Towards the Ludic Cyborg

History and Theory of Authorship in Western Modernity

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Abstract

New media create new forms of authorship. The historical investigation starts with an introspective remembrance of the changes in authorial practices during the past half-century. The paper then traces the four major developmental phases of authorship and their cultural reflection in the modern era.—Between the Renaissance and the Enlightenment, individual authorship originated in the context of letterpress printing. Two radically new concepts formed its philosophical and legal basis: the assertion of intangible and inalienable property. Industrialization, however, introduced new mass media that relied on the collaboration of many artisans. In the 20th century, analog film, radio, and television challenged the established and esteemed concept of individual authorship in favor of collective and hierarchical production. One response to this conflict between the cultural ideal and actual practices was the attempt by the holders of new managerial positions in the auditory and audiovisual media, particularly conductors and directors, to claim the author's function. The research and theories of new academic disciplines complemented this deconstruction, resulting in declarations of the 'death of the author' in the late 1960s. At the same time, the onset of digitalization and digital networking opened up the possibility of—and created the demand for—different practices. Since the 1990s, distributed and potentially egalitarian authorship of digital knowledge workers has developed in the software medium and its central genre of digital games. Currently, a fourth transformation of authorial practices is underway. Rapid advances in digital technology realize what was hoped for already 60 years ago: a symbiotic relationship between human and machine intelligence. Thus, across all media and genres, the emergence of cyborgian authorship becomes apparent.—A media-specific theory of authorship concludes the investi-

gation, i.e., the insight into the interdependence between the evolving state of media and the formation of authorial practices as well as their cultural acceptance.

INTRODUCTION

The cultural practice and perception of authorship are currently undergoing radical change. Digitalization affects its existing forms and brings about entirely new variants. Of course, the present transformation is neither the first nor the second since the concept of secular authorship emerged in the early modern era. Its bedrock was artistic freedom. Two fundamental changes were historically necessary to achieve such freedom.

First, the Christian belief in the monopoly of divine creative power, which dominated the European Middle Ages—that God was the author of everything—had to be secularized in favor of human creative power.[1] Secondly, this spiritual freedom to secular creation had to be complemented by practical independence concerning content, form, and technology. In early modernity, the prevailing funding by feudal or bourgeois patronage implied that most artistic works were commissioned and associated inevitably with specific requirements. In contrast, the anonymity of the markets that originated in the transition from a subsistence economy to a monetary economy offered less dependence on patrons and patronizing institutions and more artistic freedom.

Markets, of course, required tradeable goods. Therefore, a sine qua non for authorship was technological reproducibility, the central role of which Walter Benjamin first recognized.[2] In the late 15th century, letterpress printing enabled textual reproduction. Around the same time, the transition from fixed-in-place fresco painting to transportable and saleable canvas paintings meant an essential first step into the markets for visual authorship. But reproduction remained possible only through manual copying, for example, by apprentices and disciples. It took three hundred years until, in the early 19th century, photography allowed the capture and reproduction of images. A few decades later, various technical methods established the recording of acoustic works, i.e., their storage and reproduction. In the first half of the 20th century, the (sound) film finally realized audiovisual reproducibility.

1 See below chapter *II Pre-Industrial Authorship: The Individual Artisan.*

2 Cf. Benjamin, Walter: "The Work of Art in the Age of Mechanical Reproduction," in: *Illuminations. Essays and Reflections. Edited and With an Introduction by Hannah Arendt. Preface by Leon Wieseltier*, New York: Schocken Books 2007, pp. 217-252.

Unlike writers, artists in the industrial visual, auditory, and audiovisual media needed access to mechanical and industrial technologies already for recording, i.e., in the creative process. A studio system emerged as a further development of the pre-industrial ateliers of visual artists. Photo, sound, film, and finally, television studios bundled and configured the necessary technical resources. Consumer technology that empowered individual artists to independent visual, auditory, and audiovisual creation—though in less than professional quality—became accessible only decades later.[3] Thus, access to studio facilities constituted another fundamental prerequisite for authorship in visual, auditive, and audiovisual media.

So-called 'middlemen' or 'gatekeepers' granted such access. Publishers or producers, assisted by reviewers, lectors, or editors, picked from the works offered suitable ones. Success or non-success in this cultural selection constrained authorship in auditive and audiovisual media. Until digitalization, only texts and still images—paintings and photographs—could be authored independently of institutions and gatekeepers. Writing, though, (pre-)produced not only literature but also auditory and audiovisual works, e.g., through libretti and sheet music, texts for radio features and plays, dramas, and film scripts. Since the Renaissance and through the industrial era, therefore, writing has functioned as the pioneering model of authorship both in cultural practice and in the—also text-based—legal system.

Of the 500 to 600 years that have passed since the emergence of modern authorship, I have worked roughly 50 years, between a tenth and a twelfth of the period in question, as a writer—of monographs, non-fiction books, and novels, essays, reporting, radio features, radio plays, screenplays, and documentaries. Thus, an introspection seems in order (*I Introspection: The Last Fifty Years in Writing*) before I proceed to outline the history of authorship in the different media and propose a historical and media-specific theory of authorship. For this purpose, I will proceed in six further steps.

In the second chapter, I sketch the prehistory and origins, as well as the cultural, economic, and legal conditions of the concept emerging in early modernity (*II Pre-Industrial Authorship: The Individual Artisan*). Following the development further into the industrial era, I trace the deconstruction of individual authorship through, on the one hand, the practices of industrial mass media, on the other hand, the research and theories of new academic disciplines (*III Industrial Authorship: The Hierarchical Collective of Workers*). A pivotal response to the conflict

3 For still images with consumer cameras around 1900, for silent moving images in the 1920s, for sound recording with magnetic tape around 1950, for video recording in the 1960s.

between the cultural ideal of individual authorship and actual collective production in the 19th and 20th centuries was the emergence of organizing managerial functions in auditory and audiovisual media, mainly conducting and directing (*IV Appropriated Authorship: The Rise of the Chief Artistic Officer*).

Since the last third of the 20th century, digital technology and networking have modified authorship in two steps. Initially, software replaced material media and hardware tools in media production. This virtualization made possible new distributed—de-localized, and asynchronous—practices (*V Postindustrial Authorship: The Distributed Network of Digital Knowledge Workers*). At present, a further modification of media production is taking place through the implementation of artificial intelligence as a service. With it, the playful collaboration of human and artificial intelligence in authoring becomes an option (*VI Digital Authorship: The Ludic Cyborg*). The insights of the historical investigation finally allow for a media-specific definition of authorship (*VII Elements for a Theory of Authorship*).

I INTROSPECTION: THE LAST FIFTY YEARS IN WRITING

When I prepared my first academic paper in the early 1970s, as a student of comparative literature at the Free University in West Berlin, I had just learned in a seminar about the origins of silent and solitary reading and its contribution to the history of bourgeois individualism. Writing seemed no less solitary to me, although it required plenty of social contacts during the research phase. I had to commute from my Kreuzberg courtyard apartment to Dahlem to visit the institute's library and sometimes the more extensive university library. While I sat there day in and day out reading and excerpting by hand, I frequently needed the help of experienced library staff to find suitable sources or bring them to me from the archives. It was not unusual to wait weeks before loaned materials were available. Analog books occasionally came with indexes. But even then, to find what you needed, you had to spend many hours browsing and reading about topics and details you didn't want to know—at least not in the short term.

