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THE END OF TIME

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> *When a philosopher announces a discourse on time, one can expect the worst.*
> Jean-François Lyotard[1]

0. According to some recent and contemporary philosophers, we are no longer having the time of our lives.[2] What this means is that a certain way of understanding time—time on the scale of human life—has been displaced by recent developments. Most significantly, in the last several decades science has opened up vast vistas of previously unimagined time, the "deep" or "cosmic" time of the earth's archaic past and of the universe's future, with the suggestion that, in any meaningful sense, time will end in a trillion, trillion, trillion years from now, with the heat death of the universe. "The end of time" of my title envelops these two senses; the end of cosmic time, and the end of human time brought about by the revelation of the former. But my question here turns this movement back around to the question of human beings and their lives, and asks about the import of cosmic time for the meaningfulness of human lives: how does the revelation of cosmic time, and its inevitable end, impact on existential meaning?

For some prominent twentieth-century philosophers, notably those working in the phenomenological tradition, no such problem arises: existential significance may be restricted to the world of everyday perception, and thus the "time of our lives" isolated from scientific developments. Referencing Husserl and Merleau-Ponty, historian of philosophy Pierre Hadot argues this point succinctly:

> [I]t is essential to realize that our way of perceiving the world in everyday life is not radically affected by scientific conceptions. For all of us—even for the astronomer, when he goes home at night—the sun rises and sets, and the earth is immobile. … The analyses of Husserl and Merleau-Ponty thus

> let us see that the Copernican revolution, of which so much is made in philosophy handbooks, upset only the theoretical discourse of the learned *about* the world, but did not at all change the habitual, day-to-day perception we have *of* the world.[3]

One philosopher who has resisted this phenomenological line of defence is Jean-François Lyotard.[4] Lyotard fruitfully explores the problem of the meaning of cosmic time for human life in a number of essays in the 1980s and 1990s through the fable of the "solar catastrophe"—the death of our sun several billion years from now. I want here to engage this fable, and also the works of several commentators who have previously engaged it—notably Keith Ansell Pearson and Ray Brassier—in order to shed light on the general problem itself. Ansell Pearson brings these issues in contact with transhumanism, and critiques the postmodern fable told by the transhumanists from the perspectives of Nietzsche and of modern science, as still too anthropomorphic (negentropy and complexity are still expressions of human, all too human values). Brassier wants to accede entirely to science and to nihilism, seeing it as a vector of creativity and intelligibility rather than as a threat to values which need preserving.

1. This is the fable Lyotard narrates:

Our sun will expend its fuel in roughly five billion years, and the resulting nuclear reactions of its death-throes will incinerate the earth.[5] By then, it will be all over for human beings, unless we find a way to exodus from the earth and to survive in the conditions prevalent in other parts of the cosmos. Lyotard suggests that this problem is the most important and pressing one facing us today, and it is what drives the process we call "development." Everything happening in the sciences and in cutting-edge technologies is aimed towards preparing us for extraterrestrial survival:

> logic, econometrics and monetary theory, information theory, the physics of conductors, astrophysics and astronautics, genetic and dietetic biology and medicine, catastrophe theory, chaos theory, military strategy and ballistics, sports technology, systems theory, linguistics and potential literature.[6]

A couple of decades later, we can update Lyotard a little in terms of what are widely regarded as the most cutting-edge sciences and technologies today: genetic engineering, nanotechnologies, quantum computing, robotics, prosthetics, cognitive enhancement, artificial life, and so on—and who knows what currently unimagined technics might be invented in the next five billion years?

All these technologies are aimed, Lyotard suggests, towards remodeling the human body so that it may survive in the conditions of the cosmos. And what will the result be? What will "the human" have become, such that it will be capable of an extraterrestrial existence? This is something that the fable does not tell us. But taking into account the likelihood of a radical transformation, Lyotard prefers to pose the problem of survival not for the human as such, but for "the Brain and its Human." And this, more broadly, because the brain is the most complex matter we know of in the cosmos, and the hero of the story is not the human as such—which in fact is threatened with disappearance through such a radical transformation—but complex processes. The fable of solar catastrophe Lyotard tells presents the crisis not as one of the survival of the human, but rather at the deeper level of the energy in the universe and its organization.

Energy is distributed in the cosmos such that disorganization is more probable than organization. But it happens, against the odds, that some energy forms into organized systems. Closed systems will quickly dissipate their energy and collapse, reverting back to the more probable state of disorganization: this is described by the second law of thermodynamics, and called *entropy*. But open systems—systems capable of exploiting energy from outside their organized structure—are much more stable and can preserve themselves for much longer. Increasing complexity of the organized system allows for greater capacity for the exploitation of external energy, and prolonged preservation of the organization itself. The tendency towards organization in energy is termed *negentropy* (or "negative entropy"). Norbert Weiner, the founding father of cybernetics, describes the

drama of energy in the universe as follows:

> We are swimming upstream against a great torrent of disorganization, which tends to reduce everything to the heat death of equilibrium and sameness … This heat death in physics has a counterpart in the ethics of Kierkegaard, who pointed out that we live in a chaotic moral universe. In this, our main obligation is to establish arbitrary enclaves of order and system … Like the Red Queen, we cannot stay where we are without running as fast as we can.[7]

Weiner's image of us "running as fast as we can" captures well the accelerating pace of development, and places it on the level where Lyotard presents it: the drama of the organization and disorganization of energy in the cosmos. Ultimately, the hero of the fable is the negentropic system. Contingently, this is the human brain, since it is the most complex system in the known universe. Lyotard presents some of the main stages of increasing complexity in the historical adventure of negentropic forces in the cosmos:

> *Life*: on our planet, approximately four billion years ago, the complex and improbable systems called living cells synthesized themselves out of molecular systems.
>
> *Scissiparity*: the reproduction of single-celled organisms through division into two parts almost identical to the original.
>
> *Sexual reproduction*: the ontogenesis of living organisms proceeds from the aleatory combination of two separate genetic codes, allowing for greater differentiation of organisms and greater probability of survival of the species (more efficient processing of energy).
>
> *Humankind*: selected through evolutionary processes which favor the survival of the best-adapted (most complex, negentropic) systems. Lyotard writes that "[t]his was an extremely unlikely system—… as unlikely as it is for a four-legged creature to stand up on the soles of its rear paws."[8]
>
> *Symbolic language*: dramatically increases complexity through being *recursive* (it has the ability to recombine its elements infinitely while still making sense) and *self-referential* (being able to take itself as its object; symbolic language thus bestowed its user, the human system, with memory and critique, allowing it to deliberately modify itself and improve its performance).
>
> *The Neolithic and Industrial Revolutions*: these two revolutions marked increases in efficiency in the way humans lived together in communities, allowing the exploitation of new energy sources, and the greater preservation of the negentropic human system.
>
> *Liberal democracies*: the emergence, by the same processes of natural selection which govern the natural world, of the most efficient form of social organization. Liberal democracies, in allowing a great deal of openness and flexibility in the social organization itself, allow the most efficient way of exploiting energies and ensuring the preservation and increasing complexity of the collective human system. This system proved to be much more efficient at exploiting energy than closed systems with fixed social hierarchies.[9]

The process, of which these have been some of the most remarkable stages, is called "progress." The only thing which looks like it might now be a threat to this progress is the death of the sun in five billion years. Against this inevitable eventuality (the sun is a closed system, and its lifespan a law of physics), the human system engages in "development," preparing itself—or whatever it will be by the time it is ready to leave the earth—for existence in the cosmos. According to Lyotard, we have no right to assume that what will have survived will be human, or will even be "alive" in any sense in which we currently understand these terms. We can therefore only properly call it "the negentropic system."

2. What is Lyotard doing in recounting this strange narrative of solar catastrophe? His fable regarding the death of the sun has frequently enough been commented on, but has rarely been well understood.[10] Most commentators discuss only the brilliant and ambiguous essay "Can Thought Go On Without a Body?" but Lyotard in fact discusses this fable in numerous essays written in the late 1980s and early 1990s.[11] Lyotard remains most well-known for his claim regarding the end of metanarratives, and a common enough response to his solar fable has been the confused suspicion that he is unwittingly presenting us with another metanarrative, so soon after proclaiming their obsolescence. But in fact wit (and perhaps too much, which explains his readers' confusion) is on Lyotard's side here. He addresses this issue directly (in an essay which many seem not to have read), and gives a number of reasons why the fable is *not* a metanarrative.

