

ALDO TRUCCHIO

QUANTUM MELANCHOLY.**THE CONCEPT OF THE MULTIVERSE BETWEEN ART, ETHICS AND SCIENCE¹**

1. Introduction 2. A brief history of the multiverse 3. Quantum immortality
4. Multiverse ethics 5. Quantum melancholy

Abstract: QUANTUM MELANCHOLY. THE CONCEPT OF THE MULTIVERSE BETWEEN ART, ETHICS AND SCIENCE

With its origins in science fiction, the concept of the multiverse has transitioned into scientific discourse and achieved widespread recognition through science popularisation. Over the past decade, it has featured prominently in films and television series. After tracing the genealogy of the concept, this study will analyse its diverse iterations and implications. It will argue that intrinsic elements of the multiverse, such as the repetition of existence and probabilistic determinism, which shape the universe's trajectory, reflect the prevailing melancholic emotional tone in contemporary western societies.



That things are «status quo» is the catastrophe.
Walter Benjamin

1. Introduction

The US animated series *Rick and Morty* started in 2013, soon becoming highly popular with young adult audiences in the U.S.² The main character, Rick Sanchez, is portrayed as the smartest man in the universe. His chief invention is a «portal gun» that allows

¹ The author thanks Fabio de Sio, Sara Petrella and Emiliano Sfara.

² E. Gaudette, *How Rick and Morty Season 3 Became the #1 Comedy on TV*, in «Newsweek», Sep. 29, 2017, <https://www.newsweek.com/rick-and-morty-season-4-adult-swim-673721>.

him to instantly switch between one of the infinite versions of reality (called «dimensions» or «timelines»), where the protagonists of the series also exist in infinite versions of themselves. The main characters seem to be anguished, above all, by the question of identity: if there were to be infinite versions of themselves, others and everything, some almost identical, others radically different, identity becomes incidental, as does every other event, therefore no one personal or collective story prevails over another. Rick, on the other hand, is indifferent towards everything, deeply melancholic, and a suicidal alcoholic. He has come to the conclusion that nothing holds significance, so, quite unperturbed, he witnesses the most atrocious events: the death of sentient beings, entire planets and civilisations, and even his loved ones, replacing them with their alternative versions from another universe without the slightest hesitation. The image of the multiverse is one of wide «*disponibilité métaphorique*»³ (metaphorical openness) and is exactly this that has allowed it to pass from science fiction to physics, then to science popularisation, and finally back to fiction, becoming the backdrop for a myriad successful series and films: a quick search on the Internet Movie Database site generates a list of more than two hundred series and films that include multiverse as a keyword over just the last decade. The idea of multiverse is not only part of the everyday experience of many consumers of entertainment products, nowadays on a worldwide scale, but it has also been legitimised by official science (cosmology, theoretical physics, mathematical logic).

In the vein of Jean Starobinski's intellectual history of ideas and scientific imagery, and Bruno Latour's approach to objects of science as socially constructed, I'll try to demonstrate that the pervasive presence of the concept of the multiverse in popular science and culture characterizes our era. Here, the future is

³ Cf. J. Starobinski, *La relation critique*, Gallimard, Paris 1970, p. 200.

eclipsed by a motif of infinite repetition, accompanied by a prevailing melancholic emotional tone.

2. A brief history of the multiverse

The concept of parallel dimensions made its debut in 20th-century literature with Murray Leinster's 1934 science fiction story *Sidewise in Time*⁴, and was subsequently explored by numerous contemporary authors, including Isaac Asimov and Philip K. Dick. The term «multiverse», however, was coined by Michael Moorcock in his 1963 story *The Sundered Worlds* to denote the collection of existing parallel dimensions⁵. The idea of the multiverse also gained traction in theoretical physics⁶, where it is used to describe certain implications of the relative state formulation of quantum mechanics, proposed by Hugh Everett III in his 1957 PhD dissertation. This concept was largely ignored until the 1970s, when it was rediscovered by Bryce DeWitt⁷. But literature had preceded science in the rediscovery of Everett's interpretation: the first text that was likely directly inspired by the concept is Larry Niven's 1968 story *All the Myriad Ways*, where the moral implications of the multiverse (essentially the same as those depicted over half a century later in *Rick and Morty*) were already outlined. Niven suggests that scientific proof of the multiverse's existence triggers a series of (self-)destructive behaviours in certain individuals since, as the protagonist concludes, «if alternative universes are a reality, then cause and effect are an illusion. [...] You can do anything, and one of you will, or did»⁸.