The usual writing aids that authors had at their disposal at that time were pens, notepads, mechanical typewriters, little bottles of correction fluid, and sheets of rather expensive typing paper. I also had a tattered Duden dictionary. As far as most of these tools were concerned, one had to make provisions to avoid running out of something during the most rewarding writing phase, an ink ribbon, the last ballpoint cartridge, the correction fluid, or the paper. Home offices also offered minimal information resources or means of communication. I owned a transistor radio, a black-and-white TV set that could receive three channels, and about 100

books, primarily novels, which I had devoured since puberty. In Kreuzberg, in the early 1970s, few people could afford a (landline) telephone. Communication with fellow students or professors—such as requests for advice, information, or feedback—had to occur face-to-face at the university or in pubs, where people met by chance. In short, authorship was, on the one hand, necessarily a lonely work, and could, on the other hand, only be carried out in the geographical proximity of large libraries, i.e., well-populated areas.

The writing process proper was tedious as well. Given the necessity of using a typewriter to put the text on paper and the impossibility of significantly changing a typed word, every sentence had to be planned meticulously or written by hand first. You had to manually keep track of all used sources in a separate document. If you forgot to investigate something, had the bold idea to restructure the original planning, or even to add new elements, several working days were immediately lost—with trips and long reading sessions in libraries. Plus, many hours of typing a new copy of your text as you couldn't add sentences or paragraphs to existing pages.

Ultimately, the final version, including the references, had to be created linearly, from the first to the last page. All omissions, later corrections, and stylistic editing required extensive retyping. In the end, you had only one copy of the finished text unless you had gone through the extra trouble of typing on carbon paper. The only way to get more copies—short of retyping—was to visit a copy shop. The photocopies could then be distributed personally or put into envelopes and sent by mail, whether to friends for feedback, professors for grading, or editors for publication.

Thus, the defining characteristic of working as a scholarly, journalistic, or literary author in these pre-digital times was the need to plan precisely and long in advance every step of the research as well as the writing phase. Technologically speaking, authorship was craft work. Like all manual labor—done with simple tools that were generally not yet electric—it required a carefully defined project goal, diligent procurement of tools and materials, and precise execution according to plan. Lack of precision or playful spontaneity was costing time and money. In hindsight, the reason seems obvious: Media production happened in the material world where actions do not come with unlimited undo. In the analog age, authors of texts had to produce them as artisans.

These days, I am working from a somewhat remote ranch in Arizona, all the while communicating with colleagues and friends worldwide via a satellite internet connection and various chat, email, and video conferencing programs. Most of my research I do via search engines like Google Scholar in the 'archives' of the Internet, platforms like academia.edu, researchgate.net, archive.org, Google

Books, and sribd.com. To a smaller extent, I use the databases and e-books of online libraries, specifically of the distant Cologne University where I teach. To an even minor degree, I buy and download electronic material. Neither the research nor the writing process itself requires meticulous planning anymore. Additional information or sources can be obtained on demand during the authoring process.

For research and writing, I use computers of different form factors—desktop, laptop, tablet, smartphone—with at least two dozen off- and online programs, many of them AI-driven. Word processors allow unlimited editing, arbitrary rearrangement of text, and autocorrect typos. Other programs take dictation, manage the sources used and cited, translate and paraphrase text passages, improve grammar and punctuation errors, suggest more precise wording, stylistic corrections, titles, help with necessary cuts, etc. Once a text is finalized, I can transmit it within seconds to those for whom it was written. It also takes hardly any longer to publish on my homepage or the many web platforms supporting self- or pre-publishing.

Being an author has lost almost all similarities to practicing a manual craft. Instead, it is very much in line with digital knowledge work.[4] Hence, in media production, the future has arrived that J.C.R. Licklider called for in 1960: the "man-computer-symbiosis."[5] A little later, for such a functional relationship, the term "cybernetically augmented organism" was coined, short: "cyborg."[6]

In my lifetime, authorship has thus changed categorically. What had to be achieved with analog materials and pre-industrial technology, tediously and linearly, can now be done with digital technology through iterative trial-and-error processes. As a result, writing and most media production evolved from 'serious' work—necessarily concerned with the economical use of time and other scarce resources—to a spontaneous, almost ludic activity, i.e., from material craft work to immaterial knowledge work. The author, formerly an individual artisan, has become a digitally networked cyborg.[7]

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4 See for the term *Knowledge Worker* Drucker, Peter F.: *Post-Capitalist Society*, New York NY: HarperBusiness 1993. And for the term *Symbolic Analyst* Reich, Robert B.: *The Work of Nations: Preparing Ourselves for 21st-Century Capitalism*, New York: A.A. Knopf 1991.

5 Licklider, J. C. R.: "Man-Computer Symbiosis," in: *IRE Transactions on Human Factors in Electronics*, March, 1960, pp. 4–11, http://www.memex.org/licklider.pdf

6 Clynes, Manfred/Kline, Nathan: "Cyborgs and Space (*1960)," in: Gray, Chris Hables (ed.), *The Cyborg Handbook*, New York: Routledge, 1995, pp. 29-34.

7 About the cyborgization of authorship see below chapter *VI Digital Authorship: The Ludic Cyborg*.

Analyzing this digitalization of authorship in its phases and details would be a worthwhile endeavor. My intention here, however, is different. I seek to situate the latest transformations in the overall history of authorship.

II PRE-INDUSTRIAL AUTHORSHIP: THE INDIVIDUAL ARTISAN

Two peculiar ideas unthought over millennia of human civilization form the legal basis of authorship: first, the notion that, in this world, there is intangible property, and second, the notion that there is inalienable property. Both ideas are inherently secular and individualistic and emerged in the early modern era. The production of media, of course, dates back much further. About 5000 years ago, writing systems were invented. "In the beginning was the Word, and the Word was with God, and the Word was God," proclaims the Gospel of John.[8] From Judaism to Islam, dozens of religions codified their mythologies in holy books that presumably contained the proclamations of the respective gods received and documented by humans. The origin of the term author and its usage in early modernity reflect this typical belief of pre-modern "book religions."[9]

Author, like authority, derives from the Latin *augere*, meaning to 'make' and 'increase.'[10] However, according to Christian mythology, only God could 'make' in the creative, creating sense. All knowledge was God's knowledge. Human

8 N.N.: *The Holy Bible, Revised Atandard Cersion, Containing the Old and New Testaments*, Nashville: Holman Bible Publishers 1982, https://quod.lib.umich.edu/cgi/r/rsv/rsv-idx?type=DIV1&byte=4926419

9 Cf. Lang, Bernhard: "Buchreligion," in: Cancik, Hubert / Gladigow, Burkhard / Laubscher / Stuttgart, Matthias Samuel (eds.), *Handbuch religionswissenschaftlicher Grundbegriffe*: Kohlhammer 1990, pp. 143-165.

10 Cf. author: "c. 1300, autor 'father,' from Old French auctor, acteor 'author, originator, creator, instigator' (12c., Modern French auteur), from Latin auctorem (nominative auctor) 'enlarger, founder, master, leader,' literally 'one who causes to grow,' agent noun from auctus, past participle of augere 'to increase' (see augment). Meaning 'one who sets forth written statements' is from late 14c," http://www.etymonline.com/index.php?term=author&allowed_in_frame=0:)—Cf. authority: "early 13c., autorite 'book or quotation that settles an argument,' from Old French auctorité 'authority, prestige, right, permission, dignity, gravity; the Scriptures' (12c.; Modern French autorité), from Latin auctoritatem (nominative auctoritas) 'invention, advice, opinion, influence, command,' from auctor 'master, leader, author' (see author (n.)," (http://www.etymonline.com/index.php?allowed_in_frame=0&search=authority)

scribes could only 'increase' God's glory by copying, compiling, and editing His words and rarely by original contributions. Thus, the Christian Middle Ages didn't link the manual production of texts—as well as images and sounds—necessarily to individuals and their talents. Most media production remained collective and anonymous as part of ecclesiastical and secular institutions. Only the cultural and technological changes that ushered in the Renaissance initiated human authorship's complex and protracted emergence.

