14 Postface: A Typology of Multiverse Narratives

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The idea of multiverse, together with that of metaverse, has become ubiquitous in contemporary media. Possible reasons are many. Digital technology supplies us steadily with "alternate realities" through AI, VR, deep fakes, and online worlds where people live "second lives." The polarisation of public opinions has popularised multiverse-inspired metaphors; one says of people who defend extravagant conspiracy theories or refuse to accept obvious truths that they live on another planet, and of Trump supporters that they form a "magaverse." The many worlds interpretation of quantum theory has gained considerable traction since it was first proposed in 1957 by Hugh Everett III and is now considered seriously not only by science-fiction authors but even by physicists. Superhero franchises try to renew themselves by sending their heroes into alternate worlds where they meet alter egos or heroes from other franchises. Crowning this trend, the multiverse film *Everything Everywhere All the Time* (Kwan and Scheinert 2022) gathered seven Oscars in 2023.

Through the variety of its chapters, this book demonstrates the wide range of the notion of "multiverse": from the claim of cosmologists that many "worlds" exist beyond observable space to the multiple ways the imagination juggles, confronts, and connects different ontological domains, such as: dream and reality; the imaginary and the physical; the sacred and the profane; the occult and the visible; the actual and the possible. The broader a notion becomes, however, the weakest the core of its meaning. In this postface, I propose to explore the theoretical basis of multiverse narratives by revisiting the question asked by Angélica Cabrera Torrecilla in her contribution: "What does it take for a fiction to propose a multiversal narrative that is distinct from a universal [that is, monoversal] narrative?" from the point of view of possible worlds (PW) theory. Then I will expand the taxonomy proposed by Francisco Sáez de Adana, based on Max Tegmark's (2003) hierarchy of multiverses, beyond superhero comics and films, in the hope of making it applicable to all types of multiverse narratives.

A fictional universe, according to PW theory (Ryan 1991), is a semantic model centered around a fictionally actual world, made of facts concerning existents and events, and surrounded by multiple non-actual possible worlds, which include worlds created by the minds of characters (their beliefs, wishes, plans, obligations, etc.). Such a model allows contradictions between the actual world of the system and the possible worlds, or between the possible non-actual worlds themselves (it is indeed these contradictions, and the attempt by characters to resolve them, that drives the engine of the plot), but the actual world itself must be logically consistent. This structure forms a universe, not a multiverse, because it has only one actual world. But now imagine that there are other worlds that are actual and real, worlds that, while themselves consistent, may contradict each other, so that a proposition p may be true in one of them and

false in another. Such a model, which would consist of the repetition of the pattern described above, would be a multiverse. The philosopher David Lewis (1978, 1979) has taken a step toward a multiverse system by claiming that all possible worlds are actual from the point of view of their inhabitants; the contrast possible vs. actual is therefore an indexical notion that depends on the location of the evaluator in a certain world: from my point of view, I am real and Emma Bovary is imaginary, that is, fictional, but from her point of view she is real and I am fictional. This conception, known as "modal realism," retains however the idea that from a given point of view there is only one actual world. In a multiverse narrative, by contrast, other worlds are objectively real and actual. Each of these real worlds is surrounded by its own system of possible worlds created by the minds of their inhabitants, if they have any.

It is not enough for a multiverse fiction to create a world[1] that differs widely from our real world: this occurs in fairy tales, the fantastic, and science-fiction, but these genres can be either monoversal or multiversal. As Cabrera Torrecilla observes in her principle #1, "in [multiverse] fictional narratives, unlike cosmological approaches, two (or more) distinct universes must come into contact." A text that represents totally independent worlds would not be a narrative, at least not as a whole, because narrative form requires interaction between its components; at best it would be a collection of autonomous stories. Cabrera Torrecilla contrasts this narrative principle to cosmological, that is, scientific approaches, because in these approaches communication between worlds is impossible: it would require such phenomena as traveling faster than the speed of light, passing undamaged through black holes, or worlds that fail to "decohere" after splitting from each other, as the many-worlds theory stipulates.