As regards the scientific version of the concept above, the young Princeton physicist Hugh Everett summarised *The Theory of the*

⁴ M. Leinster, *Sidewise in Time*, in «Astounding Stories», XIII, 4, 1934, pp. 10-47.

⁵ M. Moorcock, *The Sundered Worlds*, in «Science Fiction Adventures», 29, 1963.

⁶ D. Deutsch, *The Fabric of Reality*, Penguin, New York 1997.

⁷ B. DeWitt, *Quantum mechanics and reality*, in «Physics Today», XXIII, 9, 1970, pp. 30-35.

⁸ L. Niven, *All the Myriad Ways*, in «Galaxy», XXVII, 3, 1968, pp. 32-40.

*Universal Wave Function*⁹ in his doctoral thesis of 1957 and in an article entitled «*Relative State*» *Formulation of Quantum Mechanics*¹⁰, also published in 1957. He proposed an alternative to the probabilistic Copenhagen interpretation of quantum physics. Some of the inherent difficulties in the Copenhagen interpretation were illustrated by Erwin Schrödinger in 1935 through his famous thought experiment known as «Schrödinger's cat». This experiment, particularly in the simplified version focussed on here, has become part of popular culture, making a detailed summary unnecessary. Nevertheless, a sketch-description of the experiment will serve here as a useful starting point in the reconstruction of the history of Everett's theory.

A cat is placed inside a sealed box along with a radioactive atom, a Geiger counter, a vial of poison, and a hammer. The apparatus is designed so that if the Geiger counter detects radiation (due to the decay of the radioactive atom), it triggers the hammer to break the vial of poison, thus killing the cat. In quantum mechanics, particles like the radioactive atom can be described as existing in multiple states at once – a concept known as «superposition». The atom can be both decayed and not decayed simultaneously until it is observed¹¹. Because the cat's fate is strictly bound to the state of the atom, the cat is also in a superposition of states. This means that until someone opens the box and observes the system, the cat is both alive and dead at the same time. The act of observing the system forces it into one of the possible states. When the box is opened, the superposition collapses, and we find the cat either alive or dead¹².

⁹ Now in H. Everett III, *The Theory of the Universal Wavefunction*, in *The Many-Worlds Interpretation of Quantum Mechanics*, edited by B.S. DeWitt e N. Graham, Princeton University Press, Princeton 1973², pp. 3-140.

¹⁰ H. Everett III, «*Relative state*» *formulation of quantum mechanics*, in «*Reviews of Modern Physics*», XXIX, 3, 1957, pp. 454-462.

¹¹ For more information on this complex issue, see M. Schlosshauer, *Decoherence, the measurement problem, and interpretations of quantum mechanics*, in «*Reviews of Modern Physics*», LXXVI, 4, 2011, pp. 1267-1305.

¹² E. Schrödinger, *Die gegenwärtige Situation in der Quantenmechanik*, in «*Naturwissenschaften*», XXIII, 48, 1935, pp. 807-812.

Schrödinger's experiment, among other things, raises the fundamental question of why the peculiarities of quantum systems do not manifest themselves in macroscopic systems, that is, in everyday life.

Everett's interpretation eliminates the concept of wave function collapse. It posits, instead, that all possible outcomes of a quantum measurement actually occur, each in a separate, non-communicating branch of the universe. According to Everett, the universe splits into a multitude of parallel universes whenever a quantum event with multiple possible outcomes occurs. Each possible outcome is realized in its own branch, resulting in a vast, ever-expanding multiverse. For the observer, the act of measurement entangles their state with the state of the system under observation. Post measurement, there is a version of the observer in each branch of the multiverse, each one experiencing a different outcome. However, these branches never interact, and each observer perceives a single, unique outcome.

Everett's interpretation offers several advantages over the Copenhagen interpretation. It is fully deterministic because the evolution of the universal wave function works without any stochastic element of collapse. Moreover, probabilities in quantum mechanics are interpreted as a measure of the observer's subjective uncertainty about which branch they will experience after measurement, whereas Everett addresses the issue of quantum measurement without invoking special processes. Finally, it offers a consistent mathematical framework, though also implying a staggeringly large number of parallel universes.