What is a metanarrative? It is a "grand story" told to justify research and development, and to give meaning to human life and all of its projects and activities. For Lyotard, metanarratives are characterized by a certain understanding of time, which he calls "historicity" (according to him, a modern invention, of which the ancients were ignorant). Grand narratives are built around a metaphysics of the subject: they tell of a subject alienated from an originary, utopian wholeness, afflicted with a lack, and they present a *telos*, a denourement of the narrative in which the subject's lack is overcome and the originary wholeness restored. Modern historicity is thus an eschatology: it construes the end of time as a *redemption*. According to Lyotard, modern historicity has its origins in the Christianity of Paul and Augustine, but also manifests itself through the grand narratives of the Enlightenment (such as Marxism and Hegelianism), which construe the essential project of Humanity as one of progress and emancipation. Though often secularized, the Enlightenment metanarratives maintain an eschatological structure and a modern historicity: the individual subject of the soul affected by sin is transformed into the collective subject of Humanity, affected by ignorance, and the *telos* of redemption is no longer salvation through Christ but the emancipation of the human race through the full development of reason.

According to Lyotard, the fable of solar catastrophe is, of course, a narrative, but it is not a *meta*narrative in the same sense as those to which he claims we have become incredulous, because it presents none of the traits of modern historicity.[12] And this for the following reasons:

> 1. It is thoroughly *materialist*. It is a physical history about energy, and matter as states of energy. Humanity is presented as a complex material system; consciousness as an effect of language; and language itself as a highly complex material system.[13]
> 2. The time of this narrative is *diachrony* (not historicity). Temporal succession is based on the partitioning of regular physical movements, and not on the time of consciousness, in which past and future are synchronous with a "present" (such a time, according to the fable, is possible only for systems capable of symbolic language usage).
> 3. The fable does not have a *telos* of emancipation.[14] It *does* project an end, which is the survival (the salvation) of a highly complex negentropic system, "a kind of super-brain"[15] from the fiery hells of solar incineration. But this end is not inscribed in the "hermeneutic circle" through which it would mirror an origin, the reclaiming of a lost state of grace. Instead, Lyotard presents this end as simply a development from insensible matter, "the effect of a 'cybernetic loop' regulated toward growth."[16]
> 4. The future presented is not an object of *hope*. We cannot hope for the perfection of Humanity as the subject of history. The Human will be sacrificed for complexity. What it is that will be saved from solar catastrophe (if anything is), we can only dimly imagine.

Finally, Lyotard makes perhaps the most important point, implied by some of the above:

> 5. The hero of the story is not a *subject*. Rather, it is simply *energy*, and specifically, that tendency towards organization in transformations of energy known as negentropy. As such, the fable has nothing to do with the emancipation of Humanity as the subject of history, and even underlies the current bankruptcy of such a project (since current "development" is already oriented towards the inhuman horizon of extraterrestrial survival).[17]

Moreover, contrary to some confused commentators, Lyotard certainly does not endorse the story of solar death he tells, nor does he present it as a "fact." It is, precisely, a "fable," and it is what the section title of the book *Postmodern Fables* in which its most extended presentation appears designates it: a "system fantasy."[18] That is, it is a fable, or fantasy, told by what Lyotard often simply calls "the system," by which he means the contemporary technoscientific and capitalist system of "development." In the essay "The Wall, The Gulf, and the Sun," which contains an earlier version of "A Postmodern Fable," the fable itself is put in the mouth of the system: it begins, "The system said: ." It is not presented as factual, and Lyotard says that it does not require belief, nor is even expected to be believed.[19] Although it draws on science and the stories sometimes accredited by scientists, Lyotard notes that if they are asked, the scientists are clear that it is no more than a hypothesis.[20] Lyotard suggests that it is a fable which circulates as a rumor.[21] He also insists that it is a *metaphysical* story, by which he means (in a broadly empiricist sense) that there is no evidence to verify it, and that it fails to criticize the presuppositions implied by the terms of its own argument.[22] It is not a metaphysics of the subject, but a metaphysics of energy. And he asserts that there is no more evidence for the existence of "energy" than there is for the existence of a subject.[23]

3. Given all these ironic, sceptical, and critical caveats, then, why does Lyotard have recourse to the fable in so many places; what philosophical *work* does he want it to do? I want to suggest that the story of solar death is, according to Lyotard, the form that the metanarrative—the dream of emancipation—takes on in the postmodern era, that is, the era defined by the end of metanarratives.

It has frequently been commented with respect to Lyotard's well-known thesis on the end of metanarratives that he spoke too soon.[24] However, it is plausible to suggest that we may understand Lyotard's claim in a similar fashion to Nietzsche's proclamation of the death of God (with which it has important similarities): Nietzsche noted that the dead God's shadow would continue to haunt us a long while yet before it can be fully vanquished[25], and the same might be said of metanarratives. Lyotard's postmodern fable of solar death is presented as the "shadow" of a metanarrative: it is "the great narrative that the world persists in telling itself after the great narratives have obviously failed"[26]; "the unavowed dream that the postmodern world dreams about itself."[27] It bears both important similarities and important differences in relation to a metanarrative, and for this reason we might be justified in using the ungainly term of "post-metanarrative" in order to describe it.

In several places at least, Lyotard's opposition to the values expressed in the fable—its limitations and undesirability as a narrative of legitimation—is clear. He suggests that "in his darker moments" he imagines the human project of emancipation as merely the effect of the inhuman drama of negentropy struggling against entropy.[28] What's wrong with the fable, then? Ethically and politically: the drive towards development is governed by the principle of efficiency (or performativity, as Lyotard calls it), and what matters is only the optimum way of transforming energy such that organization is preserved and entropy kept at bay. In terms of the overall performance of the human negentropic system, it would seem to be maximized if inefficient systems are eliminated. The fable thus suggests that according to some natural right liberal democracies have achieved their own legitimacy, while—Lyotard suggests—the entire Third World, as a poorly performing system, might be eliminated.[29] As Stephen J. Gould notes, natural selection is actually a kind of natural "decimation"—"killing off nine so that the best tenth might survive."[30] If we accede to a legitimation discourse based on natural selection, then we accede to the decimation of the human population.

Moreover, Lyotard suggests some "existential" reasons for a critical reaction to the fable: the understanding of human life as simply a part of the drama of complexity risks eliminating those things which currently make human life valuable and worthwhile. As Lyotard says, we do not know if what leaves the earth in the great exodus before the sun's final death throes will be capable of truly thinking, of feeling, or will even be "alive" in any recognizable sense. Yet Lyotard does not oppose the inhuman threat of development with the humanism of phenomenology, hermeneutics, or existentialism; of the subject, consciousness, the lifeworld, and so on. Instead, he opposes it with an alternative conception of the inhuman, which draws on Freudian psychoanalysis and on movements in the arts such as cubism. What he values, and fears will be eliminated by development,

are what he sees (in a psychoanalytic sense) as the conditions of thought and art: sexual difference, suffering, and childhood.[31] Lyotard insists that we should not decide in advance what artificial bodies might be capable of, but rather simply insist on what they *must* be capable of if what is valuable in the current version of the Brain and Its Human is not to be fully betrayed. Lyotard speaks of thought and art as another kind of complexity, and defends it in the name of another kind of "inhuman." In short, he seeks *resistance* to the fable, understood as an explanation for our contemporary nihilism, i.e. what's wrong with the current socio-political-existential condition. He explains his use of the fable as a *strategy*, and one which deliberately presents the enemy as strongly as possible in order to present the strongest possible resistance.[32] (Even if things are really as dire as this, we might still resist …)

> Crucially for our interests here, Lyotard argues that the "time implied in the story no longer has a human shape."[33] In recounting this fable as an "explanation" for the contemporary condition, Lyotard is giving us at least one reason for the end of "human" time: *the end of metanarratives means the end of historicity as the modern imaginary of time, and the opening of our understanding of time onto a horizon (the death of the sun) which seems to destroy humanism (the image of man as the source and limit of meaning and value)*. The fable of the solar catastrophe rips our existential reflections from a rootedness in the earth (à la Husserl, Heidegger) and submits them to an alien takeover by inhuman forces. Yet Lyotard, despite his ironic and subtle critiques of this fable, and his gestures towards inhuman resistance, leaves the question of *how* we ought to respond to it largely in question. He presents it as something which asks to be reflected on.

4. If Lyotard is trying to present the (post-)metanarrative which governs contemporary life, why does he choose what might appear to many to be such a strange story, perhaps little more than a bizarre science fiction? In fact, such a story is presented by others, who (unlike Lyotard) ask us to take it seriously. First, Charles Jencks, the preeminent theorist of architectural postmodernism, presents such a story precisely *as* a persistent metanarrative (and quite explicitly against Lyotard and others who proclaimed their bankruptcy) in the final chapter of his book *What Is Postmodernism?*[34]Jencks agrees with Lyotard and others that both religious and Enlightenment metanarratives have lost much of their currency (their power to be believed), but suggests that the cosmological story of the universe might be a credible metanarrative for contemporary times. He writes that:

> It certainly would replace humanism—man the measure of all things —with the larger picture in which the cosmos is the measure of all things. It could possibly give direction, orientation and meaning to human activity, but not result in a reductive anthropocentrism.[35]

Drawing on Brian Swimme and Thomas Berry's *The Universe Story, From the Primordial Flaring Forth to the Ecozoic Era*,[36] Jencks states that there is a kind of teleological or purposeful growth in the tendency of matter to self-organize, and the story of the universe recounts "the tendency of all material systems to develop towards greater complexity."[37] This tendency is expressed first through "crystallized evolution"—the formation of stars and planets as a result of the interactions of the four fundamental forces of the universe (gravity, electromagnetic force, the strong and weak nuclear forces)—and then also through the "natural evolution" of organic life.