1 Social and Cultural Origins of Individual Authorship

The fusion of antiquity's 'rediscovered' scientific knowledge with the existing advanced medieval craft practices triggered the transition into the modern era. New technological practices evolved, from compass-based high-sea navigation to pump-improved mining, calculated scaffolding in building and banking based on advanced accounting methods, to daily routines organized around accurate timekeeping introduced by the mechanical clockwork. The penetration of new technology into almost all areas of life initiated the first phase of the division of labor and, with it, the emergence of a new middle class between the feudal nobility and the serfs and peasants: artisans and shopkeepers, merchants and bankers, architects, engineers, and military experts for firearms, humanists, natural scientists, scholars, and artists.

This professionalization correlated with the general transition of Western societies from a subsistence to a money or market economy. The number of men and women who had sufficient education, income, and leisure time to consume cultural goods grew. Most of them lived and worked in cities, the rising centers of producing goods and art, trading, and exchanging information. Of course, most authors also belonged to this urban and literate bourgeois middle class.

The social and economic change was matched by a cultural awakening. With the Renaissance—*la rinascita*, the vision of a rebirth of classical culture[11]—a steady process of secularization set in and the development of humanistic thought with it. At its very core were this-worldly human interests. Secular human-centeredness drove the scientific revolution and the subsequent increase of technical command of nature, which soon did not consider any other needs besides the needs of Homo sapiens. In political terms, the "grand narrative"[12] of bourgeois

11 The term *la rinascita* ("rebirth") was first used by Vasari, Giorgio: *The Lives of the Artists*, Oxford; New York: Oxford University Press 1998 [*1550].

12 Cf. Lyotard, Jean-François: *The Postmodern Condition: A Report on Knowledge*, Minneapolis: University of Minnesota Press 1984 [*1979].

humanism was associated with the desire for self-determination, economically with self-reliance, culturally with self-realization, and artistically with self-expression. Humanism fostered the rise of the bourgeoisie between the Renaissance and the Enlightenment, culminating in the demands for democratic freedom in the American and French Revolutions. Yuval Noah Harari calls humanism "the dominant world religion": It "worships humanity, and expects humanity to play the part that God played in Christianity and Islam, and that the laws of nature played in Buddhism and Daoism."[13]

In the early modern period, one implication of humanism was individualization. Although the term itself was not coined until the end of the 18th century—and with pejorative intent—the process commenced as early as the Renaissance.[14] Procuring individual experiences, mainly three new media based on mechanical technology, initiated and reinforced individualism. First, the crystal mirror, invented and popularized around 1300, allowed self-control and personal stylization for the first time.[15] In it, modern humans gained their self-image. "Whereas in early medieval times, you defined yourself by your household or guild or church or relation to the Lord, the self-consciousness offered by mirrors (and their aesthetic offspring, portraiture) turned people more individually conscious."[16] Through the cosmetic corrections the owners of—expensive—mirrors made and the behavioral changes they rehearsed on their interactive likeness, they became individuals in the modern sense, one and unique. Likewise, the linear perspective, established in architecture and painting since the early 14th century, created views of the material world that presented objective reality from a subjective perspective. Realistic perspectival images of human beings promoted the essential part of the bourgeoisification that Jacob Burckhardt characterized as the "development of

13 Harari, Yuval N.: *Homo Deus: A Brief History of Tomorrow*, New York, NY: Harper, Kindle Edition 2017, loc. 1403 and 3816.

14 Lukes, Steven M.: "Individualism," *Encyclopedia Britannica*, February 10, 2023, https://www.britannica.com/topic/individualism

15 Cf. Melchior-Bonnet, Sabine: *The Mirror: A History*, New York: Routledge 2001; Pendergrast, Mark: *Mirror Mirror: A History of the Human Love Affair with Reflection*, New York: Basic Books 2004; Mortimer, Ian: *Millennium: From Religion to Revolution—How Civilization Has Changed Over a Thousand Years*, New York: Pegasus Books 2016.

16 Baer, Drake: "Mirrors Turned People Into Individualists," in: *The Cut*, November 11, 2016, https://www.thecut.com/2016/11/mirrors-turned-people-into-individualists.html

the individual."[17] Werner Jung thus speaks of "the construction of the isolated individual, of an autonomous subject which relates completely to himself and cultivates his own inner values."[18]

The third and most decisive medial element in the evolution of individualism and authorship was the invention of letterpress printing with movable type in the mid-15th century. As a medium, print created, as McLuhan stated in the subtitle of his classic study on the birth of the modern world, a new social character, the "typographic man."[19] To printings formative power, McLuhan attributes, among other things, the rise and imposition of Protestantism, secularization, capitalism, and nationalism.

2 The Reproducibility Dilemma

Suddenly, writers—called authors in English since the late 14th century and German since the late 15th century[20]—faced a historically new and contemporarily unique dilemma. The material works of artists, such as manuscripts, paintings, or sculptures, had always been protected as it was generally punishable to steal property. However, it had been accepted traditionally to copy books or paintings if someone was willing and able to do so. After all, manually making a copy was hardly less labor-intensive and costly than producing the original. In Roman antiquity, slaves did the copying and monks in the Christian Middle Ages. With

17 Burckhardt, Jacob: *The Civilization of the Renaissance in Italy*, Vienna, London: Phaidon Press; George Allen & Unwin 1937 [*1867], https://archive.org/details/civilizationofre0000burc/

18 Jung, Werner: *Von der Mimesis zur Simulation: Eine Einführung in die Geschichte der Ästhetik*, Hamburg: Junius 1995, pp. 50f. My translation.

19 McLuhan, Marshall: *The Gutenberg Galaxy: The Making of Typographic Man*, Toronto: University of Toronto Press 1962.—My outline of the print medium's development in the remainder of this chapter follows McLuhan's classic work as well as Hauser, Arnold: *The Social History of Art*, London: Routledge & K. Paul 1951. Man, John: *The Gutenberg Revolution: The Story of a Genius and an Invention That Changed the World*, London: Review 2002, https://archive.org/details/gutenbergrevolut0000manj; Gantz, John/Rochester, Jack B.: *Pirates of the Digital Millennium: How the War over Intellectual Property is Corrupting Youth, Provoking Government Encroachment on Our Personal Freedoms, and Damaging the World's Economy*, Upper Saddle River, NJ: Prentice Hall/Financial Times 2005.

20 Cf. Maurer, Friedrich/Rupp, Heinz: *Deutsche Wortgeschichte: Band 1*, Berlin: Walter De Gruyter 1959, p. 359.

Gutenberg's invention, written works could be reproduced mechanically, i.e., faster and in greater numbers, and sold without the authors receiving a share of the revenues. On the other hand, book printing and the evolving book trade also opened up unprecedented opportunities to make a living as a writer. Those who financed the publications—initially printers and booksellers, and later the new profession of publishers—paid at least some money for manuscripts. The book trade soon rivaled the widespread communications network of the Catholic Church in cultural influence.