Even though virtually all multiverse narratives violate scientific principles, we can base a typology of multiverses on the model proposed by theoretical physicist Max Tegmark because theoretical physics, not being based on experimentation, shares to some extent the speculative spirit of multiverse fiction. Multiverse narratives can be classified according to (at least) two principles: the nature and origin of the worlds involved, such as dream, hallucination, technology, or cosmic entity; or the structural arrangement of the worlds. The five levels distinguished by Cabrera Torrecilla involve both of these criteria; here I will focus on structural types, which I will associate with the levels of Tegmark's model. For a more detailed description of these levels, I refer the reader to Cabrera Torrecilla and Sáez de Adana's chapters. Here I will only mention what I think is relevant to my proposal.

The worlds of Tegmark's level I multiverses consist of all the different combinations of the kinds of elementary particles that are found in our world. But these combinations extend far beyond the observable universe. If space is infinite, it has room not only for all possible combinations of particles, but also for multiple copies of these combinations. There is consequently a good chance that the combination that describes our world is realised more than once, and that we have counterparts of ourselves somewhere in the multiverse. There are also worlds where we

have very close yet different counterparts, and of course, worlds where we do not exist. As combinations of particles, the worlds of level I may all have been created at the time of the Big Bang, but they exist independently of each other and form therefore parallel realities that do not intersect nor diverge from a common stem. But in a narrative, according to Cabrera Torrecilla's principle # 1, worlds cannot be isolated. Level I multiverses will therefore feature many parallel worlds between which characters travel. This model is typical of the multiverses of superhero comics, and it has exploded in recent years： Marvel's Multiverse Saga has created at least ten films since 2021, and in 2023 alone, Marvel-Disney produced *Spiderman: Across the Spider-Verse* (Dos Santos, Power, and Thompson), and *Ant-Man and the Wasp: Quantumania* (Reed), while rival studio DC comics released *The Flash* (Muschietti), a time-travel story where the hero travels back in time to the world of his youth and encounters his younger self. Why this predilection of superhero comics and films for multiverses? Karin Kukkonen attributes it to the proliferation of different versions of stories concerning the same hero; while these versions may logically clash with each other, they can all be recuperated by imagining a multiverse where versions of the same individual undergo different adventures in different worlds: "In response [to the proliferation of stories] Superhero comics made a virtue out of necessity and presented their storyworlds as part of a larger 'multiverse,' in which a variety of mutually incompatible narrative worlds existed as parallel realities" (2010, 40). This type of multiverse offers intriguing plot possibilities that would not be possible in a monoverse narrative, such as the duplication of the hero in the same world, which can lead to episodes of mistaken identity and to dramatic confrontations between heroes and their alter egos, or the meeting of characters from different fictions in the same world, as in the comic book series *The League of Extraordinary Gentlemen* (Moore 1999-2019) or the novels of Jasper Fforde. A distinction must however be made between narratives of space exploration, where the characters visit different planets in the universe, such as *Star Trek* (Roddenberry 1960s), *Star Wars* (Lucas 1977), *Avatar* (Cameron 2009), or, to remain within the same planet, *Gulliver's Travels* (Swift 1726), and narratives with a level I multiverse. The distinction is not always clear-cut, but a decisive multiverse criterion is the presence of incompatible facts connected to different words: for instance, in *Spiderman: Across the Spider-Verse* the Spiderman of world 1 is a young Hispanic/black boy named Miles Morales but the Spiderman of world 2 is an Indian character named Pavitr Prabhakar. Moreover, duplications of the same individual do not occur in narratives of space exploration. The space of these narratives is homogeneous, while it is heterogeneous in multiverses of all levels.

