upon your actions as the greatest stress."¹ Now, Nietzsche's grand project was just such a "revaluation of all values"—exalting the struggle for personal excellence in this life—as, according to the above quote, must come with a man's acceptance of the idea of recurrence. Yet for most of the explicit discussion of the recurrence in Nietzsche's work we must look to the short concluding section of *The Will to Power*, the posthumous collection of sketchy and fragmentary notes to which we are forced to turn throughout this paper. Does this imply that in the occasional allusions to the recurrence, in which Nietzsche is always stressing its enormous importance, he exaggerated its relevance to his project of revaluation? I don't think so.

For there are two features of the recurrence doctrine that do give it immense significance for revaluation. One is that it renders the world basically aimless and impersonal. It is only against the background of such a world, empty of extra-

This article was written especially for this volume.

¹This is to be found in Nietzsche's *The Gay Science*, sec. 341. I quote it as it was translated by Walter Kaufmann in his *Nietzsche* (3rd ed. rev.; New York: Alfred A. Knopf, Inc., 1968), p. 324. The forthcoming discussion of the relation of the recurrence doctrine to Nietzsche's project of revaluation presupposes the correctness of something like that interpretation of Nietzsche's revaluation that Kaufmann gives in his *Nietzsche*. It is to Nietzsche's revaluation so interpreted that I shall be pointing with such phrases as "exaltation of the moment" and "striving for excellence." In the chapter "Overman and Eternal Recurrence" Kaufmann shows that a consideration of his view of the revaluation can reveal that vital connection between revaluation and recurrence which Nietzsche so enthusiastically celebrates—to the puzzlement of most Nietzsche scholars.

personal meaning, that Nietzsche's project of revaluation can take shape. But does this make recurrence *per se* important? Another doctrine, for instance that the world will eventually run down through entropy, might seem to match that of recurrence in its prediction of aimlessness. But, Nietzsche writes, "let us think this thought in its most terrible form, existence as it is, without meaning or aim, yet recurring inevitably without any finale of nothingness: 'the eternal recurrence.'"² For Nietzsche, then, the specific concept of recurrence is the "most terrible form" of the idea of extra-personal meaninglessness on which his other work ultimately depends.

The other feature of eternal recurrence that gives it significance for revaluation is that in it a man lives countless times the same life. Nietzsche wished desperately to avoid the devaluation of this life, the feeling of its transitoriness, that would have been encouraged by the denial of a next world without such an assertion of the recurrence of the life of this world.³ The recurrence is a positive doctrine of an afterlife, and as such it is even more powerful than the Christian for getting men to change their values in the desired way once they have accepted the doctrine. As in the Christian, in the Nietzschean afterlife a person shall be eternally rewarded or punished according to the values by which he had lived. But in the Nietzschean afterlife the eternal return of the quality of this life is at once reward or punishment for success or failure in developing the value of this life as Nietzsche advises. And so, whereas Christian values are external to the Christian doctrine of the afterlife in the sense that one could keep that idea that there will be reward and punishment while changing the values that supposedly will decide their application by the final judge, the Nietzschean notion of the reliving of this life actually has inherent in it the definition of the decisive values—those Nietzschean values discovered in the exaltation of the moment.

Acceptance of this doctrine of the repeating afterlife, then, forces the believer to live by Nietzsche's values and defines those values. As a personal experience such an acceptance brings with it the flames of a hell of eternal despair to those who know themselves damned in their weakness, but, as it did to Nietzsche, the greatest joy to those who know they can live joyously this life. Nietzsche expected the changing of some,

² Nietzsche, *The Will to Power*, trans. Walter Kaufmann (New York: Random House, 1967), sec. 55.

³ *Ibid.*, sec. 1065.