For Jencks, despite the catastrophic decimations Gould notes (see above), the universe story is an optimistic one, in which the universe progresses insofar as it creates ever-greater complexity, feeling, sensitivity, mental power and organization.[38] Moreover, Jencks asserts that while scientists themselves might not see it, the universe story is "spiritual,"

> [b]ecause the universe is a single, unbroken, creative event which is still unfolding with human beings as essential parts of its story; because it inevitably produces surprising, humorous creations of beauty; because its laws are mysteriously complex and finely tuned; because it is so enjoyable and because there is strong evidence that, given enough time, it must produce culture.[39]

In support of his vision, Jencks cites Ilya Prigogine and Isabelle Stengers, the complexity scientists at the Santa Fe Institute, supporters of the cosmological anthropic principle, scientists such as Freeman Dyson, Paul Davies, and Fred Hoyle, and evolutionists such as Allan Wilson.[40] Jencks draws on this last to emphasize the important role the brain plays in evolution (as does Lyotard's fable). He asserts that the tendency of complex adaptive systems (CAS) to learn and create is a "spiritual quest."[41] Moreover, Jencks criticizes philosophers such as Heidegger, Wittgenstein, Sartre, and Derrida for over-emphasizing contingency and our alienation from the universe, and for refusing to acknowledge the beautiful emergent cosmic order.[42]

In sum, what Jencks recounts is the story of cosmogenesis: the generative nature of nature.[43] For him it is a teleological or purposive narrative, where the purpose is the production of complexity, understood not only in inhuman terms as ordered systems for the efficient transformation of energy, but as necessarily and inevitably producing human beings, consciousness, culture, creativity, and beauty. While it displaces humanism by asserting that the human being is no longer the measure of all things, it does give human beings, and the things we have traditionally valued, a home in nature. Because of this, and because of the supposedly superior plausibility of this narrative over the religious and modernist ones (to paraphrase Lyotard, Jencks is suggesting that the universe story is a metanarrative towards which we may still be credulous), for Jencks, this metanarrative is a story "that can orient a global civilization."[44]

From a Lyotardian perspective, Jencks's "new metanarrative" begs for critique. First, it is simply not presented with compelling intellectual rigor. It is as though Jencks has applied a principle of double coding, a kind of pastiche, to concepts—anything can be mixed with anything else, regardless of apparent lack of fit.[45] For example, he asserts that the initial conditions of the universe—from which what is commonly called the "Big Bang" emerged—might be called "the Mind of God" or "the Platonic World of the Forms," and that it contained "the laws of justice, harmony, balance, aesthetics."[46] From a philosophical perspective, such unlikely claims need a great deal more argumentative support than Jencks gives them. Perhaps most significantly, however, Jencks's "universe story" seems to contain a version of the Hegelian apologetics to which Lyotard refuses to accede: for Jencks, the universe is justified by its production of complexity, despite the decimation of life required for such a production (just as for Hegel all the evil in the world is justified by the dialectical motor of history[47]). For Lyotard, an ethical sensitivity demands that we not accept such an apologetics; to do so is to justify the existence of evil, and to risk perpetuating it. (Jencks in fact presents this apologetics in banal bad taste, appealing to his readers not to let nature's "undeniable nasty part" distract us from the beauty to be heard in the sounds of birds and dolphins.[48]) Ironically, perhaps, Jencks' dangerously blithe presentation of a new metanarrative helps us to understand the significance and force of Lyotard's critical engagement with the post-metanarrative of the fable of solar catastrophe.

5. Second, a story similar to Lyotard's fable is evident in some forms of transhumanism. Although Lyotard never indicates precisely where he derived the ideas presented in the fable, one possibility is that he picked them up while working in California in the 1980s (he held posts at the University of California, Irvine and San Diego), a time and place during which the loose collection of ideas collectively known as transhumanism began to coalesce. A landmark in this coalescence was the publication, in 1990, of Ed Regis's satirical volume recounting the way-out ideas of various fringe scientists in the California area, *Great Mambo Chicken and the Transhuman Condition*.[49] Ansell Pearson's discussion of Lyotard in his essay collection *Viroid Life: Reflections on Nietzsche and the Transhuman Condition* calls attention to the similarities between Lyotard's fable and transhumanism. Broadly speaking, the key idea of transhumanism is the desirability of transcending the human condition through the development and application of new technologies. This includes, but is not limited to, the artificial enhancements and transformations of the human body by technological means which Lyotard discusses in his fable. One significant branch of transhumanism, known as "extropianism," presents an evaluative structure based on energetic concepts, similar to the one Lyotard recounts: "extropy" designates the opposite of entropy (it is thus an alternative term for negentropy), and extropian transhumanism seeks to use technology to promote "extropian principles."[50] Transhumanists are overtly concerned with life extension and survival, the most extreme expression of which is the "Omega Point" cosmology proposed by Frank J. Tipler.

Tipler argues that intelligent life will eventually colonize the cosmos, use elementary particles as information-processors, and run a simulation which will effectively resurrect the dead by emulating all the possible alternate universes since the Big Bang. Tipler identifies this "Omega Point" with God and the Christian conception of Heaven, since he sees most of the traditional criteria for such as being fulfilled in this way.[51]

Like so many others, Ansell Pearson unfortunately misreads Lyotard by taking him too literally (a misreading for which Lyotard's texts, with their subtle irony, must take at least a little responsibility), and misses the critical dimension. Let us get the details of this misreading out of the way first, in order better to concentrate on the positive contributions Ansell Pearson offers to the problems we are considering here. After briefly recounting Lyotard's fable of the escape of the negentropic system from the solar catastrophe as presented in the essay "Time Today," Ansell Pearson complains that

> [i]n the case of Lyotard's thinking on time today, the monstrous logic of capitalism is granted a logic of autonomy which in reality it does not enjoy. His presentation of the inhuman time of our neg-entropic destiny results in an abstract and ahistorical opposition between a pure ethicism on the one hand and the unstoppable—because cosmic—accumulation process on the other. Is this not to be seduced by capital's own desire to construct itself as the transcendental ground of all change and innovation?[52]

And further:

> The real problem with Lyotard's fantastical account is that it ascribes to capital a vitalism and a teleology. He thus ends up, ironically, offering us the kind of meta-narrative which he had sought to show in the earlier essay on the postmodern condition was now discredited. Grand narratives concerning a neg-entropic future end up being complicit with the image that the system of control likes to project of itself, that is, portraying advanced technological life as if it were simply a mere continuation of natural history.[53]

We need only recall Lyotard's description of the fable as precisely that, and as motivated by a strategy for making the enemy appear as strong as possible in order to critique it as strongly as possible, in order to see where Ansell Pearson goes wrong here. (Moreover, Lyotard can hardly be guilty of unknowing complicity with the image the system of control likes to project of itself when he presents the fable explicitly *as* the image the system projects of itself.) The far greater interest of Ansell Pearson's otherwise brilliant collection of essays, however, concerns his critiques of the discourse of transhumanism, which we can read as usefully applicable to Lyotard's fable (despite his misinterpretations). As such, Ansell Pearson provides a way of interpreting the fable according to the value-structure which it embodies, and also a certain way of resisting this value structure (a way which is far more literally and factually oriented than Lyotard's ironic and suggestive strategies).

Throughout the essays in *Viroid Life*, Ansell Pearson delivers a scathing critique of transhumanism, conducted on two primary fronts: on one, he deploys Nietzsche's critique of anthropomorphic thinking to find deep-seated anthropocentrisms in the discourses which proclaim the transcendence of the human; on the other, he effectively attacks the supposedly scientific basis of transhumanist discourse by exposing many of its main contentions as factually outdated or simply false on the basis of contemporary science. Both of these lines of argument might be applied to Lyotard's fable.

6. In contrast to Lyotard, Ansell Pearson asserts that the transhumanist discourses of evolution as increasing negentropy and complexity *are* a new form of metanarrative, and this because they project anthropocentric biases onto supposedly natural processes, giving human life meaning in the context of the natural universe. Where Lyotard sees the erasure of the figure of the human in the valorization of negentropy, Ansell Pearson sees a deeper and more hidden inscription of the human in the supposedly inhuman. Transhumanist discourse is a metanarrative because it remains teleological, citing complex organization as the purposiveness of the

universe itself, and giving meaning to human life as an essential part of the development of this goal (even if "the human" as such is destined to transcend itself). According to Ansell Pearson, "[t]he new grand narratives are as anthropomorphic as hell."[54] What is most anthropomorphic in this metanarrative is the very ascription of *purpose* to the universe, which is—from a Nietzschean perspective—an anthropocentric conceit, finding no basis in fact, but rather existing because of the deep-seated human *desire* for purpose and tendency to interpret the world in purposive terms.