Still, the worlds of level I exist side-by-side in the same global space, even though each of them represents an autonomous ontological domain. In Tegmark's level II, by contrast, worlds exist in their own alternate space. These spaces are created by irregularities in the expansion of the universe, such as the bursting of a bubble, by wormhole phenomena, or by black holes: according to Brian Greene, "Every black hole is the seed for a new universe that erupts into existence like a big bang-like explosion, but is forever hidden from our view by the black hole's event horizon" (1999, 369). On level II, universes are embedded in each other in a hierarchical

structure where one universe gives birth to another, and they are separated by narrow portals. This structure is represented by narratives that oppose two ontologically different worlds and feature a passage through a specific area – the portal – to reach the other world. For instance, the Harry Potter stories contrast the world of everyday England to the world of the Hogwarts School of witchcraft, where people and objects have different properties, and the portal between them is represented by the wall at platform 9 3/4 of the King's Cross railway station in London. In the *Chronicles of Narnia* (Lewis 1950–6), the portal between an ordinary and a fantastic, or spiritual world is located in a cupboard, and in *Everything Everywhere All at Once (*from here *EEAAO*), a narrative that illustrates more than one structure, it resides in a broom closet at a tax office. This structure is heavily represented in the present volume.

A particular form of hierarchical structure is what may be called metaverse narratives. ChatGPT – which cannot be uncritically trusted, but should not be a-priori rejected – captures the difference between metaverses and multiverses as follows, though metaverses can be regarded as a subcategory of multiverses:

> The multiverse is a theoretical concept in physics that suggests the existence of multiple parallel universes, while the metaverse is a virtual universe that exists within a computer-generated space. While the two concepts are different, they both involve the idea of multiple realities or universes. (Author year, page)

The term of metaverse comes from the novel of Neal Stephenson *Snow Crash* (1992). In this novel it denotes an online world comparable to *Second Life* (2003) where the members of the real world lead virtual lives by identifying with self-created avatars. While digital technology is an important source of metaverses, it is not the only one, contrary to the claim of ChatGPT: the embedded reality can be a movie, as in Woody Allen's film *The Purple Rose of Cairo* (1985), an amusement park, as in the TV series and original film *Westworld* (Noland and Joy 2016 and Crichton 1973, respectively), a novel, as in Allen's story *The Kugelmass Episode* (Allen 1977), a TV series, as in the film *Pleasantville* (Ross 1998), a physically constructed simulation, as in *The Truman Show* (Weir 1998), as well as a computer game, as in Steven Spielberg's film *Ready Player One* (2018) and a computer-generated simulation, as in *The Matrix* (the Wachowskis 1999). The mechanisms that connect the real world to the metaverse and allow characters to navigate between the two include: playing a game of make-believe, as in game-based metaverses (*Ready Player One, Snow Crash*); metalepsis, as when a real character penetrates into a fictional world (*The Purple Rose of Cairo*, *Pleasantville*), and illusion (*The Matrix, The Truman Show*), though this last device allows no back-and-forth movement: victims of illusion are prisoners of a fake world. By featuring a man-made or technology-created "fake" reality within a supposedly "real" or autonomous one, metaverse narratives raise the ontological question of what it means to be real and whether we are not ourselves the products of a simulation (Chalmers 2022); for, as J.L. Borges has suggested in "The Circular Ruins" (1940), the process of reality-creation is

endlessly recursive. Borges' story features a man who devotes all of his energy to creating another man, and, when the process is complete, is haunted by the disturbing thought that he may himself be the creation of another.

The basis of Tegmark's third cosmological level is the many-worlds interpretation of quantum mechanics proposed by Hugh Everett III (Deutsch 1997, Bruce 2004, Gribbin online, Carroll n.d.). Let's recapitulate the argument for many-worlds: Schrödinger's equation, which describes the so-called "wave function" of electrons (a theoretical object whose nature is a matter of dispute), allows an electron to be in a superposition of states – spin up and spin down, while no such superposition can be observed.[2] According to the Copenhagen interpretation, the act of the observer who opens the box where Schrödinger's cat exists in a superposition of states causes the feline to be either dead or alive.[3] This makes the state of subatomic particles highly dependent on human observation. The many-worlds interpretation argues instead that the collapse of the wave function is unnecessary; the interaction of the superposed particle with its environment causes the world to split into a world where the cat is alive and a world where the cat is dead, so that all possibilities are realised. If there is an "observer," it is the environment, rather than a human agent; the splitting of worlds is therefore not due to human actions nor decisions. Once worlds split from a common state, they "decohere," which means that they develop in their own time-lines without ever meeting each other again. The underlying structure of the many-worlds cosmology is therefore that of a tree-shaped diagram whose branches never merge, rather than a diagram made of parallel lines, as in type I. Where do these many worlds exist? Perhaps in a space with an infinite number of dimensions.