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⁴ *Ibid.*, se
⁵ *Ibid.*, se

the crushing of most, when the idea of recurrence swept the world as he felt it would.⁴

Like a Christian writer of casuistry, Nietzsche in his finished work happened to have engaged primarily in what amounts to working out the consequences of an afterlife doctrine rather than in discussing that doctrine explicitly. Yet the importance to his project of that idea made explicit leads me to respect the authority of those indications published in the 1911 manuscript of *The Will to Power* that he was eventually going to write a book on the recurrence.⁵ I believe he had put off its writing on account of serious difficulties in the idea and its proof as we see them sketched, which in part stem from the need for his first working out and presenting what I call his metaphysics (also, like the recurrence doctrine, merely sketched in *The Will to Power*), upon which I believe he was very heavily relying as a precondition for his version of recurrence.

Although I myself agree with Nietzsche that the idea of the recurrence, once generally accepted, could be a fountainhead for that change in mankind for which he hoped, I think the idea is weak in two important ways. One is that his proof is unconvincing and even self-defeating at various points; this we shall soon consider.

The other is that there is a fascinating difficulty in the notion that the same man can come about again after he has died and re-experience moments that have already been his. Nietzsche seemed to rest easy with drawing the personal implications of recurrence that way. Actually, there are several alternative ways of interpreting the situation.

The Personal Meaning of Recurrence— Three Interpretations

The first of these that we shall consider is the suggestion that the recurrence of a life means not the repetition and return of the same man, but rather the generation of a series of men, each a mere duplicate of the last. This I shall name the "insulating" treatment, because according to it, since those men in repetition are not numerically the same, their individual fates are as little shared as those of more obviously different creatures—their lives and concerns are in this sense insulated from one another.

⁴ *Ibid.*, secs. 1053–59, *et passim*.

⁵ *Ibid.*, sec. 1057n.

All this hinges on the settlement of what can be seen as an Aristotelian sort of issue, about properly categorizing a man, a life, a moment. Is a man or his life understood best as a thing in some category of things that will get repeated in a recurrence (like patterns or doings), get only duplicated in recurrence (like individual objects), or perhaps get neither repeated nor duplicated but rather instantiated (like universals)?

The reason Nietzsche rejected or did not even consider the insulating theory perhaps can be found, then, in his metaphysics, in the way he was predisposed to resolve the Aristotelian sort of issue.

Nietzsche rejected any metaphysical notion that holds that there are real, objective entities or individuals—that there is anything beyond doings and patterns of doings. Lightning, he points out in *The Genealogy of Morals* and elsewhere, is not really, as our language suggests, a subject—lightning—which performs a doing—flashing. It is rather only the flashing. In *The Will to Power* we see him extending this analysis to all supposed subjects and their doings. He ends denying the objective reality of all proposed subjects, like atoms and egos, and talking of all beings rather in terms of arrangements or patterns of force, of power quanta, of doings.⁶ (And these are manifestations of the will to power.)

And yet, even though he thus had rejected the notion of an objectively real ego or body or any other kind of reality for a man beyond that of his experiences and doings, one might conceive of a Nietzsche insisting with the insulators that only a single occurrence of a particular sequence of such experiences and doings, i.e., only a single occurrence of a life, was to count as a particular man's existence. But it seems to me that a philosopher like Nietzsche who did not believe in an objectively existing ego or material body would be quite disinclined so to rule with the insulators against a man's repeatability. Since Nietzsche held that a particular man was ultimately only a particular pattern of doings, one should probably have expected him to accept as he did a man's repeatability—and to accept it with the same ease as that with which we all accept the repeatability of a melody (at least in our ordinary discourse)—which is usually identified also as a pattern, in this case of tones. The Buddha too, for whom a man was just a pattern of sensations and matter, believed in rein-

⁶ *Ibid.*, secs. 338–39, 635–36, *et passim*.

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carnation through repetition. (A strict materialist who identifies a man not with his bodily continuity, say, but with the general pattern or arrangement of his atoms could agree with Nietzsche about repeatability.)