In the 17th and 18th centuries, authors gradually left the realms of patronage provided by the state, the church, or wealthy aristocratic and bourgeois families to step out into the ambivalent freedom of the market. In the beginning, those who sold their writings were considered lesser artists. Also, they continued to count, practically and legally, no more than the many other artisans who contributed to a printed matter. Insofar as not older manuscripts were simply reprinted free of charge, publishers considered authors no different from typesetters or bookbinders. Like the other crafts, they held no further rights or royalty claims. In the most developed societies of Western Europe, this opened up an ever-widening gap between the growing public influence of authors, especially those of popular books and pamphlets, on the one hand, and their economic exploitation and lack of rights on the other. However, not only authors suffered from the absence of legal protection for what we now call intellectual property.

Printers faced the problem of an entirely new form of 'piracy.' Books they had produced in the original—while paying a fixed fee to the authors—could be reprinted by others with impunity and then sold at lower prices. In a matter of years after the introduction of printing, such 'book piracy,' which dispossessed publishers and authors alike, became a Europe-wide practice and problem. The printers were fortunate, however, that their economic interests coincided with the political fears and financial greed of the state authorities. Suspicious about the social and political impact of the new medium, they wanted to control what was published (and read) in their jurisdiction, and they wanted their share of the profits. A solution to both 'problems' was found by recourse to a time-honored procedure: privileges or monopolies. Just as it had been customary for centuries to grant individual merchants the monopoly of importing certain goods in return for government fees, publishers could now acquire the privilege of printing exclusively specific titles after preliminary state censorship and in return for payments. The first book privileges were issued by the Republic of Venice in 1486 and by Great Britain in 1518. Of course, the printer's privileges did not help the authors. On the contrary, they amounted to their expropriation. The mixture of economic control and

political censorship also ran counter to the demands of the reading bourgeois public, making some works unavailable and all others more expensive.

Despite censorship and high costs, the tens of thousands of new fiction and non-fiction titles authors wrote and publishers distributed in ever-larger editions between the 16th and 18th centuries profoundly shaped the everyday life and mindset of the rising bourgeoisie. While illiteracy remained the rule among Europe's total population until the 19th century, reading and writing became the central qualification of bourgeois existence. Printed matter served an expanding desire for fictional and non-fictional literary products, specifically stories of individuals and their inner life. In the process, printing changed the typical reception of written matter.

Over the millennia, the loud reading of rare manuscripts dominated in public as well as in families.[21] Through the number of affordable copies and the increasing handiness of books, printing now promoted solitary and silent reading. The experience reinforced bourgeois individualization already by its circumstances of physical and mental seclusion. "Print is the technology of individualism," McLuhan states.[22] New genres further extended this effect. Above all, the bourgeois psychological novel, this emerging and increasingly popular genre of realistic mimesis, reckoned in form and content with secluded readers and their willingness to engage for a more extended period with stories that, given the breadth of their narrative arc and their tendency toward personal content, were not particularly suitable for reading aloud.

3 Copyright, Authors' Rights, and Human Genius

At the end of the 17th century, in the wake of their growing cultural and political weight, authors experienced a second turning point in their reputation and legal status. This further rise happened in association with the bourgeois class as a whole, to which the majority of authors belonged and on whose members their writings exerted such a significant influence. Of course, a book laid the intellectual foundation, John Locke's theory of individual property.[23] It derived—against the

21 Cf. M. McLuhan: *The Gutenberg Galaxy*, p. 103.

22 Ibid., p. 158.

23 Locke, John: *Two Treatises of Government: In the Former, the False Principles, and Foundation of Sir Robert Filmer, and His Followers, Are Detected and Overthrown. the Latter Is an Essay Concerning the True Original, Extent, and the End of Civil Government*, London: A. Churchill 1690.—Locke is therefore considered to be "copyright's über-father." Mayer-Schönberger, Viktor: "In Search of the Story: Narratives

traditional claims of the church and the feudal state—secular bourgeois property rights from the human labor that transformed matter.

When adapted to cultural production, the assumption was that the labor of writers produced, in addition to the material property of the handwritten pages, also the intangible property of the specific arrangement of words. This idea was legally expressed with the first copyright legislation, the Statute of Anne, in 1710. It granted authors for their work an exclusive right of publication for a fixed period of 14 years, after which they could renew it once. Authors banned from self-publishing could sell their rights to publishers, who were then protected against unauthorized reprints.

The third and most lasting turning point happened in the context of the scientific revolution and the Enlightenment, which had the printed book as their central medium. In 1785, Immanuel Kant, in his theory of individual creativity, redefined the works of authors from intangible property, which, like all goods, could be sold and bought, to inalienable property, an individual creation that remains permanently bound to the person of the creator.[24] Shortly after, the Constitution of the United States (1788) and legislation of the French Revolution (1793)[25] codified "author's rights," securing on top of the intangible property also moral rights, i.e., the ability to control the integrity and attribution of creative works. These moral rights are personal, perpetual, inalienable, and imprescriptible. Authors cannot transfer or waive their moral rights, only assign or license their economic rights. Consequently, publishers can no longer acquire ownership of creative works—

of Intellectual Property," in: *Virginia Journal of Law & Technology* 10, no. 11 (2005), http://www.vjolt.net/vol10/issue4/v10i4_a11-Mayer-Schonberger.pdf

24 Kant, Emanuel (sic!): "Of the Injustice of Reprinting Books," in: *Essays and Treatises on Moral, Political, and Various Philosophical Subjects*, Kant, Emanuel (sic!) (ed.), London: William Richardson 1798, pp. 225-239. The text was first published in 1785 (in German).

25 For the US, see Authors, Alliance: "Faq: Authorship and Ownership in U.S. Copyright Law," *Authors Alliance*, May 20, 2014, https://www.authorsalliance.org/2014/05/20/authorship-and-ownership-faq/. Congress passed the first related bill in 1790.—For France, see Hesse, Carla: "Enlightenment Epistemology and the Laws of Authorship in Revolutionary France, 1777-1793," in: *Representations*, Spring, 1990, pp. 109-137, here pp. 128-129, https://www.jstor.org/stable/2928448.—However, the original French legislation was not yet as clear as the American in determining moral authorial rights, rather it was "effecting an epistemologically impure and unstable legal synthesis that combined an instrumentalist notion of the public good with a theory of authorship based upon natural rights." (p. 130).

and thus also the right to modify and resell them at will—but only time-limited exploitation rights. During the 19th century, most continental European countries enacted similar regulations.[26] Also, authors' rights eventually spread to other media, inter alia music, the visual arts, and, after quite protracted cultural struggles, the new industrial media of photography and film.

Parallel to this legal protection of authorship, social and cultural change commenced. First, between the middle of the 18th and the middle of the 19th century, artistic production—of texts, images, and sounds—stepped almost entirely out of the protective cage of patronage and into the free agency of the market, at least in the most developed Western nations. Secondly, the authors' new economic situation of having to assert themselves against competition required cultural repositioning. The reliable realization of given forms measures the quality of pure craftsmanship. Artisans follow traditions, rules, and conventions. The competitive situation of the market, however, required qualities that distinguished artists from one another more radically. A cultural idolization of individual creativity set in. The primary criterion of literary and, soon, all artistic production became uniqueness, a constant break with tradition and its rules. Around 1800, authors presented themselves—and were regarded—as creators who, like gods, generated something unique ex nihilo. In Weimar Classicism, they were worshiped as poet princes; in *Sturm und Drang* and Romanticism, as original geniuses.