Schrödinger's cat has inspired a large number of narratives (Ryan 2011), though not all rely on the many-worlds explanation. One can thus have: (1) a monoworld Schrödinger's cat narrative inspired by the Copenhagen interpretation or another theory; (2) a branching-worlds narrative that does not mention Schrödinger's cat; and (3) a branching-worlds narrative that does provide scientific explanations based on the many-worlds theory. Only (2) and (3) belong to Tegmark's type III. An example of (2) is the film *Sliding Doors* (Howitt 1998), which shows two widely different branches taken by the life of the heroine, played by Gwynneth Paltrow. It is not a deliberate choice of the heroine that causes the splitting of worlds but a seemingly insignificant event: catching a train or missing it. No scientific explanation is proposed. On the other hand, in Blake Crouch's science-fiction novel *Dark Matter* (2016), which also represents the many lives of the protagonist in different worlds, and his effort to return to his native world after wandering through the multiverse, scientific explanations based on Schrödinger's cat abound, even though some are questionable interpretations of Everett's proposal: "When we open the box, there's a branch. One universe where we discover a dead cat. One where we discover a live one. And it's the act of our *observing* the cat that kills it – or let it live…Those kinds of observations happen *all the time*" (2016, 123; italics original).[4] Another example of case (3) is the film *EEAAO*, which combines type I and type III cosmologies: some of the worlds visited by the characters

seem to have always existed in parallel timelines, but some of these worlds seem to be diverging branches in the heroine's life, created by her decisions in critical moments: a mediocre life where Evelyn, a Chinese woman, marries Waymond, moves to America, and opens a struggling laundry business, and a glamorous life where she remains in China and becomes a star of martial arts movies. A voice off says "Everything is just an arrangement of particles vibrating in superposition…washed away in a sea of every other possibility." And Waymond explains to Evelyn before they take off toward alternate worlds: "Every time a decision is taken in a branching universe there is a new universe." As in *Dark Matter*, the splitting of worlds is attributed to human agency: an interpretation of the many-worlds theory that increases its tellability by connecting it to human interests, though not a necessary part of the theory.[5]

The main theme of level III multiverses is our obsession with the question "what if." Our lives are determined by seemingly small decisions at critical junctures (missing a plane that eventually crashed because of leaving late, meeting the love of one's life because of a decision to go to a bar rather than staying home and study), as well as by big decisions (getting married? going to college? if so, to which college?). Often we experience regrets about our past choices. Robert Frost's poem "The Road Not Taken" (1915), as well as the field of alternate (or virtual) history (Ferguson 1997), capture this obsession. But it is not enough for a truly multiverse narrative to represent the "could have been" as if it were actual. Insofar as according to the many-worlds theory all possibilities are realised in some world, a level III multiverse narrative must follow several branches. For instance, Philip K. Dick's *The Man in the High Castle* (1962) is not a multiverse because it describes only one branch of history, the one where Hitler wins World War II. On the other hand, novels like *Life After Life* (2013) by Kate Atkinson and *The Midnight Library* (2020) by Matt Haig are genuinely multiverse, because they narrate many of the lives of the heroine, and present them as actual – at least as long as the heroine is engaged on these time-lines. When the heroine decides to try another life, or is forced by fate to do so, the past life dissolves into non-actuality. A common pattern in many-lives narratives is a character dissatisfied with their present situation who is given the opportunity to travel back in the past and to make different choices; but it is surprising how often the character, after having explored all the possibilities, decides to return to what they regard as their "home world," however imperfect it is. This pattern is found in *EEAAO*, in *The Midnight Library*, and in *Dark Matter*. Though these narratives depict many lives, they ultimately adhere to the PW model that presents only one life as actual, and they tell us that regret is unproductive, because it can only prevent us from appreciating life in our home world.