Ansell Pearson further argues that transhumanism is an expression of the ascetic ideal (that is, it preserves the religious values Nietzsche criticized and sought to overcome).[55] The ascetic ideal cannot affirm suffering in life, and hence devalues life in its wholeness, projecting a better world elsewhere. Transhumanism preserves and reflects the ascetic ideal insofar as it seeks to leave the corporeal and earthly conditions of human existence and become "pure mind" in the form of informational abstraction. Moreover, we may understand transhumanism as a manifestation of the ascetic ideal insofar as it denies the value and legitimacy of entropic processes, of degeneration, deregulation, disorder, and death, seeing value only in order, preservation, and growth. For Nietzsche, this structure of values can be effective in preserving life, but it maintains the will to power at a low level, hampering its creativity and flourishing. Transhumanism reflects and perpetuates those Christian and Platonic values which, according to Nietzsche, preserve life at the cost of mutilating and destroying what is most valuable *in* life, its capacity for creative transformation.

The narrative of the adventure of negentropy is pernicious because it provides a supposedly naturalist ground for what are really just human, all-too-human values, insulating them from much needed critique and interrogation. As Ansell Pearson characterizes it, transhumanism in its most popular form is the new "Platonism for the people" (a characterization Nietzsche once famously applied to Christianity).[56] Ansell Pearson also notes, here following Lyotard, that this discourse also functions as an apologetics for capitalism and imperialism, by claiming that the liberal democracies to which they have become wedded are the "chosen" (and hence, solely legitimate) forms of social and political organization of the natural forces of the universe.[57]

Moreover, Ansell Pearson calls into question the factual legitimacy of the supposedly scientific claims on which transhumanism founds itself. First, he questions that the story of the development of life in the universe can plausibly be read as a kind of necessary, progressive development. Transhumanists tend to assert that the production of complex systems such as that of human beings was somehow inevitable: while only a stage within the cosmic drama, we appear as a *necessary* stage, within an arc of gradually increasing complex systems. Ansell Pearson calls this gradualist, progressivist interpretation of the history of the universe into question by citing scientific works which suggest, to the contrary, that cosmic history is in fact a highly contingent series of events, displaying nothing of gradualness, progress, or inevitability. For example, the geophysicist Stuart Ross Taylor suggests that if the asteroid thought to be responsible for the extinction of the dinosaurs had missed colliding with the earth in its path through space, human life would likely never have evolved in its current form.[58]

7. Moreover, and perhaps *most* tellingly, Ansell Pearson points out that the idea that nature "selects" in such a way that it progressively develops complexity is not upheld by current science.[59] The idea that the "arrow of complexity" drives evolution is a Lamarckian (hence, pre-Darwinian) idea, which is not supported by Darwin or by more recent biology. Significantly, as anyone who has anything more than a popular, superficial grasp of Darwinian evolutionary theory ought to know, Darwin effectively eliminated teleology from natural processes by demonstrating how complex systems *could* arise through blind and arbitrary processes of natural selection operating over vast expanses of time. However, evolution does not *select* complexity; some simple organisms survive much better than complex ones in certain environments, and in fact evolution can have a difficult time explaining complexity when simple systems often seem better-adapted for survival.[60] Moreover, evolution does not consist in a progressive adaptation of an organism to its environment, since environmental factors are also constantly in flux.

Finally, Ansell Pearson indicates that the work of Ilya Prigogine—popularized in his book with Isabelle Stengers, *Order Out of Chaos*[61]—enables us to question the supposed antagonism of entropy and negentropy which forms the matrix of the transhumanist fable. The work on dissipative structures by Prigogine and Stengers shows that entropy and negentropy are not antagonists, but "partners in crime": in dissipative systems, entropic processes can contribute to the formation of complex adaptive systems. According to Prigogine's research, then, entropy is not simply the enemy of organization; the two processes admit of a complex interweaving.[62]

8. What Ansell Pearson's discussion of transhumanism interrogates is the attempt to recuperate traditional structures of meaning—religious and modern —within the context of new scientific developments. In terms of time, what this effectively means is that *transhumanism tries to make cosmic time conform to the basic structural model of modern, eschatological temporality.* It does so by ascribing purposiveness to natural processes, identifying the subject of history with negentropic complexity, and projecting the redemption of this complexity through its eventual salvation from the entropic forces of the universe. Entropy is easily and loosely identified with original sin, originary lack, or the basic *problem* of existence from which existence needs to be redeemed, and this redemption is understood as the development of negentropy to the point at which it is able to save and preserve itself from the menace of entropy. Just as much as any religious narrative, the fable can be understood as promising salvation from death. In this way, transhumanism can be seen as a discourse which tries to show how our present sense of what gives meaning and value to human life can survive the death of our bodies and the evolutionary take-over of the flesh by metal and silicon.

In short, what Ansell Pearson effectively demonstrates is that, despite Lyotard's insistence that the fable itself is not a metanarrative, and that it calls into question the human, *it can be and is* understood by many as a metanarrative, suffused with anthropocentric bias. Thus, a humanism, based in human, all-too-human values, stubbornly persists in the face of the thought of the end of time. The problem with trying to save meaning by anthropomorphising cosmic time into eschatological historicity is two-fold: first, it preserves values which we might be better off without, and second, it is already implausible and will forever be fighting a rear-guard action, since it depends upon (and is all too ready to indulge in) an illegitimate "fudging" of scientific facts. However, Ansell Pearson also shows a way of resisting this dangerous persistence of humanism through both Nietzschean value-critique and appeals to science itself in order to demystify the pseudo-scientific post-metanarrative, restoring to us our *properly* inhuman, or posthuman, future(s).

9. Ray Brassier takes up Lyotard's fable in the essay "Solar Catastrophe: Lyotard, Freud, and the Death Drive"[63] and in the final chapter of his book *Nihil Unbound*[64] (which is a reworked version of the essay, contextualized within the overall argument of the book). Brassier in a sense takes up Lyotard's fable in the opposite direction to Ansell Pearson, radicalizing its inhuman potential and mobilizing it in service to the destruction of the "manifest image" of the human. This manifest image—as contrasted with the scientific image, a distinction introduced by Wilfrid Sellars—is the image of human beings as they have typically perceived themselves up to now, possessing psychological attributes such as "beliefs," "desires," and "intentions." This image views human beings as *persons*, as loci of rational agency, and fulfils a normative role insofar as it grounds our view of human activities as purposive and meaningful. In other words, the manifest image is the "humanist" image of the human. The scientific image, by contrast, views human beings simply as complex physical systems. While Sellars wants to recognize both images as essential, Brassier wants to destroy the former in light of the latter.[65]

Through Brassier (and significantly, via Meillassoux), we see that the displacement effectuated by the discovery of cosmic time has the potential to destroy both the manifest image of the human, and the very metatheory of meaning which has supported discourses on human meaning and value since Kant ("correlationism," and phenomenology in particular). Rather than decry such an eventuality under the name of nihilism, as so many have done, Brassier asserts the legitimacy of nihilism and pushes it to the limit. For Brassier, "the disenchantment of the world deserves to be celebrated as an achievement of intellectual maturity, not bewailed as an intellectual impoverishment."[66] Brassier understands nihilism primarily as "the unavoidable corollary of the realist conviction that there is a mind-independent reality, which, despite the presumptions of human

narcissism, is indifferent to our existence and oblivious to the 'values' and 'meanings' which we would drape over it in order to make it more hospitable."[67] Brassier asserts (following Nietzsche) that the interests of thought and of life are not necessarily in concert, but, in contrast to Nietzsche, unambiguously takes the side of thought, and expresses contempt for attempts to take the side of life:

> Philosophy would do well to desist from issuing any further injunctions about the need to re-establish the meaningfulness of existence, the purposefulness of life, or mend the shattered concord between man and nature. It should strive to be more than a sop to the pathetic twinge of human self-esteem. Nihilism is not an existential quandary but a speculative opportunity.[68]

10. Brassier attacks the humanist attempt to defend the lifeworld against the encroachments of positivism and naturalism in twentieth-century philosophy by way of Quentin Meillassoux's attack on correlationism in *After Finitude*. Meillassoux explains correlationism as follows:

> By 'correlation' we mean the idea according to which we only ever have access to the correlation between thinking and being, and never to either term considered apart from the other. We will henceforth call *correlationism* any current of thought which maintains the unsurpassable character of the correlation so defined.[69]

Meillassoux identifies the origins of correlationism primarily in the Kantian attempt to disqualify dogmatic metaphysics. Kant introduced a new sense of objectivity, whereby it no longer indexed extra-subjectivity, but rather intersubjective agreement (that is, agreement of subjects within the correlation, rather than reference to what lies outside it).[70] Correlationism, he asserts, is the dominant characteristic of all post-critical philosophy (which according to him is most contemporary philosophy, the most significant currents of which have been phenomenology—which identifies consciousness as the medium of correlation—and various currents of analytic philosophy—which identify language as the medium.)[71] By mounting an argument against correlation, Meillassoux seeks to restore the privileges of speculative metaphysics, which claims to think things in themselves, outside the correlation. Meillassoux is thus an appropriate resource for Brassier's valorization of nihilism as "speculative realism," the assertion that we can think mind-independent reality. Furthermore, however, he shows how an extension of Meillassoux's work on the significance of "deep time" effectively destroys the correlationist theory of meaning which has upheld the manifest image of man, with its humanist meanings and values, in nineteenth- and twentieth-century philosophy, the most prominent representative of which is phenomenology. But let us begin with Meillassoux's argument against correlationism.