The growing popularity and influence of authors and the defining medium of the mechanically reproduced book, which aimed at the broadest possible distribution and individual reception, demonstrated literature's adaptation to secularization, the ideology of humanism, and, particularly, the bourgeois drive to individualization—and simultaneously reinforced these processes. Authors rose to admired models of secular and humanistic individuality. At the end of the pre-modern period, their almost God-like assertion of uniqueness and geniality clearly expressed and represented the bourgeois claim to supremacy in the realm of the mind and the arts, as well as economics and politics.

Particularly in the bourgeois fight for political emancipation, literature played a crucial role. Ultimately, books—through their authors and readers—instigated the Enlightenment and industrialization that escalated literacy and the textualization of knowledge in all areas of life.

26 In the German-speaking area first in Prussia in 1837.

III INDUSTRIAL AUTHORSHIP: THE HIERARCHICAL COLLECTIVE OF WORKERS

The hypertrophy of individual creativity went so far as to individualize even traditionally collective artistic practices. Since the Renaissance, most successful painters had followed the model of Titian, Raphael, and others: They maintained workshops with students and assistants who, not least, helped them produce their colors, canvases, and multiple replicas of their works. In the 19th century, such collective practices suddenly indicated commercially compromised craftsmanship à la Hans Makart. 'Genius' painters like Paul Cézanne or Vincent van Gogh worked alone like literary authors using premanufactured painting utensils and materials.[27] However, while high culture idolized individual creatorship, the concept was undermined by the rapid industrialization of cultural wares.

1 Social and Cultural Origins of Collective Authorship

Secularization and humanist individualization, the two "grand narratives" that characterized the first period of the modern era, evolved during the Enlightenment and early industrialization. Mass production, as it developed in the 19th and 20th centuries, required collectives to operate. Industrial transportation and communications technology—railroads, telegraphs, telephones, automobiles, and airplanes—made such centralized mass production possible. With it, large cities such as London, Paris, Berlin, and New York grew into metropolises with millions of inhabitants. Vast bureaucracies controlled and provided for these masses, especially security, health, and public services.

The implementation of industrial technology also initiated a second phase of the division of labor, the Taylorization of craft activities. Compulsory schooling laid the foundation for the necessary vocational training and academic education. New segments of society evolved: skilled and unskilled factory workers, engineers, technicians and mechanics, managers and professionals, administrators

27 The return to the practice of collective production began in the second half of the 20th century, especially with Andy Warhol's studio aptly named "factory." Today, most major artists, from Jeff Koons to Maurizio Cattelan, again employ countless collaborators—which, given the orientation of copyright and author's rights to individuals, promptly triggers litigation. Cf. Meier, Philipp: "Ein Mitarbeiter des Starkünstlers Maurizio Cattelan hat genug: Er will seinen Teil von dessen Erfolg," *Neue Zürcher Zeitung*, July 7, 2022, https://www.nzz.ch/feuilleton/maurizio-cattelans-mitarbeiter-daniel-druet-will-anerkennung-ld.1691677?reduced=true

and bureaucrats, as well as a new breed of intellectuals: school teachers, university professors, journalists, and artists catering to the industrial masses and their growing education, information, and entertainment needs. Like their audiences, the petit bourgeoisie of blue- and white-collar workers, most authors lived and worked in the growing metropolises that became the centers of industrial fabrication and mass culture.

The transformation that resulted from the massification of social life was profound. On the one hand, secularization escalated into the certainty of permanent worldly progress of science, technology, economy, and culture. On the other hand, humanistic individualism was superimposed by the humanism of the masses. New ideologies arose—socialism and communism, nationalism and fascism—and, with them, mass movements and mass parties. In political terms, humanism was now associated with the masses' desire for self-determination, economically with mass welfare, culturally with mass education, and artistically with representations of the masses and their lives in a more or less realistic way.

Industrialization thus triggered the next phase of media history. The masses of workers who produced mass goods, the growing numbers of salaried employees who distributed and serviced them, and the expanding ranks of bureaucrats who managed mass society demanded information and entertainment en masse. The visual and audiovisual media of the pre-industrial era were hardly able to give a realistic portrayal of their lives. The experiences of the industrial cities and their traffic, the factories, the tenements, the palaces of pleasure, sports stadiums, battlefields, and other sceneries of mass work, entertainment, and murder largely eluded painting and theater.

Four new media, based on industrial technology and requiring new practices of authorship, conveyed heightened collective experiences, thus acting as mirrors of the masses. Since the mid-19th century, photography has allowed the rapid and serial generation and copying of realistic images of people, crowds, and environments. Film—a further development of photography—captured since the end of the 19th century what could hardly be put on a theater stage: the rush of railroads, automobiles, and airplanes, the hectic pace of industrial life, and the intricate parallelism of events in mass societies. As Siegfried Kracauer wrote, film accomplished the "redemption of physical reality."[28] Since the 1920s, radio, like telephony from which it evolved, has technified orality and extended its reach through broadcasting. Communication of news and stories so returned to pre-modern ways, including the reading aloud of literature, albeit on a mass scale.

28 Kracauer, Siegfried: *Theory of Film: The Redemption of Physical Reality*, New York: Oxford University Press 1960.

Finally, since the mid-20th century, television escalated the medial synchronization of the masses: Millions of people who watched—had to watch—the same program at the same time to be socially and culturally informed and integrated.

Increasingly, mass media shaped everyday life, its rhythms, habits, prevailing attitudes, and opinions, reinforcing massification. Particularly the broadcast media caused radical transformations: Face-to-face and peer-to-peer discourses once dominating the pre-industrial public sphere turned into mediated discourses by proxy. A unified national public consisting of few senders and many receivers replaced the diverse local and regional public spheres. Never before were works of entertainment and information so influential on so many people as in industrial mass culture—and at the same time, individual authors so powerless.

Throughout the industrial era, politics strengthened the rights of media producers. One by one, the Western industrial states abolished prior censorship and concluded international copyright treaties. A key agreement was the Berne Convention of 1887. Copyright and authors' rights were extended to new media and longer and longer periods. The primary beneficiaries, however, became the large media conglomerates that formed during the 19th century around mass printing and later in the 20th century around film, radio, and television. Their position of power resulted essentially from the complex technical requirements and high division of labor involved in the production and distribution of mass media. Individuals or small groups could neither shoulder the substantial capital investments nor did they command the variety of necessary technical skills.

2 The Practical Establishment of Collective Authorship

Following the invention of the steam press at the beginning of the 19th century and the introduction of wood paper around the middle of the century, the mass press marked the beginning of industrial media production. Newspapers and magazines were either commercial endeavors aimed at increasing circulation, mainly through spectacular entertainment, or tied to political parties and committed to spreading their particular ideologies. Many talents and crafts had to collaborate to produce an issue. Each edition represented a collective effort. But not only did newspapers and magazines not have an individual author. All contributors had to adapt the content and style of their articles to the various editorial standards or have them adapted by editors. The mass press offered little freedom for individual authorship and introduced a new form of collective text production to the medium of print. In the first half of the 20th century, the new genre of news magazines derived, from this practice and policy, the consequence of not naming the articles' authors at all.