If all possibilities are realised, as the many-worlds theory tells us, this includes worlds where the laws of physics are different. Tegmark's level IV contains the realisations of all the structures that can be mathematically described, and the only constraint on these structures is that they must respect the laws of logic. "How about a universe," asks Tegmark, "that obeys the laws of classical physics, with no quantum effects? How about time that comes in discrete steps, as for

computers, instead of being continuous? How about a universe that is simply an empty dodecahedron?" (2003, 49). This idea of worlds with different laws of physics is hard to implement in narrative, because readers could not rely on their experience of reality to complete their mental picture of the storyworld. But an object physically impossible (that is, impossible in our world) can be introduced in an otherwise reality-conforming world, such as the cube-shaped planet mentioned by Sáez de Adana in this volume. Other possibilities include: an object that occupies more than three spatial dimensions; worlds whose timelines merge rather than split, so that their inhabitants have more than one past; and cats in a quantum state of superposition, before they split into different worlds. Narrative manifestations of this kind of objects are rare, because narratives must be imaginable, and the human imagination cannot picture superposition or more than three spatial dimensions. Yet sometimes the unimaginable can still be described. Here are some candidates for level IV narratives: in "The Aleph" (1945), Borges describes an object, the Aleph, which is "one of the points ins spaces that contains all points" (1999, 280). Looking at the Aleph enables the protagonist to observe the totality of what exists. In *EEAAO*, the characters not only exist in many different worlds, there are in addition so-called "Alpha-versions" of these characters, who combine the properties of all their counterparts. It is such an Alpha version of Waymond who initiates his wife, Evelyn, to the possibility of "verse-jumping" across the multiverse. But the Alpha characters do not behave differently from the regular ones, which means that the contrast Alpha vs. regular character is not exploited in the plot. In *Flatland* (1884) by Edwin Abbott, the narrator, an inhabitant of a two-dimensional world named A. Square first describes his home world, then visits a one-dimensional world, Lineland, and is finally taken to a three-dimensional world. But when he asks the inhabitants of this world, who told him that there are worlds with more dimensions than his native Flatland, to take him to a four-dimensional world, he is told that such a world does not exist: it is always possible to imagine a world with fewer than three dimensions, like Lineland and Flatland, but not a world of more dimensions. Yet many science-fictions novels save their heroes by letting them escape into another dimension. In Borges' "The Garden of Forking Paths" (1941), these paths not only diverge but sometimes converge: "For instance you come to this house, but in one of the possible pasts you are my enemy, in another, my friend" (199,125). The convergence of paths leads to a paradoxical superposition of states: being x's friend vs. being x's enemy. A no less paradoxical erasure of the past occurs in *La Moustache* (1986) by Emmanuel Carrère. An axiom of philosophy says that we have only one past and that it cannot be changed. But in *La Moustache*, the past of the hero changes all the time: when he shaves his moustache to surprise his wife, she does not notice, because she thinks he never had a moustache; when he mentions to his wife that his parents are coming for dinner, she tells him that they are long dead; and so on, until the narrator's past is completely erased and replaced with other pasts. His "present" is therefore the product not of a single, solid past but of an ever-changing sequence of events. In contrast to level III narratives, which respects the laws of physics, all of these examples of a hypothetical level IV point to worlds whose behavior differs significantly from our native reality.