Despite the support of his PhD advisor John Wheeler (one of the great physicists of the 20th century, who had worked with Niels Bohr and Albert Einstein amongst others), Everett's interpretation did not receive acknowledgement, rather, it was unequivocally rejected by Bohr and his collaborators in Copenhagen. Everett never entered academia and spent his entire career working in

military research. However, his interpretation underwent a resurgence in the 1970s. Due to its mathematical simplicity and elegance, two factors often regarded by physicists as indicative of a close alignment between formalised language and reality¹³, Everett's interpretation, renamed by DeWitt as the «many-worlds interpretation» (hereafter MWI), is now considered plausible, at least in part, by numerous physicists¹⁴. MWI's main proponents in the scientific community, including theoretical physicists David Deutsch¹⁵ and Sean M. Carroll¹⁶, cosmologist Max Tegmark¹⁷ and historian and philosopher David Wallace¹⁸, underscore its simplicity and elegance. There is also speculation that the MWI may have influenced the likes of Richard Feynman and Murray Gell-Mann, although no direct statements from them confirm this claim¹⁹.

What deters many scientists from accepting the MWI is that it does not meet the Popperian criterion of falsifiability and cannot be experimentally verified, at least not with the technologies we currently have or are likely to have in the near future. However, its proponents argue that many universally accepted theories contain unfalsifiable elements: the interior of a black hole is not easier to observe than a parallel universe, yet we readily accept its descriptions as realistic, despite the fact they are purely mathematical, and largely based on solutions to Einstein's equations of General Relativity²⁰.

¹³ See e.g. S. Hossenfelder, *Lost in Math. How Beauty Leads Physics Astray*, Basic Books, New York 2018.

¹⁴ M. Tegmark, *The Interpretation of quantum mechanics. Many worlds or many words?* in «Fortschritte der Physik», 46, 1999, pp. 855-862.

¹⁵ D. Deutsch, *op. cit.*

¹⁶ S. Carroll, *Something Deeply Hidden: Quantum Worlds and the Emergence of Spacetime*, Oneworld, London 2019.

¹⁷ M. Tegmark, *Our Mathematical Universe*, Knopf, New York 2014.

¹⁸ D. Wallace, *The Emergent Multiverse*, Oxford University Press, Oxford 2014.

¹⁹ F. Tipler, *The Physics of Immortality*, Doubleday, New York 1994, pp. 170-171.

²⁰ For a more general reflection on the increasingly widening gap between theoretical and experimental physics, cf. especially G. Ellis, J. Silk, *Scientific method: Defend the integrity of physics*, in «Nature», 516, 2014, pp. 321-323 and the debate that followed a year later at Ludwig-Maximilians-

Upon reviewing the now vast quantity of literature produced on the MWI, it becomes clear, however, that many of these scientists do not reject the theory itself, but rather the way it has been disseminated over time, and its gradual transformation into a cliché of fiction, due to the effect it has on readers and viewers: its «mystical»²¹ aura, or the «queasy»²² vertigo gripping individuals when they are told of infinite worlds where each and every possibility is real. In 1976, Lloyd Biggle and Michael Talbot illustrated Everett's theory in an article for the magazine «Analog» (better known as «Astounding Stories»), which was a key reference for quality science fiction²³. From that moment onwards, the success of the image of the multiverse in popular culture skyrocketed.

The idea that most excites science enthusiasts (as well as science fiction readers) is, as one might imagine, rooted in the classic *what if* game and in the idea of the *sliding doors moments*: what would have happened if a particular event had or had not occurred at some point in my life? This concept is continually revisited and discussed by proponents of the MWI in popular science books. According to the MWI, somewhere (to the extent that such an expression makes sense in this context), there exists a version of each individual, living out every possible, alternative reality. However, it is even more intriguing to note that this fascination with the MWI and its myriad possible worlds always carries a sombre undertone evoking the finiteness of human existence and the burdensome issue of mortality, fundamentally questioning both. Among the countless, possibly infinite, parallel worlds of the MWI, could there be one in which individuals are immortal?

Universität in Munich (see D. Castelvecchi, *Feuding physicists turn to philosophy for help*, in «Nature», 528, 2015, pp. 446-447).

²¹ T. Ferris, *The Whole Shebang*, Simon & Schuster, New York 1997.