Disempowerment of individual authorship also characterized the industrial medium of film. The movie studios that sprang up in most developed nations were called dream factories for a reason: Film production followed the industrial organization of work. Like the editorial departments of the mass press, the multi-member film teams produced collectively. In pre-industrial times, the author's profession had emerged as part of the first division of labor, the formation of different crafts. Now authorship experienced the second stage of this process, i.e., Taylorization: the division of each craft into discrete work steps.

The Hollywood studios of the classic period provide a good example. During the Second World War, they employed America's and Europe's literary elite. MGM's Thalberg Building alone hosted, among others, Alfred Döblin, Alfred Polgar, Walter Mehring, Bruno Frank, Vicki Baum, Christopher Isherwood, and Aldous Huxley.[29] All these—well-paid—authors had to sit in their office cubicles from 9 a.m. to 5 p.m., controlled by the time clock and supervised by producers. At the end of their workday, they were supposed to deliver a fixed page number of literary half-products: not complete texts but story ideas that others would draft into first versions, repeated rewrites of their own and other authors' scripts, single scenes, or dialogues.

Writing scripts in a work-sharing manner resulted from the general requirements of analog film production. Dramatic actions were no longer played out live and in continuity like on the stage but were repeatedly prerecorded in arbitrary order. After principal photography was completed, the various versions of the many parts shot were assembled into the final cut. Technical and economic reasons dictated this approach. Analog sound film was "so heterogeneous, with so many technologies woven together in a complex and expensive fabric," Walter Murch stated, "that it is almost by definition impossible for a single person to control."[30] The highly labor-divided production process denied all individual participants—besides the writers, also actors, cinematographers, editors, set and costume designers, make-up artists, etc.—an authorial function. Even the directors reigning on the set were little more than arrangers of people and things in front of the camera's fleeting space-time window, constrained by the material medium and

29 Freyermuth, Gundolf S.: "Wunderkind in der Traumfabrik—Gottfried Reinhardt," *stern*, June 9, 1988, pp. 96-108, here p. 104, https://freyermuth.com/WebsiteArchive/reprints/Archiv2009/reprint_Mai_2009/Reinhardt.html

30 Murch, Walter: "The Future—A Digital Cinema Of the Mind? Could Be," *The New York Times*, May 2 1999, http://www.nytimes.com/library/film/050299future-film.html

the studio hierarchy headed by producers, who were themselves interchangeable at any point in a production.

The industrial working conditions corresponded to the industrial aesthetics of the analog medium. In contrast to the stage, films fragment their characters. Their actors appear not holistically but in partial views and chopped-up movements. From the series of disjointed images on the silver screen, the audience must piece together the larger-than-life human beings and their actions like a jigsaw puzzle. Thus, cinematic narratives, especially their combination of perspective and montage, have a Tayloristic effect. In their dissection of the human form, film aesthetically shaped what John Ruskin already proclaimed in the mid-19th century as the consequence of the industrial division of labor: "It is not, truly speaking, the labour that is divided, but the men."[31]

The prototypical author created by industrial media is the collective. Mass culture essentially eliminated the freedoms of individual authorship in favor of standardized production, a process that Max Horkheimer and Theodor W. Adorno in the mid-1940s denounced as the rise of the "culture industry."[32] Their criticism focused on the standardization of content and forms as well as production processes. As print, radio, and TV journalists, writers of radio or screenplays, composers, graphic designers, photographers, etc., authors lost their status as self-employed individuals or independent small business owners. The culture industries forced all kinds of authors into employee and other contracts that left little creative freedom. The unequal negotiating situation, authors countered like other workers: In the 20th century, they founded trade unions, guilds, and similar professional organizations, usually segregated by media, to represent them vis-à-vis the all-powerful media conglomerates, and they also went on strike from time to time.[33]

As Marshall McLuhan noted, industrial mass culture challenged the cultural dominance of textuality: on the one hand, in favor of a new technically mediated orality—telephone, gramophone, radio, tape recording—and on the other hand, in favor of (audio-)visual representation—silent movies, talkies, television, and

31 Ruskin, John: *The Stones of Venice*, New York: J. Wiley 1864, p. 162f.

32 Horkheimer, Max/Adorno, Theodor W.: *Dialectic of Enlightenment: Philosophical Fragments*, Stanford: Stanford University Press 2002.

33 Cf. for example: "Unlike directors and actors, writers have historically been willing to strike. The most recent strike stretched from 2007 into 2008, lasting 100 days. One in 1988 dragged on for five months." (Barnes, Brooks: "Why There Is Talk of a Writers' Strike in Hollywood," in: *The New York Times*, March 21, 2023, https://www.nytimes.com/article/wga-writers-strike-hollywood.html)

video.[34] In the process, the moving images and sounds captured by analog cameras and microphones replaced the literary depiction of individual introspection and sensibility, as conveyed by the bourgeois novel, poetry, essay, and even the bourgeois tragedy. Instead, the mundane and—in every sense—'moving' everyday life of the industrial masses became a central subject. As in production and reception, the collectives asserted themselves in the content and genres of mass media against the minority of bourgeois individuals. However, the longing for uniqueness persisted in the narrative cult of heroes and their journeys.[35]

3 The Theoretical Reflection of Collective Authorship

Parallel to the practical deconstruction of individual authorship, its intellectual and academic questioning also commenced. The new humanities and social sciences disciplines that emerged during the 19th and 20th centuries as part of industrialization's academic division of labor consistently cast doubt on the sovereignty of intellectual production. From Marxist history and sociology to psychology and psychoanalytic theory, they demonstrated the dependency of individual insights or actions on external factors. The deconstruction of authorship gained particular currency in the studies of the arts and, later, media. The Russian and Czech formalism of the 1920s and 1930s mark the beginnings of its relativization, especially the writings of Mikhail Bakhtin and Roman Jakobson.[36] Also, in 1934, during his pre-war exile in Paris, Walter Benjamin noted, in an address that he probably never gave, "The Author as Producer," that the reader, as an expert in his profession, "gains access to authorship. Work itself has its turn to speak."[37] This change, Benjamin predicted, "revises even the distinction between author and reader."[38] At the same time, Paul Valery proposed—reminiscent of de Condorcet's 18th-

34 M. McLuhan: *The Gutenberg Galaxy*.

35 Campbell, Joseph: *The Hero With a Thousand Faces*, Novato, Calif.: New World Library 2008 [*1949].

36 Cf. Bakhtin, M. M.: *The Dialogic Imagination: Four Essays*, Austin: University of Texas Press 1981 [*1934-1941]; Bakhtin, M. M.: *Rabelais and His World*, Cambridge, Mass.: M.I.T. Press 1968 [*1940]; Jakobson, Roman: *Language in Literature*, Cambridge, Mass.: Belknap Press 1987 [*1919-1979).

37 Benjamin, Walter: "The Author as Producer," in: *Selected Writings*, Cambridge, Mass.: Belknap Press, 1999, pp. 768-782.