This proceeds by way of the "deep time" of the age of the earth confirmed in the 1930s.[72] He defines the key terms of his argument here as follows:

> – I will call 'ancestral' any reality anterior to the emergence of the human species – or even anterior to every organized form of life on earth.
>
> – I will call 'arche-fossil' or 'fossil-matter' not just materials indicating the traces of past life, according to the familiar sense of the term 'fossil,' but materials indicating the existence of an ancestral reality or event; one that is anterior to terrestrial life. An *arche*-fossil thus designates the material support on the basis of which the experiments that yield estimates of ancestral phenomena proceed—for example, an isotope whose rate of radioactive decay we know, or the luminous emission of a star that informs us as to the date of its formation.[73]

According to Meillassoux, the revelation of ancestrality (the "deep time" of the past) by the arche-fossil presents a problem for the correlationist because what it tells of is a time before the emergence of the correlation (that is, before the emergence of human thought), and is thus something which cannot be contained *within* the correlation as such. For the correlationist, the correlation itself is the condition of the intelligibility of any

knowledge claim; claims which fall outside the correlation are to be dismissed as dogmatic metaphysics. The correlationist must therefore modify the (naïve realist) claims of the scientist by adding to any claims about ancestrality the epistemic caveat "*for us*" (that is, any claims supposedly about a time before the correlation emerged must be reformulated *within* the correlation, and retrojected onto the past). Yet for Meillassoux, this will not do. To see what is wrong with this correlationist move, all we need to do is to ask (phrasing the general question by way of a specific example): "*what is it that happened 4.56 billion years ago?* Did the accretion of the earth happen, *yes or no?*"[74]

Meillassoux suggests that the correlationist is likely to say both yes *and* no; yes in the sense that science gives us objective facts (objective understood as intersubjectively verifiable), and no in the sense that ancestral events could not possibly have actually taken place in the way science describes (because, the correlationist must insist, they are described from within, and thus conditioned by, the correlation, but what they describe was prior to the correlation and thus not itself conditioned by it). For the correlationist, what science describes as ancestral has no possible object and is a *non-sense* (since objectivity and sense are themselves held to only make sense from within the correlation). Meillassoux suggests that the correlationist will split the scientific claim into two senses: a superficial, naïve realist sense which the scientist herself might believe, and the more profound philosophical, correlationist sense. Yet Meillassoux insists that this precarious partitioning is unacceptable. He explains: "if ancestral statements derived their value solely from the current universality of their verification they would be completely devoid of interest for the scientists who take the trouble to validate them."[75] Thus, the correlationist attempt to compromise with the scientist's ancestral claim evacuates any relevance and meaning from the claim, which (according to Meillassoux) needs to be literal and realist if it is to have any scientific value. Therefore, Meillassoux insists, "[t]here is no possible compromise between the correlation and the arche-fossil: once one has acknowledged one, one has thereby disqualified the other."[76] Thus if Meillassoux is correct, the scientific revelation of the deep time of the earth invalidates correlationism, including the existential-phenomenological framework of human meaning.

11. Yet Brassier thinks that Meillassoux's argument from the arche-fossil is not on its own strong enough to refute correlationism. In short, he contends that the argument from anteriority can too easily be appropriated by the correlationist, since—however unhappy scientists may be with this, and despite Meillassoux's inadequate rejoinders—the correlationist can always say that it is possible to *think* being before the correlation existed, so that anterior being is postulated as being *for us*.[77] In order to expand the argument against correlationism so that it has a properly devastating force, Brassier points to a time we *cannot think*: this, he believes, is the future extinction of the human race. It is here that he has recourse to Lyotard's fable of "solar catastrophe." He writes that "[w]hat defies correlation is the thought that [and here he quotes Lyotard:] 'after the sun's death, there will be no thought left to know its death took place.'"[78] While Lyotard contemplates the possibility that thought might survive solar death, Brassier asserts that this is irrelevant, since in any case it will not survive the heat death of the universe in one trillion, trillion, trillion (10^{1728}) years from now, when entropic forces in the universe will have made the formation of matter impossible, and we will have reached the end of space-time as we know it.[79] At the end of time, Brassier proposes, there will be an insurmountable external limit to thought. He calls this limit *extinction*.[80]

Extinction, for Brassier, is not the death of a biological species, but something which *levels* the supposed transcendence of human beings (consciousness or *Dasein*) as the locus of correlation, by reducing it to the level of natural phenomena. The key point for Brassier here is that—unlike ancestrality—the thought of extinction, taken as an object, transforms *thought itself* into an object. He writes:

> Extinction turns thinking inside out, objectifying it as a perishable thing in the world like any other (and no longer the imperishable condition of perishing). This is an externalization that cannot be appropriated by thought … because it indexes the autonomy of the object in its capacity to transform thought itself into a thing.[81]

Whenever in time the extinction of thought will occur, Brassier contends, it has a transcendental status, in the sense that it is *as if it has already happened*. And this is precisely because of the leveling effect he points to: the very fact that we know thought will suffer the catastrophe of extinction, whenever it will occur, shows that thought itself *never is* anything more than another perishable object. As Brassier phrases it, the inevitable fact of extinction means that *everything is already dead*. Again he quotes Lyotard:

> Everything's dead already if this infinite reserve from which you now draw energy to defer answers, if in short thought as quest, dies out with the sun.[82]

This, then, is why Lyotard's solar death gives a stronger argument against correlationism than Meillassoux's arche-fossil: ancestrality says there is a time before thought, but leaves the correlation more-or-less intact, just limited in its scope. But according to Brassier, the inevitability of future extinction is more than an empirical fact, it has transcendental scope; it ruins the privilege of thought and cedes it to the object. In short, Brassier argues that there is a much more radical disjunction between the time of *extinction* and the space-time of correlation than between *ancestrality* and the space-time of correlation. While the later can be reduced to and incorporated within chronology, and can become a relatively unproblematic thought *for us*, the former cannot be reduced to chronology or to a thought that can be grasped *for us*. This argument hinges on time, because transcendence is bounded by human time, and leveled by cosmic time.

12. In order to construe thought as something which can go beyond correlationism (and thus be capable of realist speculation), and to give an account of what motivates such thought, Brassier has recourse to a reading of Freud's death drive, and an interpretation of Lyotard's solar catastrophe in terms of this. He explains the points that interest him in Freud's explanation of the death drive in *Beyond the Pleasure Principle*[83] as follows. Freud arrives at the hypothesis of the death drive by posing the question of traumatic repetition: why are people driven to a psychic repetition (for example, in dreams) of traumatic experiences? His answer is that such repetitions are an attempt to retroactively protect the organism from the trauma itself, by generating the degree of anxiety required to bind the excess energy released by the traumatic event. A traumatic event is one for which the organism is not prepared; it introduces into the psychic apparatus an excess of energy which it does not have the resources to bind, to incorporate into its psychic economy. Traumatic repetition is thus an attempt to bind this excess energy so that it ceases to trouble and destabilize the psychic apparatus.

Second, Brassier highlights and develops Freud's speculative suggestions regarding the origins of organic life in the same essay. According to Freud, the birth of organic life is dependent on, and coincides with, the death of outer layers of the organism which are thereby able to act as filters, protecting the organism from excess bombardment by exogenous stimuli. Organic individuation is thus dependent on, and generated by, a kind of death. Brassier argues that it is the originary split between the organic and inorganic, indexed on the death of the external part of the organism, which makes this possible, and which constitutes a kind of "aboriginal trauma" on which any other traumatic repetition is based. What thought does, essentially, is attempt to bind death, to come to terms with death itself, understood as the inorganic origin of the organic. This, then, is the death drive: the process by which thought attempts to bind, invest, come to terms with, death itself. On this reading, thought is the product of the traumatic trace of the inorganic in the organic; it is motivated by the attempt to bind the aboriginal death synchronous with the birth of the organism.[84]

Next, Brassier transposes Freud's death drive to the solar/cosmic register. According to him, Lyotard's solar catastrophe is an analog to the aboriginal trauma of death as the death of part of the organism in organic individuation. Brassier, through his reading of Freud, suggests that philosophy's task is to "bind" (invest, cathect) extinction, understood as aboriginal trauma. According to Brassier, thought can successfully bind the trauma of extinction by *becoming* death; that is, by effectuating an "identity-without-synthesis" with the object. The possibility of this is explained with recourse to François Laruelle's "non-philosophy," a new form of transcendental reasoning which solves the problem of access for Brassier's speculative realism (the details of which would take us too far afield of the present discussion to enter into here).[85] The death drive understood

in this sense is what gives Brassier's nihilist project its motive force. Following but displacing Nietzsche, he revalues the will to know *as* the will to nothingness, asserting its primacy over the will to life-affirmation. In effect, Brassier aligns thought with death and nothingness, and champions it over life, value, and meaning.