Perhaps, then, here, as elsewhere, we must appeal to what we know of Nietzsche's metaphysical inclinations and theories to round out our understanding of what the recurrence was for him.

The other anti-Nietzschean interpretation of the recurrence that we shall consider grants that the recurrences bring back the same man. In fact, when it comes to discussing lives and experiences, it outdoes Nietzsche in this insistence on sameness and insists that the "repeating" experience of this same man does not actually repeat, since it too is numerically the same. Just as the man is no additional man, his life's experience does not count as anything like an additional experience. This is an application of something resembling Leibniz's Law of the Identity of Indiscernibles, and for this reason only we shall call this interpretation the "Leibnizian."

For the Leibnizian each time your life recurs identically there can be no addition to your present experience represented in that recurrence. But this idea is not the same as the insulator's—that the other lives, being other than yours, do not touch yours. It is rather the opposite. The idea is that your present experience is now, at once, *each of all* those infinite identical experiences promised by Nietzsche in eternal recurrence—that this now is all such nows, all such nows are this now—that there is no meaning to talk about *this* occurrence as distinguished from another precisely similar since for you, to whom the demonstrative is addressed as referring to your moment, they are all the same, indiscernible. All occupy the same personal space and time.

This Leibnizian interpretation of recurrence makes experience unlike a doing, a pattern. It removes experience from the category Nietzsche placed it in—that into which most people put the repeatable melody. Experience is treated by the Leibnizian rather as the universal was treated by Aristotle. Whenever and wherever a particular defined the existence of a universal, it was the same numerically—the same timelessly. Perhaps it is natural to think of things like numbers this way. The number three seems ever the same thing throughout its countless instantiations. Nietzsche the metaphysician, however, would deny any ultimate place in the world to such a proposed category of things as the universal, just as he had denied any

to the category of individual objects. And so he would deny that experience could have the ultimate character the Leibnizian claims it has. For Nietzsche everything is ultimately a repeatable doing or pattern of doings.

Of course it is necessary to Nietzsche's use of recurrence that he can thus avoid the Leibnizian conclusion. The Leibnizian shares with the insulating treatment a rejection of the personal significance that Nietzsche gives recurrence. For the insulating theory the recurrences bring only other experiencing beings; for the Leibnizian they bring nothing additional to a man's present experience—in fact, the recurrences already are in present experience—present experience already is in the recurrences. If a man cannot look forward to his recurrence as being for him an additional experience either because the experience within it will not be his or because it is his now, the recurrence cannot hold the awesome promise or threat that gives it reforming power. The owner of either alternative interpretation would probably be reduced to a feeling of life's transitoriness if he yet accepted the rest of Nietzsche's picture of the universe. So the special power of Nietzsche's idea depends in part on adopting his concept of the personal meaning of recurrence and this in turn depends, as we shall see is true of most of his proof too, on sharing some of his metaphysical preferences.

I suggest that we work somewhat within the Nietzschean interpretation of the significance of the recurrence as we next consider the problems in Nietzsche's attempted proof that this recurrence we have been trying to interpret actually takes place.

First we shall sketch Nietzsche's theory; then we'll take it apart.

The Metaphysics of Nietzsche's Determinism and a Sketch of the Theory of Recurrence

For Nietzsche the world at any moment is an arrangement, a pattern of power quanta, of doings. He holds to a sort of determinism concerning these doings. Yet he attacks something he calls determinism.⁷ He denies, as we saw, the existence of real subjects. There are no empty space and atoms—these are products of language, theories, perception. And the determinism he attacks is that which would have such a subject's behavior determined by imposed laws—that would thus indulge in

⁷ *Ibid.*, secs. 552, 631–34, 639, *et passim*.

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⁸ *Ibid.*,
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the separation of doer and doing which he abhors. Since the world *is* behavior, activity, there are no laws binding behavior to subjects.