The first three types of multiverses are well represented in contemporary media, the fourth type is more speculative, and some texts straddle my categories: in *EEAAO*, some worlds seem to be parallel, while others branch out of each other. But in the present volume, almost all easily classifiable texts are of type II and present a hierarchical rather than a parallel or tree structure. This includes: the fake man-made worlds vs. the physical world in Philip K. Dick (Steimberg); the physical world of South Dakota connected by a portal in the Black Hills to the mythical textual world of Arthurian romances in Molly Cochrane's *The Third Magic* (Gaiech); computer simulation vs. reality in *Tron* (Batori); the visible vs. the invisible in Nigerian films (Endong); and the recursive embedding of dreams in *Dr. Who* (Neis). In Sheri Tepper's *The Margarets* the various worlds are presented as the mental constructs of the heroine in opposition to reality (level II), but Studzinski also suggests that they are objectively created by Margaret's decisions (which would be level III). The Superhero comics analysed by Sáez de Adana are globally type I, but as the author shows, they can contain individual objects that belong to other types. By offering various versions of the past, the possibility of saving multiple save files in the game NASI (Abe) shifts the issue from cosmology to textual variants. These variants, produced by each running of the game, stand in the non-hierarchical, parallel relation to each other that is distinctive of type I. I am at a loss to classify *Black Mirror* (Pintor), because this long-running series seems to include various types of multiverses. In contrast to *Choose Your Own Adventures* narratives, which belong to type III because of their tree structure and the importance they give to the reader's decisions, the interactive film *Bandersnatch* associated with the series relies on a network that allows circles and returns to the same point. It offers therefore multiple viewing experiences rather than multiple worlds, as do tree-based interactive narratives. Hidalgo discusses Jasper Fforde, an author famous for allowing characters from parallel fictional worlds to meet in the same world (hence level I), but the article is more concerned with the transmedial development of these worlds than with their narrative relations to each other. If there is a multiverse element in Gonzalez de la Fuente's chapter on martial arts, it lies in the theme of time travel: to avoid the paradox of changing the past, the activity of the time traveller can be said to create new world forking out of a common trunk from other possible worlds (hence type III).

My purpose in proposing this multiverse typology is not to pigeonhole the various chapters into tight classes, but to invite readers to ask: what does it take for a narrative to project a multiverse? As criteria for deciding to what extent a given narrative constitutes a multiverse, I propose this tentative list of conditions. The greater the number of realised conditions, the more forcefully the idea of metaverse will impose itself on the imagination:

1. Affirmation of the coexistence of contradictory states of affairs: P AND -P instead of P OR -P, but in different worlds;
2. Characters, objects, or places have counterparts in other worlds;
3. Interdependence of worlds: what happens in one world influences what happens in another;
4. Possibility of traveling from one world to another; but this journey is a jump across ontological boundaries rather than a crossing of space point by point;

5. Existence of special places of communications (portals, thresholds) between worlds;
6. Scientific explanations, especially from quantum physics and complexity theory;
7. The main character is aware of the existence of multiple worlds;
8. The other characters are aware of the existence of multiple worlds;
9. When traveling to another world, characters can meet their double.

The current popularity of multiverse narratives is due to many factors: it gives free rein to the imagination to engage in world-building; it allows visual diversity, each world presenting its own landscape; it allows interesting plot twists (meeting of counterparts, mistaken identity, metalepsis); it raises important philosophical and ethical issues (what is real and what is not; free will; is there a point to acting ethically when all possibilities are realised anyhow?), it questions ontological boundaries and, finally, it stretches logic.

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Notes

[1] Here I take world as synonymous with system of reality or ontological domain rather than with “planet” or “all that exists,” the definitions provided by OED.
[2] Superposition has been observed (“Schrödinger’s Virus,” 2009), but it is highly unstable.
[3] Schrödinger was no fan of the idea of superposition, nor of the collapse of the wave function; he proposed the cat thought experiment to criticise rather than to support these interpretations of his equation.
[4] If the splitting of worlds is due to our act of observing, as Crouch claims, how can this happen all the time? What about the times when physicists go out to lunch or take a nap? What about the times when humans had not yet evolved on the earth? In answer to this question one could perhaps argue that in a multiverse that contains all possibilities, there is always a human in some world who makes an observation. But I prefer to regard “observation” as an interaction between a particle and its environment rather than as something performed by a human.
[5] Physicist/philosopher Sean Carroll in his online course *The Many Hidden Worlds of Quantum Mechanics* insists that our decisions do not create different worlds; rather, the splitting of worlds due to quantum phenomena produces a world where I make one decision and another where I make another. This view seems however incompatible with free will.