38 Ibid., p. 772.

century deliberations—writing literary history without authors' names.[39] In the USA, New Criticism developed, insisting on the immanent interpretation of literary works and rejecting the recourse to authors' intentions as a fallacy.[40]

The crisis of individual authorship—increasingly considered a romantic idea—continued to escalate after World War II, with the passage from modernity into postmodernity. Its denunciation significantly impacted French structuralism as well as Umberto Eco's 1960s theorem of the closed (art) work's end and the ensuing end of authors' dominance over the form and reception of texts.[41] Anti-authorship impulses also informed, in high culture, a series of artistic experiments aimed at reducing the role of the author and opening up literary works to less predetermined modes of reception. For example, writers Raymond Queneau and Francois Le Lionnais founded *Oulipo*, a "workshop for potential literature," in 1960.[42] Its central goal was to limit authorial freedom through formal constraints. And in 1961, Marc Saporta published his *Composition No. 1*, consisting of 150 unnumbered pages delivered in a box to be read in any order without direction from the author.[43]

The cultural turning point came with poststructuralism. Its abandonment of the concept of individual authorship, i.e., of subjective intentions, talents, and passions, resulted from a new understanding of textuality. Poststructuralism conceived works of all media—as well as culture in toto—as texts, and all texts as no longer autonomous but as interfaces of discourses, as montages and collages of non-original elements. Eight decades earlier, Nietzsche's dictum that God was dead, killed by the Enlightenment, had replaced the Christian God with the creative human individual—the author. Now, Roland Barthes and Michel Foucault proclaimed the "death of the author": Barthes in favor of the recipients, Foucault in favor of cultural discourses.[44]

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39 Cf. Gilleßen, Maximilian: "Das Relais der Kunst," *Frankfurter Allgemeine*, February 3, 2023. For Condorcet see C. Hesse: "Enlightenment Epistemology and the Laws of Authorship," pp. 116f.

40 Ransom, John Crowe: *The New Criticism*, Norfolk, Conn.: New Directions 1941.

41 Eco, Umberto: *The Open Work*, Cambridge, Mass.: Harvard University Press 1989 [*1962].

42 Oulipo is short for "Ouvroir de littérature potentielle," i.e., "workshop for potential literature."

43 Saporta, Marc: *Composition no. 1, a Novel*, New York: Simon and Schuster 1963 [*1961].

44 Barthes, Roland: "The Death of the Author," in: *Aspen Magazine*, Fall-Winter, 1967, http://www.ubu.com/aspen/aspen5and6/threeEssays.html#barthes; Foucault, Michel:

In summary, the industrial age completed what began during the Renaissance: the cultural establishment and legal protection of the complex concept of individual authorship based on creating immaterial and inalienable properties. At the same time, however, emerging new industrial mass media, particularly the mass press, film, radio, and TV, undermined this concept. The practical reality of cultural production institutionalized new forms of collective authorship based on the division of labor—on the margins of the existing legal framework and contrary to the culturally prevailing values and prejudices. In parallel, numerous academic disciplines and intellectual schools of thought, particularly poststructuralism, deconstructed the cult of individual genius to the point of challenging the possibility of human authorship altogether.

IV APPROPRIATED AUTHORSHIP: THE RISE OF THE CHIEF ARTISTIC OFFICER

The historical process, however, did not proceed as linearly as sketched. The twofold—practical and theoretical—challenge to individual authorship stirred up resistance that dragged on for decades. In retrospect, most discussions and conflicts centered on power struggles between authors in the pre-industrial sense and the ascendant representatives of a new aesthetic management necessitated by the increasing complexity in the production of mass culture and, in particular, of auditive and audiovisual works. This development in media production can be compared to the formation of similar functions in the management of other industries—Chief Executive Officer (CEO), Chief Financial Officer (CFO), or Chief Technology Officer (CTO). By analogy, I propose the term Chief Artistic Officer (CAO).

In classical music, the function of the conductor arose from the need to organize the interplay of ever larger and more diverse orchestras. The beginning is usually dated to Beethoven's Fifth Symphony because orchestras could hardly perform it without appropriate direction. Wagner's formal principle then became that he composed "conductors' music," as Adorno stated.[45] Something similar was

"What Is an Author?," in: *Aesthetics, Method, and Epistemology: Essential works of Foucault, 1954-1984*, New York: New Press, Distributed by W.W. Norton, 1998 [*1969], pp. 205-222.

45 Cited after Spice, Nicholas: "Theirs and No One Else's: Conductors' Music," *London Review of Books*, March 16, 2023, https://www.lrb.co.uk/the-paper/v45/n06/nicholas-

evident in the theater. The late 19th and early 20th centuries witnessed "the rise of the director"—whose role among the many members of theater companies until then had been more of an organizational stage manager—to dictatorial original genius.[46] In the German-speaking world, larger-than-life figures such as Max Reinhardt and Erwin Piscator exemplify this change. In the second half of the 20th century, the development escalated to the so-called "director's theater": "The dominant creative force in today's theater is the director. No longer just an organizer, directors are now considered artists in their own right."[47] In director's theater, the dramatic texts—of classic and contemporary playwrights—no longer serve as authoritative blueprints but as starting points for far-reaching changes and further evolutions. The directors assert individual authorship for rewriting and rearranging existing plays according to their ideas.[48]

A comparable development unfolded in the film industry. As a reaction to the collectivization of authorship in the big factory-like studios, the claim arose in post-war France that directors should be considered the actual authors of a film. Alexandre Astruc's essay "The Birth of a New Avant-Garde: La Caméra-Stylo," published in 1948, provided the theoretical basis.[49] The central metaphor of the camera-pen emphasized, in a clear parallel to literary and painterly authorship, that filmmakers could use the camera to write or paint thoughts and ideas in light. "Direction is no longer a means of illustrating or presenting a scene, but a true act of writing," Astruc stated: "The filmmaker-author writes with his camera as a writer writes with his pen."[50] From the early 1950s onward, André Bazin's journal *Cahier du Cinema* advocated that directors—and not screenwriters or producers

spice/theirs-and-no-one-else-s. See also Adorno, Theodor W.: *In Search of Wagner*, London; New York: Verso 2005.

46 Bradby, David/Williams, David: *Directors' Theatre*, New York: St. Martin's Press 1988, pp. 3ff.

47 Ibid., p. 1.

48 This indicates the path to postdramatic theater, which does not rely anymore on a dramatic text as the main source of meaning and expression. Cf. Lehmann, Hans-Thies: *Postdramatic Theatre*, London,. New York: Routledge 2006 [*1999].

49 Astruc, Alexandre: "The Birth of a New Avant Garde: La Caméra-Stylo (France, 1948)," in: Scott, MacKenzie (ed.), *Film Manifestos and Global Cinema Cultures*, Berkeley: University of California Press, 2014 [*1948], pp. 603-607.

50 Graham, Peter: *The New Wave: Critical Landmarks*, Garden City, N.Y.: Doubleday 1968, p. 22.

or cinematographers—were responsible for this writing in light.[51] The American film critic Andrew Sarris summarized the assertion under the term "auteur theory."[52] At its core is "the belief that a director is most centrally responsible for a film's form, style, and meanings."[53] Some *Cahiers du Cinema* writers, notably Jean-Luc Godard and François Truffaut, tried to redeem this directorial claim to sole authorship in their *French Wave* films.

Parallel efforts affected West German film and television during the 1960s and 1970s. Filmmakers of the *New German Cinema*, such as Rainer Werner Fassbinder, Werner Herzog, Alexander Kluge, and Wim Wenders, sought sole authorship, mainly by combining the roles of scriptwriter, director, and sometimes even producer. Public television financed most of their films. Over the years, the influence of the young advocates of a director's cinema altered authorship not only in the film industry but also television. At that time, the West German public broadcasting system—in the 1950s a monopoly of the First Program (ARD), in the 1960s an oligopoly of the First and Second Programs (ZDF) and regional Third Programs—operated largely free of economic constraints. Funded by compulsory license fees, their budgets automatically grew with each TV set sold. The acquiring editors were tenured and made production decisions according to criteria that were more patronage-based than commercially oriented. Moreover, in its early days, public television organized the production of its audiovisual content in a writer-centered manner:

"Television emerged in the broadcasting institutions from radio. The people employed there at the time were suddenly told: We no longer work only with microphones, but also with cameras. They had previously created radio plays, and now they were creating television plays. But radio plays had always been writers' plays. Directors had a lesser role in radio plays. There's not much to do: You can talk with the actors about accents or mix in some music. But this creative diversity, which exists in the optical medium of film, does not exist.

