



Digital Virtuality and Autopoiesis: the transformation from world elements of literature and arts to metaverse

Shan Xiaoxi

To cite this article: Shan Xiaoxi (13 Dec 2023): Digital Virtuality and Autopoiesis: the transformation from world elements of literature and arts to metaverse, Critical Arts, DOI: [10.1080/02560046.2023.2289579](https://doi.org/10.1080/02560046.2023.2289579)

To link to this article: <https://doi.org/10.1080/02560046.2023.2289579>



Published online: 13 Dec 2023.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)



Digital Virtuality and Autopoiesis: the transformation from world elements of literature and arts to metaverse

Shan Xiaoxi

School of Humanities and the Institute of Literary Criticism, Hangzhou Normal University, Hangzhou, China

ABSTRACT

Currently, the metaverse points to the human “world” in the context of a “multiverse.” Historically, large-scale multiplayer online games, the iteratively developed internet, and virtual reality have constructed the metaverse from different dimensions, but none of them alone can be equated with the metaverse. Based on the arguments of predecessors, this paper proposes the “four worlds” paradigm, which implies a synchronic structure and diachronic development for the metaverse. One of the four elements of literature and art proposed by theorists such as M. H. Abrams (1912–2015) and James J. Y. Liu (1926–1986) is the universe; after encountering the metaverse, this universal element has been rewritten, forming the “metaversal elements” of literature and art. Digital space enables the virtual potential of the “metaversal elements” to be fully released in the form of information, and potential information about reality is extracted to constitute a self-sustaining digital system.

KEYWORDS

Metaverse; “metaversal elements” of literature and art; actual world; virtual world; autopoiesis

The metaverse is a new concept that has recently exploded in popularity in many social, economic, and cultural fields around the world. Discussion on the metaverse has become a hot topic with mixed reviews in academia. Literary research on the metaverse has already started. To promote in-depth research, this paper attempts to clarify fundamental theoretical issues regarding the metaverse, incorporate it into the category of contemporary universal elements and clarify the characteristics and being of the “metaversal elements.”

Identification of the semantic meaning of the metaverse and its referent

There is a basic consensus that the metaverse is a word coined in Neal Stephenson’s cyberpunk novel *Snow Crash* (1992). However, in current Chinese academia, the definition of this concept is highly controversial. The fiercest opposition says that “meta does not mean meta, it means beyond ... verse is not the suffix of ‘universe,’ verse is a separate word with meanings such as poetry, version, and versioning, and the translation of metaverse as *Yuan Yuzhou* (元宇宙) is groundless, and even that the concept of ‘metaverse’ is collapsing.” (Jianming 2022) I argue that the creation of the term metaverse and the translation of it as *Yuan Yuzhou* both have deeper meanings.

First, “-verse (the root of the word Metaverse)” suggests that one should understand the meaning of the word in the intellectual context of the multiverse. In describing the technical context in which the metaverse was formed, the author of *Snow Crash* wrote: “The (goggle) lens can see half of the universe—the half above the computer, which includes most of Hiro’s body.” (Stephenson 1992, 23) From the beginning, Stephenson uses the universe to explain the metaverse. Likewise, in interpreting the meaning of the metaverse, one academic states: “Once we put on the headset, countless multiple universes (universes) will be at our disposal ... so that we do not know whether it is a single ‘metaverse’ or a collection of multiple universes (multiverses).” (Gonzales 2021, 4). Undoubtedly, “verse” is an abbreviation of the word “universe.” Etymology shows that the universe is derived from the Latin word “*universus*,” which consists of the prefix “uni-” and the root “versus.” The Latin word *uni* is also a variant of *unus*, which initially meant “one,” “only,” whereas *versus* means “to turn ... in the direction of,” “facing,” or “a line.” The original meaning of *universus* includes “together,” “as one,” “as a whole” and so on.¹ It may be assumed that in the West, the original understanding of the “universe” is “one” or “the only whole” and that the universe is “(everything that) turns in one direction and becomes a whole” or “rotates into a whole unity.”² In ancient Chinese texts, there are two interpretations of “universe,” or *yuzhou*. The first is “*Yu*” for space and “*Zhou*” for time; in the *Laozi*, it says that “the past and present are called ‘*Zhou*,’ the infinite space is called ‘*Yu*.’” The *Shizi* says that “heaven and earth in the four directions are said to be ‘*Zhou*’; the past and present are said to be ‘*Yu*.’” The other explanation is that both “*Yu*” and “*Zhou*” refer to space, with “heaven” as “*Yu*” and “earth” as “*Zhou*”; for example, *Chuxueji* quoted *Zuanyao* as saying: “heaven and earth are called the universe.”³ It can be seen that what ancient Chinese originally believed about the universe also belonged to natural cosmology and was explained by broad terms such as “heaven and earth” or “ancient and modern.” After the twentieth century, the idea or hypothesis of a “multiverse” emerged in philosophy and natural science. For example, the American philosopher William James proposed pluralism: “Perhaps the world is a block universe; but on the other hand, it may just be strung together in multiple rather than tied up and closed universes.” (James 1920, 328). In the natural sciences, quantum physics and cosmological studies have found that the universe seems to have originated from a big bang and has constantly expanded ever since. After summarising the findings of many scientists in the twentieth century, Alex Vilenkin concluded, “There exists a collection of countless universes ... Each cosmic island is a self-contained infinite universe.” (Vilenkin 2006, 200–204)

This background in cosmic knowledge is crucial to understanding the shift from a traditional monistic view to the modern multiverse. Stephenson coined the term metaverse by omitting the uni- from universe, either by convention or for writing convenience, but in either case, this had a practical effect: the removal of uni- (one, unique) dissolved the original meaning of “universe.” To some extent, this was a break with the encyclopaedic view

¹<https://www.perseus.tufts.edu/hopper/>. [2022-7-8].

²Some scholars argue that uni/unus “in the context of Christian theology means God ... Universe, in general, represents the creationist cosmology of ‘turning back to the One’.” I still need to consult the relevant literature and this etymology is doubtful. However, I generally agree with the following view articulated in the paper: “verse abandons ‘the One’ uni ... its connotation cannot be equated with the universe in general.” See Zhenyuan (2022, 3).