²² M. Gell-Mann, *The Quark and the Jaguar: Adventures in the Simple and the Complex*, Owl Books, New York 1994, p. 138.

²³ L. Biggle, M. Talbot, *Quantum Physics and Reality*, in «Analog», LXXXVI, 12, 1976, pp. 47-57.

According to MWI theorists, this is not only possible but even probable, and perhaps necessary.

3. Quantum immortality

Before proceeding, it is essential to briefly outline two key elements that, while seemingly straightforward, are fundamental to my analysis. Firstly, without delving into the technical equations underpinning the MWI and focusing instead on its conceptual and imagistic implications, I contend that its fundamental distinction from the Copenhagen interpretation lies in their respective concepts of reality. The Copenhagen interpretation engages primarily with the problem of measurability and the limitations imposed by measuring instruments, placing the experimenter in a pivotal role. In this view, an event cannot manifest without observation, which introduces a series of well-known interpretative challenges regarding the role of consciousness and the collapse of the wave function. By contrast, the MWI operates on a level where every potential outcome is realised, independent of any observational act or measuring instruments. In the MWI, the act of measurement does not define or determine the state of the system under observation; instead, it merely alters the observer's relationship to the system. The system itself exists simultaneously in all possible states, each corresponding to a separate, non-interacting universe. This shift moves the focus away from measurement as a determinant of reality, instead embedding the observer within a complex web of entanglement across multiple branches of the multiverse. The experimenter, within this framework, is no longer a decisive agent in the unfolding of reality but rather a passive participant, whose observations affect only their own state in relation to the multiverse.

Secondly, it is also worth considering the broader cultural and philosophical implications of these interpretations, particularly in the context of popular science. For over a century and a half,

popular science has thrived as a literary genre, designed to captivate wide audiences and sell a product, not unlike the entertainment industry's commercial strategies. Quantum physics, in particular, has enjoyed widespread popularisation, often at the expense of scientific rigour. Figures such as Fritjof Capra, whose *The Tao of Physics*²⁴ has enjoyed global success for over two decades, exemplify how scientific ideas can be appropriated and distorted, blending physics with mysticism. Nevertheless, few scientific concepts have penetrated the Western collective imagination so deeply as the idea of the multiverse. This widespread influence is not without reason. The multiverse offers a seductive, almost mythic vision of reality, where all possibilities are realised and the boundaries between science, philosophy, and fiction become blurred. In the following, I will explore the cultural and intellectual reasons behind the multiverse's profound appeal and its implications for our understanding of reality.

Moving from equations to narrative and fiction, the MWI engages with the fundamental questions that science has long posed to philosophy and the humanities; it challenges what have long been considered the essential traits of humanity: finitude, autonomy, and freedom. It introduced the idea of immortality into theoretical physics through the thought experiment of «quantum suicide», which essentially involves substituting an experimenter for Schrödinger's cat.

The concept of quantum suicide hinges on the subjective experience of the experimenter. In every universe where the experimenter is killed, there is no conscious observer to perceive the death. From the experimenter's perspective, they only experience the branches where they survive, no matter how improbable survival might be over multiple iterations. This leads to the notion of quantum

²⁴ F. Capra, *The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism*, Shambhala, Berkeley 1975.

immortality, where the experimenters never experience their own death and always find themselves in the branch where they continue to live. The quantum suicide thought experiment highlights the radical implications of MWI on personal experience and consciousness. It suggests that, under MWI, an experimenter would always find themselves in a branch where they survive, effectively leading to subjective immortality.

According to his biographer Peter Byrne, Everett had already envisaged this idea in the form of a Russian roulette, where the firing of the bullet is linked to the decay of radioactive material²⁵. Nevertheless, the concept of quantum immortality only appeared in scientific literature in the latter half of the 1980s²⁶, and was popularised by Tegmark in the late 1990s.

The MWI is not the only theory in physics implying the existence of a multiverse. To address certain problems posed by contemporary cosmology, particularly those related to the Big Bang theory (such as the homogeneous distribution of matter, isotropy, and the geometric flatness of the universe), in 1979, Alan Guth proposed the theory of cosmic inflation, which he would later popularise in a 1997 bestseller²⁷. This theory, which now enjoys almost unanimous support, suggests that the universe underwent a phase of exponential expansion in its earliest moments. The idea was further developed by Andreï Linde²⁸, Paul Steinhardt²⁹ and Alexander Vilenkin³⁰ into a model of an «eternally inflating» universe from which «bubbles» spontaneously emerge and where

²⁵ P. Byrne, *The Many Worlds of Hugh Everett III. Multiple Universes, Mutual Assured Destruction, and the Meltdown of a Nuclear Family*, Oxford University Press, Oxford 2010, p. 342.