I say Nietzsche holds to a sort of determinism, though he attacks something he calls determinism, because he yet retains the central deterministic thesis—that a given situation will ever turn out the same way. For him this is true on account of a given pattern of power quanta having always to be what it is—to behave the way it will because it *is* that behavior. When it comes to human behavior, although Nietzsche does not believe in what he would call determinism—i.e., that a man the same in the same situations would make the same choices because his behavior was bound by unvarying laws—neither does he believe in free will—i.e., that a man the same in the same situations could possibly make different choices simply because his behavior is not thus bound by laws. When a man comes up again in recurrence as part of the same arrangement of power quanta, he makes the same decisions because of what he *is*—he *is* the making of those decisions. Thus did Nietzsche reconcile something of an avoidance of fatalism with the doctrine of recurrence. A man must freshly decide whether to change his life when confronted with recurrence even in a world in which he knows that he has already made his decision precisely as he will make it infinite times. He must freshly decide because his decision has been and will be made each time through the man himself rather than through a set of laws of behavior—returning the same he decides the same.

In Nietzsche's world the number of possible arrangements of the power quanta is finite.⁸ That this is so is derived by him from his notion that there must be a finite number of power quanta—the number being constant also. At least some among those finite possible arrangements are capable of being repeated—there is no cosmic trend of a sort to prevent a following state from being just like a previous one. This Nietzschean universe has existed through infinite time, ever with its constant number of power quanta. From all this Nietzsche concludes that there must have been repetitions of the quanta arrangements. Why? As we said, there are only finite possible arrangements. If one of those that were realized had been a final state, it would have been reached already in this infinite time, and then we would not be witness as we are to continued

⁸ *Ibid.*, secs. 1062–64, 1066–67. It is upon these sections, containing Nietzsche's fullest exposition of his theory of recurrence and its proof, that most of the following discussion is based.

change. So there has been no end state. With only finite possibilities in continuing change through infinite time, we must admit that there must have been repetitions.

But if there had in such a world occurred a repetition, then, since according to Nietzsche's determinism a given situation always turns out the same way, the repeated situation would have to have been followed by the same events that had originally followed it. And these had led to that repetition. And so now the universe has been caught in a ring of recurrence, since again and again the same events must follow that repeated situation and then always lead back to it—and on again. (Strictly speaking, since time in Nietzsche's world extends back infinitely, it is senseless to single out a first repetition. Rather all moments ever were and are repetitions leading back to themselves.)

I believe it important to note that there must be, in such a universe, many events which are in other respects what we would call possible but which will never have been realized simply because they had been locked out of this ring of recurrence, i.e., those events that do not happen to fall within the recurring cycle which has monopolized reality, which can lead only ever again around itself, never outside. I believe this exclusiveness of the ring is crucial to Nietzsche's idea, though he does not seem to have thought much about it, because without it he would be dealing with a world in which there were many variations of one's life along with recurrences (although, as we shall see, this is likely the case within the repetitions of the ring anyway).

We shall now look critically at the theory and its assumptions.

Determinism and Variations on This Life

Just how crucial is Nietzsche's sort of determinism to his idea of recurrence? If we accepted that there were finite possible states of the universe and yet gave up the belief that their order was invariable, then, given no end state, there might still be infinite recurrences through infinite time of all the moments that would have been in Nietzsche's ring. The order of the moments might sometimes vary, but the moments of our lives even in their present sequence would come up again and again like a given series of numbers in infinite tosses of dice.

But now Nietzsche would be thrust forcefully against the

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strange problem I mentioned at the end of my sketch of his theory. Among the events that could come up in such a universe would be many which had now not been locked out from realization by the shortness of the ring's circuit. Among these events would be many variations of a man's life along with the many recurrences. Now, an amazing consequence that I would draw from either the Nietzschean or what I have called the Leibnizian interpretation of the recurrence is this: a man is the same in recurrence and therefore a man is the same in variation. In other words, a man's actual experience in this universe extends again and again beyond his life on earth as he comes up again and again in this universe experiencing new and different moments.