³For both sayings and documentary sources, see Jipei and Fu’s (2018, 78).

of the universe, which is implicit in the abovementioned “multiverse” idea. In this way, the metaverse should be understood not in the context of the “natural universe,” as the only universe, but in the context of the “multiverse.” The metaverse, at present and in future stages of development, is a special “world”—an artificial world in the multiverse—created and explored by humans using digital technologies. This “world” cannot be interpreted as a “meta” of the entire natural universe. Even in the future when this world reaches the stage of a narrow “meta-universe” that is connected to the natural universe, as described later, this creation should be seen as part of the multiverse, or parallel universes.

Second, the current term metaverse refers to an earthly “world,” yet it retains imaginative space for a vast natural universe. In a broad sense, the world is the universe, and vice versa, and there are interpretive terms for this idea in both Chinese and English dictionaries. In the narrow sense, the world is only a part of the universe, and the most extensive scope of the world refers to the earth or globe. “World” comes from the ancient English term “weorold; weorld; worold,” a compound word combining “wer” (adult male) and “eld” (era), which had an original meaning of “human era.”⁴ In ancient China, “world” is also used to refer to the “human world,” much like when Tang Dynasty poet Cen Shen wrote in *Climbing with Gao Shi and Xue Zhi on the Futu of Ci'en Temple*: “When you reach the tower, you can climb the stairs, as if entering a vast and boundless universe, winding stone steps, spiraling up, straight to the heavenly dome.”⁵ The Buddhist classic *Leng Yan Sutra* (Volume 4) explains *Shi Jie* (world): “‘Shi’ is the flow of movement, and ‘Jie’ is the direction. Now you should know that east, west, south, north, southeast, southwest, northeast, northwest, top, and bottom are ‘Jie,’ and the past, future, and present are ‘Shi.’ So there are ten directions and three streams of time. The world is intertwined with time and space, in which people migrate and flow.” (Lai 2010, 158). This statement indicates that all sentient beings weave delusions together to become involved in the world and that the world is a being that is interrelated with the human body and mind. These ideas have been a consistent philosophical theme in Chinese and Western philosophy since ancient times. Even currently, the most radical “object-oriented ontology” is nothing more than a new way of exploring “indirectly approaching the actual world” (Harman 2017, 7). Cosmology directs our gaze to the vast and unknown realm of outer space; cosmology stops us in the human-reachable realm. The world is the part of the universe to which people meaningfully relate. It is the part of the universe that people are constantly learning, understanding, exploring, and expanding. For the present and future, the metaverse points to this “world” rather than the natural universe that is infinitely expanding into outer space. However, this does not mean that the metaverse can be replaced, as it reserves the space to extend to the natural universe. It holds the expectations and dreams of inventors and developers of term to extend from the “world” to the “universe.”

Third, the prefix “meta” in the word metaverse indicates a “meta” property of the world or universe, i.e. a “meta” way of being and/or intangible value in the modern existential context. Etymologically, in English, meta comes from the Mycenaean Greek linear B-syllable $\mu\epsilon\tau\acute{\alpha}$, which did not initially mean “meta” but originally meant “after,” “beyond,”

⁴[https://encyclopedia.thefreedictionary.com/worldliness#cite_note-2.\[2022-7-9\]](https://encyclopedia.thefreedictionary.com/worldliness#cite_note-2.[2022-7-9])

⁵See Maoyuan’s (1999, 243). Some anthologies interpret it as “the universe”. This paper recognizes the term “human world” and “earthly world.”

“adjacent,” or “self.”⁶ As is well known, when Andronicos Rhodios edited the remnants of Aristotle’s works, he collated some treatises on more general and abstract principles to the back of *Physics*, called “*ta meta ta physica*” (the later parts of *Physics*), which was later abbreviated as *Metaphysica*. When the work spread from the West to the East, Japanese scholars initially translated it as *Xingershang Xue* (形而上学), which was later accepted by Chinese scholars. *Metaphysica* is a semantic expression of the discipline’s inquiry into “being.” To inquire into being is to inquire into the meta (*yuan*) of the world. In the view of traditional metaphysics, the metaverse refers to the root of the universe (world), its origin, and cosmic existence at the level of ontology. According to modern metaphysics, or the existential understanding of Heidegger and others, the “meta” of the world is the “way of being,” or how the world exists and appears, while the metaverse refers to a universe (world) that can embody this original way of being. The case thus established in traditional metaphysics is not valid. The meta points to nothingness because the metaverse is, after all, an empirical world produced by advanced human technology and is not transcendental in nature, such as metaphysics in its traditional sense would have asserted. In modern metaphysics, the meaning of “meta” refers to the primordial way of being, which can be called the “meta-way of being.” As will see in the following analysis, this “meta” mode of being is the digital mode of being within the self-generated system.

The multidimensional historical construction of the metaverse

The metaverse currently points to an intersection of more than 50 years of digital game development, 30 years of internet construction, and 60 years of virtual reality development that have focused on one another to construct various dimensions in the metaverse. To grasp the reality of the metaverse, we must start from the multidimensional nature of its historical construction.

Massively multiplayer online games help construct the “social life” and “civilizational form” of the metaverse. Starting in the 1980s, several massively multiplayer online role-playing games (MMORPGs), such as *Habitat*, *Neverwinter Nights*, *Roblox*, *Second Life*, *The Sandbox*, and *Decentraland*, were released. In addition to activities such as fighting monsters and hunting for treasure, players could interact, communicate, and hold parties and significant performances in-game, as well as explore resources, build castles, assemble machines, launch rockets, and use virtual currency for virtual transactions. In other words, players created a virtual social life and human civilisation that both exists and does not exist in the “actual” world.