²⁶ E. Squires, *The Mystery of the Quantum World*, Hilger, Bristol 1986.

²⁷ A.H. Guth, *The Inflationary Universe. The Quest for a New Theory of Cosmic Origins*, Addison-Wesley, Reading, Mass. 1997.

²⁸ A. Linde, *A new inflationary universe scenario. A possible solution of the horizon, flatness, homogeneity, isotropy and primordial monopole problem*, in «Physics Letters B», CVIII, 1982, 6, pp. 389-393.

²⁹ A. Albrecht, P. Steinhardt, *Cosmology for Grand Unified Theories with Radiatively Induced Symmetry Breaking*, in «Physical Review Letters», XLVIII, 17, 1982, pp. 1220-1223.

³⁰ A. Vilenkin, *Birth of inflationary universes*, in «Physical Review D», XXVII, 12, 1983, pp. 2848-2855.

expansion drastically slows down (due, as usual, to the quantum fluctuations). «Our» universe would be just one of these bubbles. The birth of new bubble universes is also exponential, and thus, given infinite time, all possible universes would come into existence, multiple times, infinitely. The MWI and eternal inflation are the best-known and most widely discussed multiverse theories within the scientific community, but numerous cosmological theories connect the infinite repetition of the Big Bang (and everything that follows), rebirth, and the eternalisation of the universe.

Lee Smolin, for instance, proposed the idea of «cosmological natural selection» (also known as the theory of «fecund universes»), where black holes play a central role in the birth of new universes (which he explored in his bestselling book *The Life of the Cosmos* in 1997³¹). It is also essential to mention the Steinhardt-Turok model (popularised in the book *Endless Universe* in 2007³²) and, notably, Roger Penrose's conformal cyclic cosmology hypothesised in 2006 (which became the subject of his bestselling book *Cycles of Time* in 2010³³). Connected to cyclic cosmology is brane cosmology within string theory, which also considers the existence of an infinity of parallel universes, elucidated to non-specialist audiences through the books of American physicist and populariser Brian Greene³⁴. Another idea suggesting immortality and eternal recurrence of existence (worth separate discussion³⁵) is the concept of «simulated universe», popularised by Swedish philosopher Nick Bostrom in 2003³⁶ (following, undoubtedly, the global success of *The Matrix*

³¹ L. Smolin, *The Life of the cosmos*. Oxford University Press, New York 2017.

³² P.J. Steinhardt, N. Turok, *Endless Universe*, Broadway Books, New York 2007.

³³ R. Penrose, *Cycles of time*, The Bodley Head, London 2010.

³⁴ B. Greene, *The Hidden Reality. Parallel Universes and the Deep Laws of the Cosmos*, Knopf, New York 2011.

³⁵ See e.g. F. Tipler, *The Physics of Immortality*, cit.

³⁶ N. Bostrom, *Are you living in a computer simulation?*, in «*The Philosophical Quarterly*», LIII, 211, 2003, pp. 243-255.

trilogy), echoed by figures like David J. Chalmers³⁷ and Sean M. Carroll³⁸, and discussed extensively in mainstream media³⁹.

Although formulated to solve different theoretical problems, the various multiverse theories offer the same vision of reality comprising infinite worlds, the difference being that, in the case of eternal inflation, the other worlds exist within our own *space*, while in the MWI they exist in separate spaces. However, the emotional tone surrounding both ideas is identical: no multiverse theorist can resist the temptation to astonish their readers with a dizzying array of figures, paradoxes, hypotheses, probabilities, analogies, and metaphors related to the possibility of infinite time and space.

Moreover, once again, there is the persistent suspicion of immortality: in infinite time, all possible combinations of matter (which are finite, limited by the laws of physics) must repeat infinitely, therefore, each of our existences, exactly as we live them now, would recur an infinite number of times. Not being Übermenschen, what else is left to us but, paraphrasing Nietzsche, to gnash our teeth and curse the science who spoke thus?⁴⁰

4. Multiverse ethics

As noted by Bruno Latour, scientific discourse tends to overlook the «hybrid» nature of its objects of study, which are both natural and social. According to Latour, these objects are actually «representations of the collective» as they incorporate not only elements of natural reality but also social, cultural,

³⁷ D.J. Chalmers, *The Matrix as Metaphysics*, in Ch. Grau (ed.), *Philosophers Explore the Matrix*, Oxford University Press, New York 2005².