This concept, which I find fascinating in itself, wrecks Nietzsche's use of recurrence in his revaluation project once variations as well as repetitions of each man's life are allowed to be woven into the fabric of the universe. For it was crucial to Nietzsche's use of recurrence that *this* life with its achievements and its choices be echoed forever as the exclusive hard reality of each man. But by rejecting the exclusiveness of a ring of recurrence, we have let in something like the lazy but terrifying Hindu-Buddhist concept of many different lives lived, many different weary courses of struggle for achievement entered upon, many different sets of life's decisions made. Instead of giving this life and its every moment the darkest underlining we have overwhelmed it, blurred it in the worst way. This, then, is a consequence of allowing chance into the Nietzschean universe.

But, I am afraid, even the exclusiveness of the Nietzschean ring is probably not enough to save his concept from the fate I have indicated. For even if we accept his deterministic circle as the sole reality, I would expect many variations of a life to pop up in such a world before it gets around to repetitions anyway. Suppose we think in terms of Nietzsche's own belief in cycles of destructions and re-creations of the world. It seems unlikely to me that the re-creation of the world after the next destruction would result in a precise repetition of the world as it is now, even if there are only finite possible arrangements of forces in the universe. It seems to me that there would probably be vast numbers of destructions and re-creations before a repetition was struck. But by then, we might expect any number of variations of a life to have been locked into the ring along with the repetition. After all, the odds against any version of the world being precisely like this one are im-

mensely higher than those against its simply containing one of countless possible variations of a life.

*The Finite Universe or Limiting Our Concern
to Finite Volumes of an Infinite Universe*

For Nietzsche it is important to his proof that the universe be a finite arrangement of finite quanta of force (in order, so he thinks, to limit the number of possible states of the universe). This he thinks he establishes through his metaphysics; he claims that infinite force is inconceivable. He does not really give us his reasoning, but probably he is rejecting the concept of actual infinity.⁹

We shall soon see how hard it is to restrict to a finite number the arrangements of even a finite number of things in a finite universe. In an infinite universe of infinite things conceived of as everywhere active, even if it be so through infinite time, obviously there might be no recurrence of a total state, since the number of possible states would be infinite. Yet a precise repetition of a state of such a universe is conceivable; and if that universe were deterministic, it would thereupon fall into recurrence. But that this had happened would not only be overwhelmingly unlikely but also impossible of demonstration by Nietzsche. (And anyway, Nietzsche would be right to feel frustrated even if he found such a demonstration, since he should then, in an infinite but recurring universe, still expect many more variations than repetitions of a man's life going round that giant ring.)

Suppose, however, we restrict our attention to smaller matters than the state of the whole universe. Why should it be necessary that the total universe recur as it was in a moment in order that a man re-experience what had been *for him* that moment? This moment you are now experiencing, this life, insofar as you are aware of it, could come about again and again in some finite volume of an infinite universe and also here and there across an infinite universe—each time and place within a different cosmic context. (Of course, what we say here applies to variations as well as repetitions of moments and lives.) We shall soon develop further this notion that moments and lives might be reidentified without regard to the total state of the universe.

⁹ Milič Čapek in his article on "Eternal Return" in *The Encyclopedia of Philosophy* suggests that Nietzsche adopted Dühring's rejection of actual infinity.

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¹⁰ Nietzsche

The Constant Quantity of Force

Force, doing, can never be rest or nothing. It must ever be what it is—just so much force and doing. Nietzsche writes as though what he has discovered in such reasoning is the first law of thermodynamics, the principle of the conservation of energy. His way of arriving at his result, his whole conceptual framework, however, makes a coincidence of any agreement here with the scientists. Part of the importance to Nietzsche of this element of his proof is that it seems in this way some sort of link with science.¹⁰ Beyond that it is the basis for holding that the universe in unceasing activity lasts forever.