The most noteworthy things that the multiplayer online game establishes are its underlying logic of playfulness, value direction, and rules of behaviour for the metaverse. In the view of humanist aestheticians, play is the highest characterisation of freedom, aesthetics, and complete humanity: “In the end, only when a man is human in the full sense of the word does he play; only when a man plays is he completely human.” (Schiller 1985, 80). In social life, where material being, utilitarian practices, and pragmatic values dominate, playful activities are inevitably placed in a marginal position, and this “highest characterisation of man” is not fully realised. This is why humans invented games, and

⁶“Definition of META”. www.merriam-webster.com. [2022-7-9].

online games are uniquely suited for this purpose. Notably, virtual social lifestyles and civilisations created in the abovementioned games belong fundamentally to the category of games, in both the philosophical and anthropological senses, and are an expansion upon pure games that break through various rules of real social life and follow the underlying logic, value direction and behavioural norms of games themselves. From a philosophical point of view, James P. Carse put forward the idea of “infinite games,” believing that all social and cultural activities of human beings can broadly be called games. However, there are “finite games” and “infinite games.” The difference between them is that a “finite game is aimed at winning, and the infinite game is aimed at perpetuating the game itself.” (Carse 1986, 3). The finite game is win/lose, has boundaries, pursues material ends and is utilitarian and power-centered, with a beginning and end; the infinite game has no boundaries, is super-utilitarian, not power-centered, has a beginning but no end and is not win/lose. In the real world, our lives, careers, marriages, social lives, etc., are more often trapped in the constraints of the finite game, while the infinite game carries the true ideals of human freedom and beauty. Perhaps that is why we need to construct a metaverse. Some people believe that, fundamentally, the metaverse should be such an “infinite game” that it adopts a distributed, decentralised, and self-organized governance structure, valuing cocreation, management autonomy, and benefit sharing.⁷ In the metaverse, this “infinite game” quality is profoundly reflected in its “social life” and “civilizational form.” This is due to the development of online games for more than 50 years.

The iterative development of the internet has built the material foundation and media platforms of the metaverse. It is generally believed that beginning in the early 1990s, the internet developed from Web 1.0 to Web 2.0, before reaching Web 3.0. Compared with Web 1.0, Web 2.0 had further-reaching online interactions among users and a certain degree of decentralisation. However, most of the current Web 2.0 platforms that scaled users and traffic have developed platform centrality. In the Web 2.0 era, although technologies for image, sound, and video brought a certain sense of realism and relative immersion, the presentation of the digital world under conventional conditions is still flat. It cannot meet the demand for higher-dimensional virtual information. Web 3.0 promotes a topological model of scale-free network connections (Radoff 2022). In this model, all decentralised nodes can be connected freely to one another, forming an actual rhizomatic growth state and achieving real “decentralisation.” As one proponent argues, “The Web 3.0 vision is to achieve a serverless, decentralised internet, where users control their identity, data, and destiny.” (Yi 2022) The barriers between the original Web 2.0 platforms will undoubtedly be broken, ending their isolation from each other, and then isolated states will no longer exist. At the same time, network intelligence will enter a new stage of development that will bring a full 3D-immersion experience to users.

A popular view is that the so-called metaverse is just the next generation of the internet with Web 3.0 as its core; this view is called the complete reality of the internet (CRI) to emphasise its 3D virtual effect or the “ultimate internet” to highlight its comprehensive smart features. We should see that it is unreasonable to interpret the metaverse as a kind of internet. Logically, we can only say that the increasingly developed internet is a

⁷See Xiao Feng’s speech, “Metaverse: A Kind of Infinite Game.” Cited on August 2, 2022. <https://www.bilibili.com/video/BV1of4y1E726>.

tool for metaverse generation and that the metaverse semantically points to a world—and practically is a world—created by the network, yet it cannot be said that the internet is the metaverse. However, the internet is of great significance to the production and construction of the material basis and media platforms on which the metaverse exists. It is certain that without the iterative development of the internet over the past 30 years, there would not have been a metaverse. In any case, opening the metaverse needs to begin with access to the internet. Although the equipment and hardware needed to produce the metaverse and the many digital technologies discussed below are beyond the scope of the internet, their powerful functions often need to be combined with the internet to be effective. The material foundations and platform status of the internet has a decisive impact on the shape of the metaverse. For example, many of the current metaverse types of games that rely on Web 2.0 platforms are still centralised and isolated from each other, while the development of Web 3.0 is giving rise to new decentralised and open platforms, such as Solipsis and Shopify, which use the “scale-free network” connection model of a node network to break the monopoly of a centralised server and explore peer-to-peer network architecture. Only then can a truly decentralised metaverse be formed, guaranteed by encryption protocols and the free interaction between users. In addition, the intelligent services of the Semantic Web brought by Web 3.0 and the breaking of the boundary between virtual worlds and reality as pursued by the internet are all landmark features of the metaverse. The following virtual-reality and virtual-real-world scenarios must also be online as a precondition.

Virtual reality (VR) and its extensions, augmented reality (AR), mixed reality (MR), and extended reality (XR), build the technical interface and spatial architecture of the metaverse. In early 2014, Windows released VR Chat, a massively multiplayer online virtual reality social platform. It allowed users to interact in avatar form and represented a way forward for the intersection of virtual reality and online gaming. In April 2021, NVIDIA launched Omniverse, a collaboration platform using virtual simulation, meaning that virtual reality development had entered the era of the metaverse. Generally, VR is a digital scene, AR is a physical scene plus a digital scene, and MR is a digital (mediated) enhancement of a physical scene plus a digital scene again. XR can be seen as an overlay and enhancement of VR, AR, and MR. Today, XR can stitch 360-degree panoramic video from multiple angles, increase video resolution to 8 K and above for a fuller sense of immersion, capture user microexpressions and external environment changes through capture technology and make flexible responses.

In constructing the metaverse, the family of virtual reality technology is particularly closely intertwined with internet technology. However, the internet is closer to its underlying foundation, while virtual reality is closer to its port connection. In other words, virtual reality is mainly a technical interface to the metaverse. From the initial head-up display, data gloves and other devices to digital cameras, 3D modelling, holographic photography, virtual human simulation and microexpression capture technology, these technical interfaces constantly upgrade the simulation of the virtual world and break the barriers between virtual reality and reality. The underlying support role, itself constantly updated by big data, general computing, artificial intelligence, etc., does similar work. At the same time, the advance from virtual to extended reality is also the process of building a spatial framework for the metaverse. As Mitchell says, “In the early days of the digital revolution, separating these fundamental units of matter and information seemed

laudable. Virtual and reality were imagined as separate realms—cyberspace and physical space. Now we see the boundaries between them dissolving. Often, things in cyberspace will be reflected in physical space, and vice versa.” (Mitchell 2003, 3). Constant improvement to the intelligence of the internet and virtual reality technologies brings about this change. A digital virtual world is gradually being opened up around us, while it and the actual world, made up of the nature and society in which we have lived for thousands of years, are now merging and interconnecting, unfolding before us a new framework of living space.