³⁸ S. Carroll S. *Maybe We Do Not Live in a Simulation. The Resolution Conundrum*, in «Preposterous Universe» (online), 2006, <http://www.preposterousuniverse.com/blog/2016/08/22/maybe-we-do-not-live-in-a-simulation-the-resolution-conundrum/>.

³⁹ See e.g. P. Green, *Are we living in a computer simulation? Let's not find out*, in «New York Times», 10 Aug. 2019 and F. Wilczek, *Are We Living in a Simulated World?*, in «The Wall Street Journal», 9 Jan. 2020.

⁴⁰ I am referring, of course, to aphorism 341 of Friedrich Nietzsche's *The Gay Science*.

and political dimensions. Traditional science, however, classifies them as belonging to an external, autonomous, and transcendent nature, thereby claiming the ability to comprehend and explain them in an objective and universal manner. This process of «purification» conceals the fact that scientific objects are inextricably linked to the socio-technical networks that produce and interpret them⁴¹. The case of the multiverse theory exemplifies this dynamic: while it is framed as a scientific model, its adoption in non-scientific domains illustrates how scientific ideas can transcend their original contexts, being repurposed to address ethical, metaphysical, or existential concerns. In doing so, these ideas often incorporate the values and concerns of the societies that engage with them, rather than standing as neutral descriptions of an external reality.

For instance, the success of logical and mathematical speculations, such as quantum suicide and eternal recurrence of existence, has placed the topic of death at the forefront of the scientific popularisation surrounding multiverse theories. In his 2004 bestseller *Our Mathematical Universe*, Tegmark strategically opens with a scene involving death. He recounts a real-life brush with death – a truck unexpectedly appearing from a quiet side street – and delves into the concept of the multiverse: linking it to quantum events (in a somewhat forced manner), he suggests that an interaction involving a calcium ion and a synaptic junction in his brain triggered the electrochemical process that alerted him to the imminent danger⁴². In this view, a single event in the quantum world is not only the direct cause of an individual's life or death, but also determines the course of events across the entire universe, or rather, determines the existence of parallel universes generated by that single event. To paraphrase (and

⁴¹ B. Latour, *Nous n'avons jamais été modernes: Essai d'anthropologie symétrique*, La Découverte, Paris 1991, chap. 4.

⁴² M. Tegmark, *Our Mathematical Universe*, cit., chap. 1.1.

betray) Jacques Monod, *for every case there exist infinite necessities*.

Far beyond the hardest deterministic paradigms, within the MWI not only is there no room for free will (in any sense of the term), but neither is there space for education, social influence, unconscious survival instinct, chance, or any combination of these elements. Since quantum events are by definition as necessary as they are probabilistic, all that remains is to *observe* the sequence of events or, at most, statistically calculate the probability of experiencing one event over another in the universe to which one belongs⁴³.

All forms of human agency are incompatible with multiverse theories, as these theories confine individuals to a state of complete passivity, eliminating any prospect of genuine change. Consequently, authors who choose to delve into ethical issues whilst drawing conclusions in their works of popular science cannot but reiterate the most overused clichés such as admiring the beauty «of those little flowers on the roadside»⁴⁴, that is, *carpe diem*, love and friendship, and the pleasure of fulfilling one's talent by doing work one loves, thus contributing to the progress of humanity, or suchlike. These principles are, at best, justified through diluted, rose-tinted utilitarianism⁴⁵, often interspersed with quotes from philosophers spanning historical epochs and geographies, as if a simple and truly universal wisdom (akin to a law of physics) has always been readily available but, for some unknown reason, ignored by the great majority⁴⁶.

⁴³ *Ibid.*, chap. 8.1.

⁴⁴ As exemplified by Tegmark's writing *Our Mathematical Universe*, cit., chap. 13.7.

⁴⁵ See e.g. D. Deutsch, *op. cit.*, chap. 14.