13. Brassier argues that attack on correlationism destroys the position from which many of the most influential twentieth-century responses to nihilism have proceeded: in particular phenomenology and existentialism, but arguably also the philosophies of the linguistic turn, including at least some forms of poststructuralism. And more generally, a quite broad form of humanism, in which human thought and language in general (and not just the consciousness of the individual) receive a privileged place. This is so because correlationism gives a special status to the human as the locus in which *all* meaning becomes operative: it responds it the nihilistic encroachment of the sciences by arguing that even scientific knowledge is a secondary derivative of the primary givenness of the correlation as such. Briefly put, correlationism provides an argumentative framework in which it can seemingly be shown that human meaning trumps scientific discourse.[86] Brassier wants to show that this argumentative framework collapses, and the order of trumping is reversed. For Nietzsche, the nihilism of contemporary natural science is expressed in that fact that "[s]ince Copernicus man has been rolling form the centre toward *X*."[87] For Brassier, this X might be understood as the in-itself which Kant also designated as an X, because, he believed, we could not know it.[88] Brassier's nihilism means that the destruction of the manifest image of man ("we" roll further from "Man" *as* centre) gets us closer to an adequate thinking of the X. At the same time, the more adequately we think the X, the further we roll into our nihilism, away from our familiar horizon of meanings and values. For Brassier, this price is worth paying for the gain thought makes in rational intelligibility.[89]

14. To return, in conclusion, to Lyotard. First, Lyotard's ironic, fabling, writerly response to the "post-metanarratives"of development as physical eschatology might appear to be a much less effective rejoinder than Ansell Pearson's direct debunking on the basis of hard science. Yet, there is a very deliberate strategy at work here, one which we may see as analogous to Lyotard's treatment of Holocaust deniers (in particular, Robert Faurisson). In the latter case, Lyotard resists the usual move of most historians simply to stake the claims of historical evidence for the reality of the Holocaust against the deniers, since he does not believe that any appeal to historical evidence captures what it is about the Holocaust which needs to be acknowledged and remembered: not its reality as a historical event, but the unthinkable magnitude of its very *wrongness*.[90] Similarly, in critiquing the post-metanarrative, it is not the scientific veracity or otherwise which Lyotard sees as being at stake. Rather, the stake concerns the values it embodies, and their political and existential implications. Lyotard's strategy is thus in line with his general agreement with the critique of metaphysics (following Kant, Heidegger, and Adorno, among others), and with the fact/value distinction (most famously proposed by Hume). Lyotard seeks to critically engage with a metaphysical story which claims to ground values (as we have seen, this claim is explicitly made by Jencks) from a perspective which rejects the possibility of any such grounding. Thus, he does not seek to simply challenge the factual bases of the (meta)physical story, but rather to draw out the value-implications of such a story and try to show that they lead to undesirable consequences, ones which would likely not be endorsed by most promulgators of the post-metanarrative themselves.

Ansell Pearson's admirable method of scientific refutation certainly has its power and its uses, but it maintains the problematic in its present position. In order to respond, the transhumanists (and others) need simply update their science. Whether or not the latest scientific developments can be reconciled with "historicity" is largely a matter of interpretation. As the example of Jencks shows, there is a great deal of flexibility possible here, and there is every reason to believe that, with enough interpretive ingenuity, almost any new scientific development could be incorporated within such a framework. Lyotard's strategy, while more subtle and elusive, has the advantage of shifting the ground of the debate. If successful, such a shift should make us realise the necessity of thinking values on their own terms, in separation from physical and metaphysical discourses, while increasing our critical awareness of any and all attempts to ground values in such a way.

We may summarise the various other perspectives we have reviewed here in the following way: Jencks and

the transhumanists try to resolve the crisis for the meaning of human existence announced by the end of time by trying to collapse the new image of existence into the old structures of meaning, while Brassier wants to eradicate the old structures of meaning entirely for the sake of the new image of existence. Lyotard, however, offers a third way: he insists on the intractability and incommensurability of both categories, of meaning and existence. On the side of existence, Lyotard departs from Jencks, the transhumanists, and those who think cosmic time can be reconciled with human historicity, as well as those such as Husserl, Merleau-Ponty and Hadot who believe that it can be bracketed as irrelevant to the human construction of meaning. For Lyotard, contemporary science needs to be taken seriously, and has a real gravitational force which pulls contemporary thought from its orbit around the manifest image of the human. However, on the side of meaning, Lyotard would likely have objected to Brassier's nihilism (as he did against positivist reductions of meaning to science) that it illegitimately levels all forms of reason to a single conception (the will to *knowledge*, or as Lyotard would put it, the cognitive genre). One of the key elements of Lyotard's thought is the defence of a kind of rational pluralism, in which modes of thought such as the ethical and the aesthetic are defended in their own specificity, as heterogenous to, and incommensurable with, the cognitive.[91]

A Lyotardian strategy, then, would be *to insist on the abyss between meaning and existence*,[92] to hold them as incommensurable, to allow thought a space where it has responsibility only to itself and not to life (a *speculative* space), as well as a space where life has responsibility to itself and not to thought: yet not to strictly police their boundaries, keeping them hermetically isolated, but to attempt to think them together *as incommensurable*: this is what Lyotard calls "judgment." Judgment is a way of thinking in which we acknowledge that we have no recourse to a common measure between the things we judge (which would give us a criterion upon which to base our judgment).[93] Despite its largely Kantian origin, judgment need not be a thought which reduces everything to correlation, but rather one which seeks to think the implications of the inside and the outside of the correlation for each other, refusing any common measure which would *reduce* the one side to the other. Judgment is a way to think both the manifest and the scientific images of man, to allow them to oscillate, without the teleology of either modernist historicity or the eliminativist program, but rather with an (at least) equal concern to develop what the revelation of the scientific image of man, and of cosmic time, means *for us*, such that although radically displaced, the time of our lives is not, for all that, quite over yet.