Based on the multidimensional constructs of online games, the internet, and virtual reality, the concept of the metaverse has been proposed. The current metaverse is the product of the joint construction of the abovementioned cultural practices, and the future dynamic generation of the metaverse is also based on these cultural practices.

The dynamic generation of the metaverse

Compared with online games, the internet, and virtual reality, the concept of the metaverse harbours more expectations beyond currently existing cultural achievements and is on the way to dynamic generation.

There is no doubt that technology is the first productive force constructing the metaverse, and the metaverse and its various virtual social lives, economic activities, entertainment, and civilizational forms all need technological support as well. A perfect metaverse needs to absorb more cutting-edge and innovative digital technologies developed from existing technologies to form technology clusters or systems. The first is network connectivity and computing technology clusters, which involve the traditional internet, the Internet of Things, 5G/6G, big data, cloud computing, general computing, and edge computing. This technology cluster addresses the network environment in a fundamental and macroscopic way. The second is the digital twin technology group, which explicitly includes modelling engines, digital modelling, digital threading, data interaction, digital simulation, “simultaneous localisation and map building” (SLAM), “model-based system engineering (MBSE),” and other essential technologies supported by big data, cloud computing, AI and blockchain. This technology cluster addresses the problem of replicating an actual world in a virtual world, or what David Gelernter calls a “mirror world.” (Gelernter 1993, 3). Third is a cluster of high-simulation interaction technologies, including continuing development on VR, AR, MR, XR, and its crossover to 3D engines, motion tracking, overfrequency sensing, real-time rendering, holograms, as well as the possible introduction of newer technologies such as brain-computer interfaces in the future. This technology group solves not only the problem of users switching to the world of the metaverse to obtain complete three-dimensional information and immersive experiences but also the problem of entering “social life” in the metaverse, creating wealth and realising the value of a “second life.” The fourth cluster is the artificial intelligence (AI) technology group, specifically related to computer vision, image recognition, intelligent voice recognition, natural language processing, deep learning, and emotional computing. This technology cluster mainly addresses development in new subjects or classes of subjects such as avatars, virtual humans, robots, cyborg posthumans, and biochemicals. The fifth cluster is the blockchain and NFT technology group, which involves hash algorithms, distributed ledgers, distributed storage, data tracking, timestamps, cryptographic protocols, smart

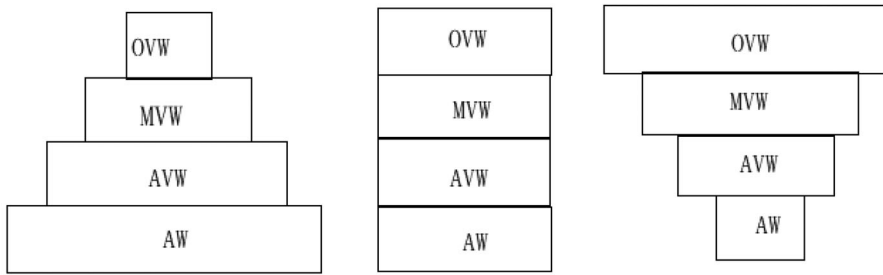
contracts, and so on. It guarantees the privacy of the citizens of the metaverse, realises the real decentralisation of the metaverse, and breaks problems of isolation.

What kind of view of the world does this metaverse, which is constantly being generated, take? The prevailing view is a fusion of reality and illusion. As the Accelerated Studies Foundation (ASF) reported in *Roadmap to the Metaverse* (2007), “The Metaverse is (1) a virtually augmented physical reality and (2) a physically persistent virtual space. It is a fusion of the two while allowing users to experience it as either” (Smart, Cascio, and Paffendorf 2022). This also includes four specific mini-worlds: virtual world (internal/simulation), mirror world (external/simulation), augmented reality (external/augmentation), and life (internal/augmentation) (Smart, Cascio, and Paffendorf 2022). It should be said that this is the source of many theories on the fusion of virtuality and reality. For example, in Deloitte’s 2022 report, *Metaverse Overview: Visions, Technologies, and Responses*, four central meanings of the metaverse are presented: “virtual worlds that simulate reality,” “innovative virtual worlds,” “actual worlds,” and “the fusion of the virtual and the real [that] transcends reality.” (De Qin 2022) I suppose that the four worlds proposed here are not only the inheritance of the four components of the metaverse in the ASF report but also further development. There are some special discussions in the industry and academia about the development and future direction of the metaverse. For example, some studies have outlined the evolution of the metaverse in three stages: “digital twin, digital native, and digital immortal.” (Jia and Qiushan 2022, 283). Similar studies refer to these three stages as “imaginary twin, imaginary-imperial, and imaginary-imperial fusion.” (Xusen 2022, 22). Other scholars mention that the advanced form of the metaverse “is to fully embed digital and virtual reality technologies into the actual world rather than [be] outwardly parallel to it.” (Jun 2022).

I attempt to synthesise and absorb the valuable elements of these studies to make further progress and propose the following points for achieving a more perfect metaverse.

First, in terms of its co-occurrence, the metaverse consists of the “actual world,” “augmented virtual world,” “mirror virtual world,” and “original virtual world.” It must be the result of the oneness of human perception, experience, and the scene composed of numerous physical creatures, whether it be the four tiny worlds or the general metaverse. The relationship between the world and the subject can be understood in two ways: first, the metaverse world exists before the metaverse subject, and only after entering this world can the subject confirm the corresponding subjective factors such as virtual identity, value creation, and integrated experience; second, the metaverse world and the metaverse subject are generated simultaneously, and the subject’s virtual identity, value creation, and integrated experience are confirmed. Save for the actual world, the other three proposed worlds are different forms of virtual worlds. The augmented virtual world refers to the traditional understanding of the virtual part of an augmented world or the use of augmentation technology to discover the actual world. The mirror virtual world is the same as ASF and Greentel’s “mirror world”; I emphasise its twinned, virtual relationship with the actual world, that is, the simulation of the actual world as the shadow of real-time interactivity. The original virtual world is similar to Deloitte’s “Virtual World of Innovation.” In that world system, what ASF calls “live recordings” do not constitute a different type of virtual world; part of them, using traditional tools, are concrete manifestations of the actual world—the world of objective knowledge—and