⁴⁶ Even an exceptional science communicator like Carlo Rovelli engages in this trend among theoretical physicists, which involves universalizing the implications of their theories (moving from mathematics to ethics) and legitimizing themselves somewhat through philosophy. For instance, in the final pages of *Sette brevi lezioni di fisica* (Adelphi, Milano 2014), Rovelli references Lucretius and Spinoza. At the conclusion of *L'ordine del tempo*

Tegmark is certainly correct in his assertion that every scientific revolution to date has brought about a moral revolution, which reveals that reality is vaster than we had previously understood or could perceive through our senses alone, thus contributing to a repositioning of humanity within the universe. However, he overlooks the fact that this broader reality has always been *accessible* in some way. Humanity first discovered the vastness of Earth and then its minuteness within the solar system, galaxy, and cosmos. Humans have set foot on the Moon, probes have landed on Mars, human artifacts have exited the solar system, and no law of physics prevents the planning of interstellar journeys. *Pace* Tegmark, there is no way multiverse theories can contribute to a moral revolution. While they potentially expand reality infinitely, they do not allow for any broadening of scientific, theoretical, or ethical horizons. Instead, they immobilize the subjects, rendering them passive observers of a world in which their only hope is to witness positive events as frequently as possible.

Yet, the philosophical reflections of MWI proponents often espouse a «mindful optimism», and the interests of many scientists are increasingly directed towards artificial intelligence. AI holds the promise of perpetuating current modes of living and consumption indefinitely, effectively absolving individuals from direct political responsibilities and risks. Algorithms are increasingly entrusted, not just with managing economic activities like production and distribution, but also with aspects of human creativity⁴⁷. On top of it, leading global tech companies support projects by scholars like Bostrom, Chalmers, and Tegmark, for whom social media presence can, ultimately, replace any kind of ethical or political activity. Multiverse theorist often believe that in an era of digitalised social life and amidst post-democratic

(Adelphi, Milano 2018), he juxtaposes the Vedas and Augustine, and in *Helgoland* (Adelphi, Milano 2020), he concludes quoting Hippolyte Taine and Goethe.

⁴⁷ M. Tegmark, *Our Mathematical Universe*, cit., *PreLUde*.

regimes, every individual could contribute to creating a better world simply by choosing which goods and information to consume. «You can [...] vote every day with what you choose to buy, with the news you choose to consume, with what you choose to share, and with the model you choose to follow», Tegmark explicitly states⁴⁸. Yet, when removed from the lavish lifestyles of Silicon Valley tycoons and applied to everyday existence, the mindful optimism of these scientists and their benefactors assumes the semblance of a profound, resigned melancholy.

5. *Quantum melancholy*

The success of the collective image of the multiverse epitomises a recent paradigm shift wherein discourses and techniques coalesce to organise humanity within a social and cultural order, where the emotional tone of existence has become a governance objective. In this framework, political power increasingly legitimises itself not through collective dynamics but by mastering the technoscientific tools essential to governing a succession of emergencies. For over two decades, catastrophic events have permeated and substantiated the social and political reality, instigating an emergency-fear sequence, invariably followed by the acceptance of drastic economic and political measures imposed under the mantra of «there is no alternative». This narrative scheme is periodically re-enacted, systematically aligning the ethical-political value of individuals with their «resilience», a term often misappropriated to denote the capacity to endure traumatic events by passively accepting their consequences. Confronted with an unalterable reality, social inactivity is not only encouraged but, as exemplified during the 2020 pandemic, sometimes legally mandated. This societal inclination also permeates artistic production, which now lacks the political,

⁴⁸ M. Tegmark, *Life 3.0: being human in the age of artificial intelligence*, Knopf, New York 1997, *Epilogue*.

economic, and social resources to generate novelty. Consequently, artistic languages manifest through collage, reinterpretation, citation, sampling, reboots, remakes, and seriality; and the ubiquity of the multiverse in fiction serves as a versatile device, allowing the perpetual reuse of the same narratives and characters.

It was Mark Fisher, who best analysed how artistic productions have long lacked the necessary resources (political, economic, and social) to create the new⁴⁹. He highlighted the link between melancholy and the «cancellation of the future» characterising recent developments in Western social formation, described it as a feeling of only being able to act according to a pre-scripted cliché, and emphasizes that such a condition is experienced as normal by those who have convinced themselves that any form of action is futile, meaning that *realistically* all expectations and desires must be scaled back, because the world is governed by dynamics that may be perverse, but which cannot be changed, only accepted⁵⁰.