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NOTES

1. Jean-François Lyotard, "Emma: Between Philosophy and Psychoanalysis" Trans. Michael Sanders (with Richard Brons and Norah Martin) in *Lyotard: Philosophy, Politics, and the Sublime*. Ed. Hugh J. Silverman. New York: Routledge, 2002, 30.
2. This paper, in an earlier version, was first presented at the 2011 Australasian Society for Continental Philosophy conference, "The Time of Our Lives."
3. Pierre Hadot, *Philosophy as a Way of Life: Spiritual Exercises from Socrates to Foucault*. Ed. Arnold I. Davidson. Trans. Michael Chase. Oxford UK and Cambridge USA: Blackwell, 1995, 253. Hadot references Edmund Husserl, "Foundational Investigations of the Phenomenological Origin of the Spatiality of Nature" Trans. Frederick Kersten in *Husserl: Shorter Works*. Ed. Peter McCormick and Frederick A. Elliston. Notre Dame, IN: University of Notre Dame Press, 1981; and Maurice Merleau-Ponty, *Phenomenology of Perception*. Trans. Donald A. Landes. New York: Routledge, 2012.
4. Whether or not science does in fact leave everyday perception intact is an issue I will leave to one side here in order to focus on some different issues concerning time and meaning Lyotard develops. However, we may note in passing that Lyotard does not agree with Hadot's assessment. For further discussion of this issue, see my essay "Nihilism and the Sublime in Lyotard," *Angelaki: Journal of the Theoretical Humanities* 16: 2 (2011, 51–71); especially the section "The crisis of perception: the sublime as nihilism," 56–60.
5. Lyotard always gives the figure as 4.5 billion years, but current science puts it at 5 billion. Lyotard also suggests that the sun will explode and the earth will be engulfed in a nova ("A Postmodern Fable," p. 83). In fact, the sun does not have enough mass to go nova, and when, in 5 billion years, it no longer has enough fuel to continue its fusion reaction of hydrogen into helium, it will expand and become a red giant, before contracting to become a white dwarf. However, the fate of the Earth remains the same: it will be incinerated as it is engulfed by the expanding photosphere. While there has been some speculation that the Earth might survive because the reduction of the sun's mass will allow it to enter a wider orbit, recent research has shown that this will still not prevent the Earth from being engulfed. See K.-P. Shröder and Robert Cannon Smith, "Distant Future of the Sun and Earth Revisited," *Monthly Notices of the Royal Astronomical Society* 386.1 (May 2008, 155–163), in particular, section 4.3 'Doomsday confirmed,' 160–161. However, Shröder and Smith do note the possibility (suggested by D.G. Korycansky, G., Laughlin and F.C. Adams, "Astronomical Engineering: A Strategy for Modifying Planetary Orbits," *Astrophysics and Space Science* 275 (2001, 349–366), of a potential method of saving the earth or at least extending its lifespan by increasing its orbit with the aid of the gravitational effects of arranged encounters with an appropriate asteroidal body. Interestingly, Shröder and Smith note that such a scheme "would have the advantage of improving conditions for the whole biosphere, whereas any scheme for interplanetary 'life rafts' that could move slowly outwards to maintain habitable conditions would, on cost and energy grounds, necessarily be confined to a small fraction of the human population—with all the political problems that would produce—plus perhaps a tiny proportion of other species" (161).
6. Jean-François Lyotard, "A Postmodern Fable" in *Postmodern Fables*. Trans. Georges Van Den Abbeele. Minneapolis: University of Minnesota Press, 1997, 91.
7. Norbert Wiener, *I Am a Mathematician: The Later Life of a Prodigy*. Cambridge, Mass.: MIT Press, 1964, 324.
8. Lyotard, "A Postmodern Fable," 87–8.
9. See Lyotard, "A Postmodern Fable," 85–90.
10. See, for example, Stuart Sim, *Lyotard and the Inhuman*. Duxford: Icon, 2001; Keith Ansell Pearson, *Viroid Life: Perspectives on Nietzsche and the Transhuman Condition*. London: Routledge, 1997; Neil Badmington, *Posthumanism*. New York: St. Martin's Press, 2000; Gil Germain, *Spirits in the Material World: The Challenge of Technology*. Lanham: Lexington, 2009.
11. Lyotard, "Can Thought Go On Without a Body?" in *The Inhuman: Reflections on Time*. Trans. Geoffrey Bennington and Rachel Bowlby. Cambridge: Polity Press, 1991. Lyotard's most extensive discussion of the fable is the essay "A Postmodern Fable," but see also "Time Today" in *The Inhuman,* "The Wall, the Gulf, and the Sun: A Fable"; "The Grip (*Mainmise*)" and *"Oikos*" in *Jean-François Lyotard: Political Writings*. Trans. Bill Readings and Kevin Paul. Minneapolis: University of Minnesota Press, 1993; "The Survivor" in *Toward the Postmodern*. Ed. Robert Harvey and Mark S. Roberts. New Jersey: Humanities Press, 1993; and "A Postmodern Fable on Postmodernity, or: In the Megalopolis" in *Critical Architecture and Contemporary Culture*. Ed. W.J. Lillyman, M.F. Moriarty, and D.J. Neuman. New York and Oxford: Oxford University Press, 1994.
12. Lyotard, "A Postmodern Fable," 98.
13. Lyotard, "A Postmodern Fable," 98.
14. This is Lyotard's claim in the essay "A Postmodern Fable." Elsewhere, in the essay "The Grip," he presents this point in a far more nuanced way, suggesting that the fable proceeds from and is an extension of the desire for emancipation, but crosses a threshold beyond which emacipation no longer makes sense, precisely because the value of development (the means) takes precedence over, and ends up destroying, the end (the meaning of the "human" which was to be emancipated). See "The Grip" in *Jean-François Lyotard: Political Writings*.

15. Lyotard, "A Postmodern Fable," 98.
16. Lyotard, "A Postmodern Fable," 99.
17. "The hero is not a subject. The word energy says nothing, except that there is some force. … it knows nothing and does not *want* any of it. It obeys blind, local laws and chance." (Lyotard, "A Postmodern Fable," 93).
18. Lyotard, "A Postmodern Fable".
19. Lyotard, "The Grip," 152; Lyotard, "A Postmodern Fable on Postmodernity, or: In the Megalopolis," 192.
20. Lyotard, "*Oikos*," 101.
21. Lyotard, "A Postmodern Fable on Postmodernity, or: In the Megalopolis," 192.
22. Lyotard, "A Postmodern Fable on Postmodernity, or: In the Megalopolis," 194.
23. Lyotard, "A Postmodern Fable on Postmodernity, or: In the Megalopolis," 194.
24. See for example Ansell Pearson, *Viroid Life*, 3–4.
25. Friedrich Nietzsche, *The Gay Science*. Ed. Bernard Williams. Trans. Josephine Nauckhoff and Adrian Del Caro. Cambridge: Cambridge University Press, 2001, 108.
26. Lyotard, "The Wall, the Gulf, the System" in *Postmodern Fables*, 81–2.
27. Lyotard, "The Wall, the Gulf, the System" in *Postmodern Fables*, 81.
28. Lyotard, "The Grip," 151.
29. Lyotard, "*Oikos*," 99; "Time Today," 76–77.
30. Stephen J. Gould, *Wonderful Life: The Burgess Shale and the Nature of History*. New York: W.W. Norton and Co., 1990, as cited and explained by Charles Jencks in *What Is Post-Modernism?* 4th ed. West Sussex: Academy Editions, 1996, 71.
31. See for example Lyotard, "Can Thought Go On Without a Body?", 16–23; Lyotard, "*Oikos*," 106–7.
32. Lyotard, "A Postmodern Fable on Postmodernity, or: In the Megalopolis," 195.
33. Lyotard, "A Postmodern Fable on Postmodernity, or: In the Megalopolis," 194.
34. Lyotard and Jencks, as two of the most prominent theorists of the postmodern, commented occasionally on each other's works, primarily in order to distinguish their positions, each from the other. Jencks's "new metanarrative" discussed here explicitly distinguishes his position from Lyotard's. Lyotard, for his part, in one place notes "Jencks's 'postmodernism' in architecture, which the reader will do me the favour of not confusing with what I have called 'the postmodern condition.'" ("Representation, Presentation, Unpresentable" in *The Inhuman*, 127.) As far as I am able to determine, Lyotard discusses the "post-metanarrative" before Jencks does, his first presentations appearing in 1987 with the essays "Can Thought Go On Without a Body?" and "Time Today." While Jencks' book *What Is Postmodernism?* is based on lectures first delivered in 1985, its four editions undergo significant revision (so much so that Jencks says he is tempted to coin a new term for what seems to him to be a new genre, and suggests "transitext," "metamorphibook," "rescription" or "evolvotome," (Jencks, *What Is Post-Modernism?*, 8), and the chapter on the "new metanarrative" is still absent from the 2nd edition, published in 1987. However, in the fourth edition (1996), there is no evidence in Jencks's discussion that he was aware that Lyotard had already critiqued just such a "new metanarrative" based on cosmology.
35. Jencks, *What Is Post-Modernism?*, 71.
36. Brian Swimme and Thomas Berry. *The Universe Story, From the Primordial Flaring Forth to the Ecozoic Era*. San Francisco: Harper, 1992.
37. Jencks, *What Is Post-Modernism?*, 71.
38. Jencks, *What Is Post-Modernism?*, 71.
39. Jencks, *What Is Post-Modernism?*, 72.
40. Jencks, *What Is Post-Modernism?*, 72–3.
41. Jencks, *What Is Post-Modernism?*, 73.
42. Jencks, *What Is Post-Modernism?*, 73.
43. Jencks, *What Is Post-Modernism?*, 77.
44. Jencks, *What Is Post-Modernism?*, 77.
45. Jencks's "double coding," a key idea of his theory of Post-Modern architecture, combines two heterogenous approaches—typically modern techniques and traditional or local building—in a single construction, irrespective of their lack of stylistic fit. Among other things, the approach is aimed at addressing the divide, which so beset modernist architecture, between the visions of professional architects and the needs and tastes of the public who use their buildings. See *What Is Postmodernism?*, 29–30.