part of them are highly technical. These “live recordings” belong to the components of the mirror virtual world. Second, I do not agree with many of the studies mentioned above that regard the metaverse as a world consisting of several small worlds added together or partially crossed. I understand it as a three-dimensional world made by the virtual accumulation of and expansion on the actual world. Specifically, the actual world, augmented virtual world, mirror virtual world, and original virtual world are superimposed. The hierarchy between each small world is relative. There is no clear-cut juxtaposition of the “virtual world of simulated reality” and the “virtual world of innovation,” as depicted in the Deloitte report above; the two worlds are necessarily intertwined. For example, the virtual human belongs to the “innovative virtual world,” and it would not be unusual for it to enter the “virtual world of simulated reality.” At that point, the two worlds are intermingled. In addition, the four layers of the world are not isolated, but all are intertwined; from bottom to top, they are completely one. This “intersection” first exists in the actual world where the human subject interacts with various software programmes that constitute each level of the world; second, at the current stage of development, the user as a subject can be in the real physical world, while the consciousness or psyche enters any of the three virtual worlds. In the future, other intelligent life forms will also run through other worlds. No matter how advanced virtual technology is or what stage the metaverse has reached, the actual world as the material base cannot be dissolved. The metaverse cannot be understood here as Baudrillard’s human simulation system, as in the above study. Baudrillard’s research is mainly based on the predigital era’s culture of images. From a culturally critical standpoint, he is biased, believing that simulated images will replace physical reality as the new dominant force. Simulation does not need to drive out physical reality but is more often produced in association with the actual world. As mentioned above, the key to the mirror world is the digital twin, and the essence of the latter is real-time interaction between virtual simulation and physical reality as its “essence,” rather than the withdrawal of reality, as Baudrillard suggests, from a self-sustaining simulation. Even though in the original virtual world, various virtual objects do not have physical entities corresponding to them, the carriers, technologies, products, and symbols, etc., that constitute the material medium of each layer must still be present in real time; otherwise, the world cannot be formed. Fourth, in terms of development over time and future directions, the hierarchical structure of the metaverse, which consists of four small worlds—the actual world, the augmented virtual world, the mirror virtual world, and the original virtual world—superimposed, will remain more or less unchanged. However, with the development of technology, the small worlds will grow and shrink, and the metaverse structure will also change over time. The universal world structure will undergo a continuous deformation process from “upright triangle stacked block—rectangular stacked block—inverted triangle stacked block”; that is, the enhanced virtual world, mirror virtual world, and original virtual world will be in proportion to the actual world. The augmented virtual world, mirror virtual world, and original virtual world in the metaverse will undergo inverted development. This gradual development proceeds from an “actual world bigger than the virtual world” to “the two worlds being equal in size,” then to a “virtual world bigger than the actual world.” At present, the metaverse is in the upright triangular block stage of development. The actual world accounts for the largest proportion, and the original virtual world accounts for the smallest proportion, while the other two worlds are in the middle. In the future,



OVW: Original virtual world

MVW: Mirrored virtual world

AVW: augmented virtual world

AW: Actual world

Figure 1. The world structure and dynamic display intention of the metaverse.

there will be a rectangular stage of world development, and the four smaller worlds will be equal in size. In the distant future, in the inverted triangular block stage of world development, the metaverse will be formed, and while the actual world will not disappear, it will become the smallest, the original virtual world will be the largest, and the other two worlds will be second. As shown in [Figure 1](#), as the level of virtualisation and intelligence increases, the original virtual world will continue to radiate and extend into the universe. Ray Kurzweil famously predicted that in the fifth of the six epochs of human evolution, singularity would come, and artificial intelligence would transcend the limits of the human brain; in the sixth epoch, the optimal level of computing will reorganise matter and energy and finally push it into the universe, bringing about a cosmic awakening (Kurzweil 2014, 393–406). If this happens, the metaverse will move from the broad metaverse phase to the narrow metaverse evolutionary stage. At this point, the new metaverse appears again in a triangular block structure, and a new, similar round of evolution begins.

The development of the “metaversal elements” of literature and art

Abrams, a contemporary American scholar, summarised Western literary criticism over a two-thousand-year period, arguing that any literary work always involves four elements: work, artist, world, and audience. He claimed that critics throughout history have always formed different critical paths based on the relationship between the “work” and one of the other three elements or on the work itself. Historically, this has indeed been the case, thus forming a triangular model of criticism with the work as the core and criticism being extended to the other three elements (Abrams 1953, 6). James J. Y. Liu, a Chinese-American scholar, argues that this model is not fully suitable for Chinese literary criticism and that it should be transformed into a four-stage theory of literary activity, in which four elements are arranged in a cyclical dynamic sequence (Liu 1975, 10). The study of mediated literature and art that I advocate is based on previous research. Combined

with the reality of academic development in the context of modern media, the “five elements of literary activity,” including a media element, were proposed (Xi 2015, 56). The four-factor and five-factor theories acknowledge the importance of world elements as the material basis for literary and artistic activities. Coincidentally, scholars such as Abrams and James J. Y. Liu use the word “universe” rather than “world” in the theory of literature and art. The analysis of the relationship between the “world” and “universe” mentioned in this paper is also entirely suitable for this purpose. To this extent, is it possible to understand the emergence of the metaverse as one of the complex faces of the universal elements in current literature and art? Not only is this possible, it is already fact. Today, the metaverse has changed and will continue to change the composition of the universal elements of literature and art. Universal elements of literature and art have already evolved beyond tradition.

This article’s literary and artistic metaverse components differ from the overall literary and artistic metaverse. In comparison to the industrial meta-universe, military metaverse, museum metaverse, commercial platform metaverse and so on, the literary and artistic metaverse is a special world constructed through literature and art, particularly digital film, television, animation, games, and other literary and artistic forms; the literary and artistic element of the metaverse is relative to the traditional “universe” (world).