As in the famous monologue of «Melancholy Jacques», «all the world's a stage, and all the men and women merely players»⁵¹. Furthermore, according to the theories of the multiverse and their popularisers, the show repeats itself endlessly: they even hypothesize that not even death can bring it to an end, suggesting that even that «last scene of all» evoked by (and perhaps longed for) Jacques may never arrive. Upon closer inspection, the idea of the multiverse reflects a pervasive emotional tone characterised by pronounced melancholy. Deprived of any possibility of ethical and political agency, the subject risks *petrification*, that sensation which Jean Starobinski, one of the sharpest contemporary

⁴⁹ M. Fisher, *The Metaphysics of Crackle: Afrofuturism and Hauntology*, in «Dancecult» V, 2, pp. 42-55.

⁵⁰ M. Fisher, *K-punk. The Collected and Unpublished Writings of Mark Fisher*, Repeater, London 2018.

⁵¹ W. Shakespeare, *As you like it*, act II, scene VII.

readers of the theme of melancholy, described as «*a frozen now* [that] reigns both outside and within oneself»⁵².

This seemingly inevitable and shared melancholy has today taken on a form that can rightly be described as apocalyptic, not so much in the sense proposed by Franco Berardi with his notion of «psychodeflation»⁵³, but rather in light of Ernesto De Martino's notes on *The End of the World*. In these writings, De Martino discusses melancholy in terms of a «loss of motivation» stemming from the «disintegration of the collective project»⁵⁴. Moreover, De Martino links the theme of melancholy to that of the «end of the existing worldly order» as a «permanent anthropological risk», articulated in these well-known terms: «The end is simply the risk of no longer being able to exist in any possible cultural form, the loss of the ability to actively engage with the world, the narrowing - even to the point of annihilation - of any horizon of worldly action, the catastrophe of any communal project based on values»⁵⁵.

The idea of the multiverse is thus distinctive of an era in which every *beyond* (ethical, political, artistic) has been cancelled in the name of repetition and necessity. If one reflects on the pervasive sense of crisis within contemporary society through the lens of the multiverse, it becomes evident that our future hinges on our capacity to exceed the constraining narratives of the present. This demands an uncompromising critique of entrenched theoretical and political frameworks, and a radical rejection of any regression to traditional or even humanistic values in the domains of politics and ethics.

Whilst acknowledging that it would be both impossible and dangerous to return to the past, we must also recognise the

⁵² J. Starobinski, *Le regard des statues*, in «La Nouvelle Revue de Psychanalyse», 50, 1994, p. 46.

⁵³ Cf. F. Berardi, *Fenomenologia della fine*, Nero, Roma 2020 and *IL terzo inconscio, La psicosfera nell'era virale*, Nottetempo, Milano 2022.

⁵⁴ E. De Martino, *La fine del mondo. Contributo all'analisi delle apocalissi culturali*, Einaudi, Torino 1977, p. 121.

⁵⁵ *Ibid.*, p. 219.

hybridisation of bodies, social life, and individual consciousness with the realms of technoscience and economics. Reflecting on the concept of the multiverse underscores the gradual fading from our emotional, social, and political horizon of that beyond which once guaranteed and sustained the subject's «presence to the world»⁵⁶. Amidst this complexity, it is crucial to emphasise that impermanence, finitude, change, and radical alterity should not be dismissed, but embraced, as they offer vital refuge for thought and contemplation, thus providing respite from the cycle of repetition without action and infinity devoid of desire that increasingly characterises the contemporary human experience. Our focus must now be drawn to the emergence of new desires, which suggest a potential break from deterministic narratives

ALDO TRUCCHIO è Professore Associato di Filosofia morale presso l'Università degli studi di Salerno

atrucchio@unisa.it

⁵⁶ The theme of presence to the world appears in two authors mentioned here, Jean Starobinski and Ernesto De Martino (drawing respectively on Eric Weil and Martin Heidegger), who have not yet been the subject of a comparative study. See, for example, E. De Martino, *Apocalissi culturali e apocalissi psicopatologiche*, in «Nuovi Argomenti», n. 69-71, 1964, pp. 105-141 and J. Starobinski, *La présence au monde*, in *Incertaine planète. Textes R.I.G. 1995*, La Baconnière, Neuchâtel 1996, pp. 15-32.