*Finite Possibility—in the Universe of Science,
in the World of Phenomena, and in the
Universe of Nietzschean Metaphysics*

Another important presupposition of the proof for recurrence is that in a finite universe of finite power quanta it must follow that there shall be only a finite number of possible arrangements of forces. Walter Kaufmann, in his article on Nietzsche in *The Encyclopedia of Philosophy*, has summarized Georg Simmel's demonstration in his book *Schopenhauer und Nietzsche* that Nietzsche is wrong in this presupposition. "Imagine three wheels of equal size, rotating on a single axis, one point marked on the circumference of each and the three points lined up in one straight line. If the second wheel rotated twice as fast as the first and if the speed of the third was $1/\pi$ of the speed of the first, the initial line-up could never recur." (As pointed out by Čapek in his article on eternal return, Dühring and others made what is essentially the same objection to finite possibility—on the ground of "the continuity of space.")

I would question the applicability of this reasoning, however, to the Nietzschean universe not of things arranged in an objective empty space but of finite centers of force. Again I think we must realize how very dependent the recurrence was on the Nietzschean metaphysics. But let us postpone this point until we have first considered the consequences to recurrence of not admitting finite possibility.

If we accepted infinite possibility in finite space we would be back to the tremendous improbability of a repetition of

¹⁰ Nietzsche, *op. cit.*, sec. 1063.

the total state of the universe that we had begun to deal with in our discussion of the infinite universe. But now we would even have to admit the overwhelming improbability of repetition in a finite volume of that infinite universe. We said we would return to our project of easing the condition for recognizing a repetition of a moment to less than its being part of a repetition of the total state of the universe. Yet, as I just said, even if we talk in terms of the repetition of only a small volume of the universe as the context of a repeating moment, we are faced now with a staggering improbability of repetition. But we can limit our area of concern still further to the phenomenal character of the experience regardless of context. How many different phenomenal possibilities are there in Simmel's line-up of wheels? I would say there can be only finite phenomenally discernible line-ups. One could take physiology to imply that there are possible only finite different experiences on account of the fact that there are possible only finite different neural hookups and firings.

Let us accept the thesis of finite phenomenal possibility. What if we next decide that the universe is like that of Simmel's demonstration—finite but entertaining infinite possibilities below the level of phenomenal discernibility? We would expect the sub-phenomenal states, which would be the effective reality of such a world, to determine ultimately—entirely—the order of phenomenal events. The sub-phenomenal order, then, as the effective reality, would be the only order in which repetition could result in the ring. But such repetition is overwhelmingly unlikely. Phenomenal repetition, which would be overwhelmingly likely, would represent indifferently any one of the infinite varying sub-phenomenal states which could be responsible for it below the level of phenomenal discernibility. But, again, such phenomenal repetition would not entail that there had been a sub-phenomenal—and effective—repetition and so would not signify a ring of recurrence. And such a ring—requiring a sub-phenomenal repetition—would be as overwhelmingly unlikely as the repetition itself. There would be no exclusive ring and, of course, the phenomenal variations on this life, drowning out the phenomenal repetitions of it, must spoil such a universe for Nietzsche, as they have spoiled every other.

But, coming back to a discussion of the role of the Nietzschean metaphysics in his own assumption of finite possibility,

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²¹ *Ibid.*, secs.

²² *Ibid.*, sec.

let us notice that the nature of the power quanta of Nietzsche's finite universe is rather like that of the phenomenal moments we have just numbered as finite. There is no objective thing-in-itself, no real empty space in his conception.¹¹ There is nothing beyond the power quanta, the will to power. Reality for him is solely in the struggle of these finite power centers, which fill all space, which *are* all space. Each mirrors, represents, the state of all the others, since the existence of each is nothing beyond an interaction with the others—an acting on them and a being acted upon by them. Like Leibniz's monads, the power quanta of Nietzsche are thus each like a moment of experience, a phenomenal moment. They are the measure of all reality; and the imperceivable, objective space of Simmel's demonstration is for Nietzsche surely a fiction. Granting Nietzsche his finite possibilities in such a universe, however, still cannot save him from the disastrous consequences we have examined of the variations of a man's life being among those possibilities.