According to traditional theory, the universal elements of literature and art are complex. In ancient Greece, Plato believed that literature imitated the world, which was divided into two levels: first, the illusory world of reality, and second, the world of truth, which is a “copy” of all things in the actual world, i.e. “Idea” or “Eidos.” The actual world is only an image of the world of truth, and literary scholars and artists can only “imitate the image of what is shown.” (Plato 2008, 84). Aristotle did not recognise the world as being in “phases.” Instead, he emphasised the subjectivity of the imitating subject, arguing that artists and poets “tend to represent universal things.” (Butcher 1902, 11). Since then, world elements of literature have been developed from three aspects in Western literary theory: the transcendental objective spiritual world, the natural social world, and the psychological world of consciousness. After the eighteenth century, Western literary theory and aesthetics often oscillated between the poles of the natural social world and the psychological world of consciousness when discussing the world element of literature. The broad Romantic school, which promoted imagination, genius, and emotion, made an unprecedented contribution to the psychological world of consciousness among the world elements of literature. The famous passage from Wordsworth’s preface to *Lyrical Ballads* says: “Poetry is the natural outpouring of strong emotion. It arises from an emotion recalled in peace. This emotion is contemplated and is real in mind.” (Wordsworth, Coleridge, and Stafford 2013, 111). The world of literary, psychological consciousness combines various complex factors, not just mere emotion as people (mis)understand it. In contrast to the romantics is naturalism. This school calls for a rigorous and scientific reproduction of the natural social reality of the world, starting from clear facts and using experimental methods. Compared with romanticism and naturalism, realism is in an intermediate state, emphasising, on the one hand, that literature and art fully reproduce the original appearance of the actual world of society; on the other hand, it highlights the creative role of the writer’s subjective spiritual world in this process. However, while the natural social world and the psychological world of consciousness are growing, the objective spiritual world has not been forgotten

and abandoned. As the master of classical aesthetics, Hegel regarded his “absolute idea” as the “ontology” of the world. The artist internalised the external world in his or her mind and then formalised it: “only the mind can put itself free and self-contained. Only the mind can realise the inner world, which is full of content (meaning) of interest, in the form of external phenomena.” (Hegel 2011, 214). Art is ultimately the “sensual manifestation” of this idea, and at the same time, “beauty” occurs.

After the twentieth century, new trends emerged in the interpretation of world elements of literature. Theories such as psychoanalysis, archetypal criticism, and phenomenology pushed the study of the world of psychological consciousness to the depths of the subconscious, the collective unconscious, and pure consciousness, while the certainty of the external world of natural social reality composed of objects, facts, things, and so on gradually diminished. In the 1960s and 1970s, Popper divided the world into three parts, namely, “the world of physical objects or physical states,” “the world of states of consciousness or mental states,” and “the world of the objective content of thought or objective knowledge,” especially “the world of scientific thought, poetic thought and works of art.” (Popper 1979). The world is also the world of knowledge recreated by language and symbols, as described here. Historically, literature and art did participate in the creation of this world. For the literary activities of later generations, this world of literary knowledge also entered the system of the universal elements of literature. In the context of the famous “linguistic turn,” this world also became a linguistic world. In the 1920s, Lippmann proposed his famous “mimetic environment” to produce printed mass media. In his view, a “pseudoenvironment” is inserted between humans and their environment, and then “all human behaviour is directed toward [this] pseudoenvironment.” (Lippmann 1998, 15). A few decades later, the field of media ecology emerged, and while it shifted into the context of digital media, it held the same basic view as Lippmann’s pseudoenvironment. In a nutshell, we use the data provided by the media “to understand and reconstruct the world around us,” or more specifically, “we construct the world through the perceptual information we understand, which in turn is designed by the media (or a given medium) through encoding and decoding.” (Lum 2006, 29). Human beings cannot understand the world outside their “mediated environment.”

Looking back at the history of the development of literary theory and “world” theory, the world elements of literature include the transcendental objective spiritual world, the physical world of nature and society, the world of psychological consciousness, and the objective world of knowledge. After the baptism of modern existentialism, pragmatism, postmodern philosophy, digital modernity, and other academic ideas, today, the transcendental objective spiritual world has suffered a crisis of legitimacy and has even been entirely deconstructed by specific theories. In my opinion, this spiritual world still has its necessity and possibility of existing today. However, it is no longer the world of abstract entities or ultimate beings in the traditional metaphysical sense. It should be a space for metaphysical value that transcends the natural world and belongs to the world of contingent value that is different from the actual world in any human era. If it needs to be renamed, it can be called the “metaphysical value world.” The natural physical world, the world of psychological consciousness, and the world of objective knowledge together constitute the actual world of metaphysical and empirical realms corresponding to this metaphysical world of value. In this way, we can arrive at a composition structure

universal elements of literature and art	world of objective knowledge
	psychological world of consciousness
	natural social world

Figure 2. Composition of universal elements of traditional literature and art.

for universal elements of literature, which traditionally consists of four worlds. This is shown in [Figure 2](#).

This structure has been rewritten with the advent of the metaverse. As mentioned above, I regard the metaverse as a world formed by superimposing three small virtual worlds, namely, the augmented virtual world, the mirror virtual world, and the original virtual world, on top of the actual world. When literary and artistic (especially new media) activities encounter the metaverse elements of the literary and artistic world, they are covered in the metaverse through the traditional structures of the literary and artistic world. A new world system is formed in the form of “metaversal elements.” As shown in [Figure 3](#), in this new form of “metaversal elements,” there are two major sections: first, the actual world section, which explicitly includes the natural social world, psychological consciousness world, and objective knowledge world; second, the virtual world section, which explicitly includes the enhanced virtual world, the mirror virtual world, and the original virtual world. The two panels are also intertwined. It should be highlighted that reality here is relative to the virtual but not equal to it; it is the current presentation of reality, and it is the subject’s perspective of the world. As a result, the elements of the actual world of literature and art (the natural social world, the psychological world of consciousness, and the world of objective knowledge) refer to the objective natural society, subjective psychological consciousness, and the subject-object unity in the cultural world perceived by the subject at the time. As stated further below, the virtual is the latent dimension of reality, the exploitation of reality’s potential. The enhancement of the virtual world, the mirror virtual world, and the original virtual world in literary and artistic activities is primarily manifested in the potential development and real exploration of the natural social world, the psychological world of consciousness, and the world of objective knowledge in digital ways.