46. Jencks, *What Is Post-Modernism?*, 75.
47. See for example Richard J. Bernstein's discussion of Hegel in chapter 2 of his book *Radical Evil: A Philosophical Interrogation* (Cambridge: Polity, 2002).
48. Jencks, *What Is Post-Modernism?*, 76.
49. Ed Regis. *Great Mambo Chicken and the Transhuman Condition*. New York: Perseus, 1990.
50. See Max More, "Principles of Extropy: An Evolving Framework of Values and Standards for Continuously Improving the Human Condition." Version 3.11. *Extropy Institute*: http://www.extropy.org/principles.htm. One of the many meanings given to extropy in this manifesto is this: "Extropy means seeking more intelligence, wisdom, and effectiveness, an open-ended lifespan, and the removal of political, cultural, biological, and psychological limits to continuing development."
51. Frank J. Tipler, *The Physics of Immortality: Modern Cosmology, God, and the Ressurection of the Dead*. New York: Doubleday, 1994.
52. Ansell Pearson, *Viroid Life*, 171.
53. Ansell Pearson, *Viroid Life*, 172.
54. Ansell Pearson, *Viroid Life*, 170.
55. Ansell Pearson, *Viroid Life*, 25.
56. Ansell Pearson, *Viroid Life*, 172.
57. Ansell Pearson, *Viroid Life*, 170–74.
58. Stuart Ross Taylor, *Solar System Evolution: A New Perspective*. Cambridge: Cambridge University Press, 1992, 294. Cited in Ansell Pearson, *Viroid Life*, 185.
59. Ansell Pearson, *Viroid Life*, 171.
60. Ansell Pearson, *Viroid Life*, 171.
61. Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos: Man's New Dialogue with Nature*. London: Flamingo, 1985.
62. See Ansell Pearson, *Viroid Life*, 185.
63. Ray Brassier, "Solar Catastrophe: Lyotard, Freud, and the Death Drive." *Philosophy Today* 47: 4 (Winter 2003), 421–430.
64. Ray Brassier, *Nihil Unbound : Enlightenment and Extinction*. Houndmills, Basingstoke: Palgrave Macmillan, 2007.
65. See Wilfrid Sellars, "Philosophy and the Scientific Image of Man" in *Science,Perception and Reality*. London: Routledge and Kegan Paul, 1963; and Brassier, *Nihil Unbound*, 3–6.
66. Brassier, *Nihil Unbound*, xi.
67. Brassier, *Nihil Unbound*, xi.
68. Brassier, *Nihil Unbound*, xi.
69. Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency*. Trans. Ray Brassier. London and New York: Continuum, 2008, § 5.
70. Meillassoux, *After Finitude*, 4.
71. Meillassoux, *After Finitude*, 6.
72. The earth is roughly 4.5 billion years old, as established largely through work in the radiometric dating of rock by Arthur Holmes. A report published by the National Research Council of the US National Academy of sciences and co-authored by Holmes, published in 1931, provided detailed and convincing data and saw the general acceptance of this geochrolological dating by the scientific community. See Schuchert, Knof, Kovarik, Holmes, and Brown, *Physics of the Earth IV: The Age of the Earth*. National Research Council. Report of the National Academy of Sciences (1931).
73. Meillassoux, *After Finitude*, 10.
74. Meillassoux, *After Finitude*, 16.
75. Meillassoux, *After Finitude*, 17.
76. Meillassoux, *After Finitude*, 17.
77. Brassier's argument against Meillassoux here is in fact a complex one, drawing on several arguments suggested by others. One key strand of this argument, in a little more detail, is as follows. Brassier notes that Meillassoux's appeal to anteriority hangs on the scientific (Einstein-Minkowski) empirical conception of space-time, and the way this space-time coordinates the past, present, and future in what Brassier calls "chronology." However, Brassier notes, a simple change in the framework which determines chronology would suffice to dissolve the alleged incommensurability between ancestral and anthropomorphic time, thereby bridging the conceptual abyss which is supposed to separate anteriority from spatiotemporal distance (*Nihil Unbound*, 59).

Meillassoux admits that it is simply an empirical, contingent fact that ancestral time preceded manifestation (the world as it appears within the correlation), and he is also committed to the idea that the coordination of space-time which establishes such a chronology *might* change, since this is a corollary of his "principle of factiality," or the assertion of absolute contingency, which is a further key argument of *After Finitude* (see chapter 3). In short, Brassier argues that while Meillassoux's argument takes place in a *logical* register, it necessarily hinges on an *empirical* contingency (*Nihil Unbound*, 58). Brassier wants something more: an argument with a robustly transcendental scope.
78. Brassier, *Nihil Unbound*, 229. Lyotard, "Can Thought Go On Without a Body?", 9.

79. Brassier properly notes that this "end" of time will be asymptotic ("Solar Catastrophe," 428): the breakdown of all matter, leaving only photons dancing in a cold, chaotic void, will end space-time as we know it (with any capacity to support life), but the universe in this minimal state will continue to expand indefinitely. Brassier references Sten F. Odenwald, *Patterns in the Void: Why Nothing Is Important*. Boulder, Colorado: Westview Press, 2002, 163; and L. Krauss and G. Starkman, "Life, The Universe, and Nothing: Life and Death in an Ever Expanding Universe," *The Astrophysical Journal* 531: 1 (2000), 22–30. In 2011, the Nobel Prize in Physics was awarded to Saul Perlmutter, Brian P. Schmidt, and Adam G. Riess for the discovery of the accelerating expansion of the universe through the observation of supernovae, a discovery which supports the hypothesis of "heat death." However, this thesis on the end of time is not uncontested. A recent scientific paper suggests that time will end in 5 billion years, roughly synchronous with the death of our sun. This hypothesis draws on the calculation of probabilities associated with the theory of a "multiverse" cosmology. See Raphael Bousso, Ben Freivogel, Stefan Leichenauer, and Vladimir Rosenhaus, "Eternal Inflation Predicts that Time will End," *Physical Review D*, 83: 2 (2011). (The authors state clearly that "[w]e do not know whether our conclusion is empirically correct. What we have shown is that it follows logically from a certain set of assumptions" (14).)

80. Brassier, *Nihil Unbound*, 228–9.

81. Brassier, *Nihil Unbound*, 229.

82. Lyotard, "Can Thought Go On Without a Body?", 9. Quoted in Brassier, *Nihil Unbound*, 223.

83. Sigmund Freud, "Beyond the Pleasure Principle" in *Beyond the Pleasure Principle, Group Psychology and Other Works*. The Standard Edition of the Complete Psychological Works of Sigmund Freud, vol. XVIII. Trans. and ed. James Strachey. London: Hogarth Press, 1955.

84. See Brassier, *Nihil Unbound*, 234–38.

85. The Laruellean component of Brassier's argument regarding extinction is outlined extremely briefly in the closing paragraph of the "Solar Catastrophe" essay, with no attempt to explain the many technical terms introduced, and likely leaving the reader unfamiliar with Laruelle baffled. The explanation of this argument is more forthcoming in *Nihil Unbound*. See chapter 5, "Being Nothing," and chapter 7, "The Truth of Extinction," 229–30.

86. This characterization requires the caveat that "human meaning" is being used in such a broad sense here (simply as contrasted with scientific discourse) that it encompasses many perspectives—such as those of Heidegger and of structuralism—which portray themselves as challenging humanism. For example, for all Heidegger's decentring of *Dasein* and stressing of Being in his later works, *Dasein* remains that *to which* Being discloses itself and the world. (For an argument that Heidegger remains a humanist, see Wolfgang Welsch, "The Human – Over and Over Again." Trans. Jim Scott in *Weakening Philosophy: Essays in Honour of Gianni Vattimo*. Ed. Santiago Zabala. Montreal & Kingston: McGill-Queen's University Press, 2007. It is this very broad sense that Brassier is concerned with.

87. Friedrich Nietzsche, *The Will to Power*. Ed. Walter Kaufmann. Trans. W. Kaufmann and R.J. Hollingdale. New York: Vintage, 1967, § 1.5.

88. More precisely, it is the transcendental object (the thing "behind" appearances which appears) which Kant designates with an X, but he sometimes uses this term synonymously with the thing-in-itself, precisely because they are both unknowable as such (since they can be thought, but cannot be an object of experience). See "Transcendental object" in Howard Caygill, *A Kant Dictionary*. Malden: Blackwell, 1995, 401.

89. Brassier, *Nihil Unbound*, 238.

90. See Lyotard, *The Differend: Phrases in Dispute*. Trans. Georges Van Den Abbeele. Minneapolis: University of Minnesota Press, 1988 and Lyotard, *Heidegger and "the jews"*. Trans. A. Michel and M. Roberts. Minneapolis: University of Minnesota Press, 1990. See also my discussion of this issue in "Testimony and the Affect-phrase" in *Rereading Jean-François Lyotard*. Ed. Heidi Bickis and Rob Shields. Surrey: Ashgate, forthcoming.

91. This argument is developed at length in *The Differend*, but for a brief summary of Lyotard's views, see "Dispatch Concerning the Confusion of Reasons" in *The Postmodern Explained to Children*. Ed. Julian Pefanis and Morgan Thomas. Sydney: Power Publications, 1992. In this essay he summarises a number of the key points in his position which I have mentioned here, by indicating what he sees as "the stake confronting philosophical thought today. We must follow metaphysics in its fall, as Adorno said, but without lapsing into the current mood of positivist pragmatism which, beneath its liberal exterior, is no less hegemonic than dogmatism. We must trace a line of resistance to both of them. We must counter-attack the confusions without forming a new 'front.' For the time being, the defence of reasons is conducted by 'micrologies.'" (77)

92. This insistence is evident, for example, in Lyotard's essay "Sublime Aesthetic of the Contract Killer" in *The Assassination of Experience by Painting – Monory*. Ed. Sarah Wilson. London: Black Dog, 1998.

93. See, for example, Lyotard, *Enthusiasm: The Kantian Critique of History*. Trans. Georges Van Den Abbeele. Stanford, California, 2009. See especially chapter 2, "The Archipelago."