Repeatability of Events

That same second law of thermodynamics which haunts would-be inventors of perpetual motion machines seemed to Nietzsche his enemy at this point in his proof of a perpetual motion universe.

The universe, according to Lord Kelvin's application of the law, is running down, inevitably losing to the random vibrations of heat all the better-ordered energy (e.g., that involved in the movement of persons) that makes the world interesting. Thus this law could seem to preclude any repetition of a state of the universe. All succeeding states must, following time's arrow, contain more and more entropy, more and more disordered motion.

Nietzsche, of course, required repetition for recurrence. He met this challenge by rejecting all mechanistic theory. He felt he had justified such a move already in an ill-advised rejection of atomic and molecular theory, even as mere description of physical events on the macroscopic level, on what were really metaphysical grounds for rejecting an idea of metaphysically "effective" atoms.¹² But he came up with another argument that he writes of as though it has devastated

¹¹ *Ibid.*, secs. 515, 520, 636-37, *et passim*.

¹² *Ibid.*, sec. 552.

all thermodynamics.¹³ In reality it is merely a direct response to Lord Kelvin's prediction of the universe running down.

Nietzsche's argument is simply that the universe has had an infinite past and, if an end state were to have been reached through some finite relentless process, it would have been reached by now—as it obviously has not been. The assertion of an infinite past comes again from Nietzsche's metaphysical vision, of a world in which power quanta not only always must be but always must have been that which they are—just so much struggling force.

Current Cosmology, Verification, and My Conclusion

Current cosmological theories grow from precise observations and complex calculations, of course, rather than Nietzschean metaphysics. In general, although these theories are mechanistic, Lord Kelvin's prediction does not score heavily in them because the universes they describe either avoid any end state through some properly mechanistic process of renewal or come sooner to some other sort of end than that predicted by Lord Kelvin. Their universes are also both in some cases infinite and in all open to Simmel's argument; they are on either count capable of infinite configuration.

The current theories and Nietzsche's recurrence thesis as well are not based on direct observation of those grand events they describe, of course, but on estimations of the present character of the universe and likely extrapolations from these (although Nietzsche's also has the doubtful advantage of his metaphysical intuitions about power). It seems to me that Nietzsche's theory of recurrence, particularly if it is reformulated so far as possible for expression within the framework of science, rather than Nietzschean metaphysics, is quite as open to indirect verification and is quite as empirically meaningful as the current theories. If, as was the case earlier in the century, the best scientific observation and theory indicated that the universe was finite, if geometry allowed for only finite arrangements of finite things in finite space, if experiment and reason supported a strict determinism, and if science postulated an infinite time for the universe's present sort of activity to have continued with an avoidance of Lord Kelvin's prediction, then Nietzsche's theory would have been virtually confirmed. In fact, since this list of conditions represents a vision largely rejected by science, I think Nietz-

¹³ *Ibid.*, sec. 1066.

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sche's theory may be considered disconfirmed. But this shows how the theory is open to verification. It is meaningful, but it is wrong.

There is a sort of direct observation that each of us will make concerning the most significant aspect of Nietzsche's doctrine. If his theory is true, then like dumb beasts getting whack after whack but forgetting each as the sting dies, we in fact will be feeling a life's whack each of infinite times.

My own conclusion is that we must turn to science rather than Nietzsche's intuitions in this incredibly important question. Having done so, I believe it probable that countless repetitions and variations of my phenomenal moments do occur in the universe; and whether these happen either at scattered times or in scattered places, i.e., either in infinite time or infinite space, or both, does not matter. Through the variations alone my life is continued and extended. This unimaginable expansion of my life swamps the significance of any repetitions that happen to come up of the life I live here and now. And so Nietzsche has lost.

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