The nature and being of “metaversal elements” of literature and art

In nature, the “metaversal elements” of literature and art directly demonstrate actuality. This is brought about by the reality of the world, composed of the natural social world, the world of psychological consciousness, and the objective world of knowledge at the bottom. This reality is, first, expressed in the materiality of each concrete world. The materiality of the natural world comes from matter, energy, and interrelationships. The materiality of the human social world is derived from the practical activities of human beings, of which the contradictory movement of productive forces and relations of production, as Marx called it, is still one of the best interpretations of social materiality. The materiality of the psychological and conscious world lies in the simultaneous presence of the body and psychological consciousness. The world of human psychological consciousness

metaversal elements of literature and art	virtual world	original virtual world
		mirrored virtual world
		augmented virtual world
	actual world	world of objective knowledge
		psychological world of consciousness
		natural social world

Figure 3. Composition of “metaversal elements” of literature and art.

is inseparable from the material body. The body is connected to the natural social world in which it lives as a whole through its extended embodied “prosthesis” (medium). The materiality of the objective world of knowledge lies first in the fact that it is a combination of the first two material worlds and that its being, in reality, presupposes the simultaneous presence and substantial participation of symbolic material, with a carrier, product, and technological media in its production, just as the relationship between consciousness and the body does. Second, the reality of the actual world is also expressed in the objective reality of the three concrete worlds. In Popper’s account, the objective reality of the three worlds can be illustrated by their mutual relationship, which affects each other. Scientific knowledge in the world of objective knowledge belongs to specific objective knowledge, which, after being created, no longer belongs to anyone but exists independently and objectively. When it is comprehended by technologists (through the world) and applied in practice, it in turn changes the physical world. If the human mind can function like an “organ,” it certainly has objective reality.

The more prominent nature of the “metaversal elements” of literature and art is digital virtuality. The actual world has both a direct reality and an indirect virtuality. The term virtuality comes from the Latin word “*virtualiter*,” coined by the mediaeval logician John Duns Scotus. In its original sense, it constitutes the force, power, or potential of something to replace reality at a given moment. In this sense, virtuality constitutes force, power, potential, or essence. In my vision of media production, virtual practice involves the triadic relationship between the world, the medium, and the subject. The medium here is not simply a mediator but also a material field and a decisive productive force.

The dominant media in different eras have paradigmatic implications for virtual outcomes. In the predigital media era, virtual practice was dominated by atomic physical media, and virtual was understood to be representation (including imitation, reflection, and performance). Its fundamental method was to present information in similar words and symbols arranged on the carrier plane. In this process, the establishment of the new world still needs to be premised on the transfer of material and energy, and the information produced is still inadequate, incomplete, and only a partial reflection of the actual world; thus, the virtual world is still a limited release of the potential of the actual world. We can call this kind of virtual reality an “atomic virtual” world in the era of writing and printing. This virtual world does not break through the boundaries of the actual world, and on the whole, it is not yet able to acquire independent self-sustainability. That is why this classical virtual world is also called a “reappearance” in traditional theories,

i.e. a “representation” of the actual world (including the three worlds mentioned above). The counterpart of the classical atomic virtual world is the digital virtual world.

In contrast to the arrangement of similar words and symbols on atomic carrier planes, the digital virtual world operates algorithmically. It starts with digitising and data-forming all the materials of the actual world, capturing this information precisely, rendering it in bits, and then modelling it by using the various advanced digital technologies summarised above. For this digital virtualisation, “virtual space—as opposed to natural object space—is the informational equivalent of things. The virtual space makes us feel as if we are dealing directly with physical or natural reality.” (Heim 1993, 131–132). The point is that this digital virtual world is the “information equivalent” of the actual world. In contrast to the atomic virtual world, where the world is constructed by transferring matter and energy and becomes a constituent element, the digital virtual world is a complete and pure production of information in a context where the matter and energy of the actual world (technical equipment) are completely receded and do not directly participate in the construction of the world. It is important to emphasise here that the digital virtual world enables the full release of the virtual potential of the actual world in the form of information and that digital technologies consisting of the types mentioned above extract the implicit and potential (including the future-projected) information world from the actual world, making it a self-sustaining and independent being that can be detached from its parent source. This is the power of the digital virtual world, which also shapes the specificity of the metaverse and the “metaversal elements” of literature and art.

The fundamental characteristic of the “metaversal elements” of literature and art is that they are a self-created system that facilitates a digital way of being. This is the consequence and effect of the superposition and fusion of the actual and virtual “metaversal elements” of literature and art. When the virtual world is extracted from and superimposed onto the actual world, a self-organized system is set up. According to early cybernetic theory, the prominent feature of this self-organized system is the concept of “reflexivity.” Reflexivity is a property of a system: the activity initially used to generate a system eventually becomes part of that system. When reflexivity is formed in metaverse literature and art, it becomes an organic part of the system and constitutes its primary mode of being. According to second-order cybernetics, the prominent feature of this self-organising system is “autopoiesis,” i.e. self-creation and growth through the interaction of the elements in the system. Early cybernetics had already successfully explained organic living systems in terms of machines: “If living systems are machines, then it is obvious that they are physical self-creating machines ... The opposite also holds: if a physical system is self-creating, then it is alive.” (Maturana and Varela 1980, 82). In Maturana’s words, self-creating systems have crossed over from the organic living world to the inorganic, physical world. The “metaversal elements” of literature and art are a typical self-creating system, and its power and mechanism of self-creation come from digital computing. Especially with the support of AI technology, the various digital technologies used in the metaverse can evolve beyond the design of the designer: “such self-evolving programmes are not only models of life, but they are also life itself ... If one believes that the universe is essentially composed of information, then it follows ... that these ‘creatures’ (digital programmes—author’s note) are life because they have a form of life, i.e. information encoded.” (Hayles 2010, 11). This statement by N. Katherine Hayles introduced

an information-theoretic worldview and view of life. The slogan of the informationist worldview is that “everything is information.” Some scholars claim that “reality is a programme running on the cosmic computer,” and in the relationship between matter, energy, and information, “there is a cosmic information code underneath everything such as matter, energy, and the structure of space–time. The cellular automaton model embodies this encoding, a basic unit embodying the two states of ‘being or not being’.” (Hayles 2010, 11). This view is quite different from materialism described above, where the world’s positions of matter, energy, and information are reversed. The merits of this are set aside for the moment in this paper. From the materialist point of view, the digital information or virtual world that exists in the “metaversal elements” of literature and art is based on the materiality and energy of the actual world, and its self-created and self-organising nature comes from the interaction of information between the two worlds. For the informationist, however, everything is information, and the actual world and the virtual world and their specific parts in the “metaversal elements” of literature and art differ only in the forms by which information is combined and production transmitted. The self-creation of a self-organized system is also part of the positive and negative entropy changes in a large information field. However, regardless of the theoretical interpretation, the “metaversal elements” of literature and art show the fundamental way of being for digital information.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by Research on Chinese New Mediated Literature and Art [grant number 18ZDA282] and Research on the Discourse Construction of Contemporary Chinese New Mediated Literary Theory [grant number 18BZW008].

References

- Abrams, M. H. 1953. *The Mirror and The Lamp Romantic Theory and the Critical Tradition*. Oxford: Oxford University Press.
- Butcher, Samuel Henry, ed. 1902. *The Poetics of Aristotle*. London: Macmillan.
- Carse, James P. 1986. *Finite and Infinite Games: A Vision of Life as Play and Possibility*. New York: The Free Press.
- De Qin. 2022. “Metaverse Overview – Visions, Technologies, and Responses.” <http://report.report58.com/report/ae4942609df25410/hyj-ae4942609df25410.pdf>. Citation data: 2022 August 12, 2022.
- Gelernter, David. 1993. *Mirror Worlds: or the Day Software Puts the Universe in a Shoebox*. Oxford: Oxford University Press.
- Gonzales, Daniel. 2021. “Metaverse Investing: How NFTs, Web 3.0, Virtual Land, and Virtual Reality Are Going to Change the World as We Know It.” Michigan: Independently Published, 4.
- Harman, Graham. 2017. *Object-Oriented Ontology: A New Theory of Everything*. New York: Random House UK.
- Hayles, N. Katherine. 2010. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: University of Chicago Press.
- Hegel. *Aesthetics*. Vol. 1. Translated by Zhu Guangqian. Beijing: The Commercial Press, 2011.
- Heim, Michael. 1993. *The Metaphysics of Virtual Reality*. Oxford: Oxford University Press.

- James, William. 1920. *A Pluralistic Universe*. New York: Forgotten Books.
- Jia, Chang, and Liu Qiushan. 2022. *Metaverse - The Road to Infinite Games*. Beijing: CITIC Publishing Group.
- Jianming, Liu. 2022. "The Concept of 'Meta-Universe' is Collapsing." *Journalism Lover* 6: 4–8.
- Jipei, Wang, and Wei Dai Fu. 2018. *Shizi Shuzheng*. 2018 ed. Nanjing: Phoenix Press.
- Jun, Zeng. 2022. "The Development Stages and Cultural Characteristics of the Yuan Universe." *Journal of East China Normal University (Philosophy and Social Science Edition)* 4: 98–105.
- Kurzweil, Ray. 2014. "The singularity is near." In Ronald L. Sandler (Ed.), *Ethics and Emerging Technologies*, 393–406. London: Palgrave Macmillan UK.
- Lai, Yonghai, ed. 2010. *Lengyan Sutra*. 2010 ed. Beijing: Zhonghua Book Company.
- Lippmann, Walter. 1998. *Public Opinion*. New Brunswick and London: Transaction Publishers.
- Liu, James J. Y. 1975. *Chinese Theories of Literature*. Chicago and London: University of Chicago Press.
- Lum, Casey Man Kong. 2006. *Perspectives on Culture, Technology, and Communication: The Media Ecology Tradition*. New York: Hampton Press.
- Maoyuan, Ma. 1999. *Selected Poems of the Tang Dynasty*. Shanghai: Shanghai Ancient Books Publishing House.
- Maturana, H. R., and F. J. Varela. 1980. *Autopoiesis and Cognition: The Realization of the Living*. Dordrecht: D. Reidel Publishing Company.
- Mitchell, William J. 2003. *Me++: The Cyborg Self and the Networked City*. Cambridge: The MIT Press.
- Plato. 2008. *The Republic*. Vol. 7. Oxford: Oxford University Press.
- Popper, Karl Raimund. 1979. *Objective Knowledge: An Evolutionary Approach*. Vol. 49. Oxford: Clarendon press.
- Radoff, Jon. 2022. "Network Effects in the Metaverse." <https://medium.com/building-the-metaverse/network-effects-in-the-metaverse-5c39f9b94f5a>. [2022-07-29].
- Schiller, Friedrich. 1985. *Shenmei Jiaoyu Shujian*. Translated by Feng Zhi and Fan Dachan. Beijing: Peking University Press.
- Smart, John, Jamais Cascio, and Jerry Paffendorf. 2022. "Metaverse Roadmap: Pathways to the 3D Web- A Cross-Industry Public Foresight Project." <https://www.metaverseroadmap.org/MetaverseRoadmapOverview.pdf>. [2022-8-3].
- Stephenson, Neal. 1992. *Snow Crash*. New York: Bantam Dell.
- Vilenkin, Alexs. 2006. *Many Worlds in One: The Search for Other Universes*. New York: Hill and Wang. A Division of Farrar, Straus, and Giroux.
- Wordsworth, William, Samuel Taylor Coleridge, and Fiona Stafford, eds. 2013. *Lyrical Ballads 1798 and 1802*. Oxford: Oxford University Press.
- Xi, Shan Xiao. 2015. *Media and Literature - An Introduction to Media Literature*. Beijing: The Commercial Press.
- Xusen, Cheng. 2022. *Understanding the Metaverse*. Beijing: Renmin University of China Press.
- Yi, Liu. 2022. "From Web 2.0 to Web 3.0." Cited on August 5, 2022. <https://blog.csdn.net/wxblockchain1/paper/details/104428512>.
- Zhenyuan, Su. 2022. "Metaverse from an Etymological Perspective." *China Social Science Journal*, March 22, 2022, 3.