51 Though the editor-in-chief Andre Bazin always stayed skeptical of the "politique des auteurs."

52 Sarris, Andrew: "Notes on the Auteur Theory in 1962," in: Mast, Gerald/Cohen, Marshall (eds.), *Film Theory and Criticism: Introductory Readings*, New York: Oxford University Press, 1979 [*1962], pp. 650–665.

53 Thompson, Kristin/Bordwell, David: *Film History: An Introduction*, New York, NY: McGraw-Hill Higher Education 2009, p. 492.

In that respect, the writer was in the foreground. That was first transferred to television. Then it was called 'a film by' and the 'by' was the writer."[54]

The working conditions described by producer Günter Rohrbach for the 1950s and 1960s changed throughout the 1970s. The turning point can be identified with some precision using the example of two TV plays written by award-winning author Wolfgang Menge and commissioned by Günter Rohrbach as head of television drama at the WDR, ARD's largest regional subnetwork. In 1969, director Eberhard Itzenplitz filmed DIE DUBROW KRISE.[55] The credits stated, as usual, a film "by Wolfgang Menge." One year later, director Tom Toelle filmed DAS MILLIONENSPIEL.[56] The credits said: "A film by Wolfgang Menge and Tom Toelle." In the following decades, the writer's medium of television turned into a 'director's medium. Günter Rohrbach described the changed practices in 2014:

"In the German television play and the German series, we have [...] a director's television. You don't know the writers at all. As a result, they are unhappy and also lose commitment. Someone writes a script, then a director comes and puts that into motion, and the writer disappears. He no longer exists at all. Of course, that's not exactly an incentive for someone to make a life decision to become a writer—only to disappear into the anonymity of a medium dominated by entirely different names and functions."[57]

During the 1960s and 1970s, in the Hollywood studio system, directors started to struggle for individual authorship, too. In their uprising against the 'old' Hollywood, the baby boomer rebels, many of them first-generation film school graduates, used auteur theory, which in Europe was going from being a battle cry to a term for the status quo, as an ideological weapon. Francis Ford Coppola operated at the forefront of this culture war: "From the very start of his career, Coppola attempted to balance his desire for creative autonomy with an ambition to make

54 Rohrbach, Günter: "'Wolfgang Menge war mein erster Autor.' Im Gespräch mit Gundolf S. Freyermuth und Lisa Gotto," in: Freyermuth, Gundolf S./Gotto, Lisa (eds.), *Der Televisionär: Wolfgang Menges transmediales Werk: Kritische und dokumentarische Perspektiven*, Bielefeld: transcript 2016, pp. 515-522, here pp. 518-19. My translation.

55 DIE DUBROW KRISE (Germany 1969, S: Wolfgang Menge, D: Eberhard Itzenplitz)

56 DAS MILLIONENSPIEL (Germany 1970, S: Wolfgang Menge, D: Tom Toelle)

57 G. Rohrbach: "'Wolfgang Menge war mein erster Autor,'" p. 519.

big, important movies."[58] The result was "a decade-long series of confrontations and conciliations with the major studios regarding authorship, control, and cash."[59] The victory that Coppola and several others of the most successful *New Hollywood* directors won—at least temporarily—over the established studio system was owed in no small measure to its internal weakening. In the 1970s, non-film companies took over several major studios. "The authority these days is almost always shared with people who have no business being producers and studio executives," Coppola stated in 1975. "With one or two exceptions, there is no one running the studios who's qualified, either, so you have a vacuum, and the director has to fill it."[60]

In analog film production, however, individual authorship—whether of writers, producers, or directors—could only be gained by usurping the achievements of others. Even successful auteurs like Coppola could justifiably not associate a cinematic work entirely with their name. The auteur theory was an aspiration but never the reality, as Jon Lewis described:

> "The authorship of major studio films evolves over a period of years. The actual production of a motion picture begins only after a series of industrial concerns—the acquisition of adequate financing, the optioning of a screenplay, casting, and so on—are finally settled. And even then, film production involves far more than just creative concerns. Even a director with as much of a stake in controlling the product as Coppola is forced to develop each picture through a series of negotiations, and what ends up on the screen is not only a miracle of persistence and inspiration but also the result of certain practical concessions to the limitations of the studio system."[61]

In summary, the period of transformation between two historical forms of authorship, the individual and the collective, allowed in auditive and audiovisual media for a simulation of individual authorship in collective production: the hypertrophic self-empowerment of self-appointed auteurs. What was originally an activity of managing the different trades' artistic contributions—conducting or directing—claimed increasingly creative power and, finally, authorship. On the one hand, such autocratic leadership can be compared to the roles of CEOs in industrial corporations: conductors and directors act as CAOs, i.e., Chief Artistic Officers. On

58 Lewis, Jon: *Whom God Wishes to Destroy ...: Francis Coppola and the New Hollywood*, Durham: Duke University Press 1995, p. 11.

59 Ibid.

60 Murray, William: "Playboy Interview: Francis Ford Coppola," *Playboy*, July 1, 1975, https://www.playboy.com/read/the-playboy-interview-with-francis-ford-coppola

61 J. Lewis: *Whom God Wishes to Destroy*, pp. 3-4.

the other hand, the public's and critics' quick acceptance of such 'authorship via management' shows the rise of the CAO to be a counter-reaction to, and ideological correction of, the creeping industrial collectivization and anonymization. Jim Hillier noted: "Given the dominance of modernism in the other arts, and particularly developments in literature and literary criticism that rejected Romantic forms and Romantic views of the artist, the establishment of the idea of authorship [in film …] could be seen as a retrogressive step."[62]

In this late 20th-century situation of unresolved conflicts between the collective-hierarchical organization of large parts of cultural production and the appropriation of the results by individuals, entirely new, digital means of media production became available. They were to change authorship more radically than ever before.

V POSTINDUSTRIAL AUTHORSHIP: THE DISTRIBUTED NETWORK OF DIGITAL KNOWLEDGE WORKERS

Already in 1962, Marshall McLuhan emphasized the influence of the new electronic media: "Instead of tending towards a vast Alexandrian Library the world has become a computer, an electronic brain."[63] Networked digital labor and communication—in McLuhan's words: "electronic interdependence"[64]—started replacing the individualistic culture of letterpress printing. Consequently, a third variant of authorship evolved in addition to the "typographic man" and single author and the hierarchical industrial collective.

1 Social and Cultural Origins of Distributed Authorship

The technological foundation of digital production and culture was laid in the late 1940s. John von Neumann conceived the virtualization of tools and devices (programs), and Claude Elwood Shannon that of materials and storage media (files).[65]

62 Hillier, Jim: "Auteur Theory and Authorship," in: Grant, Barry Keith (ed.), *Schirmer Encyclopedia of Film*, Detroit: Schirmer Reference 2007, pp. 141-151, here p. 149.

63 M. McLuhan: *The Gutenberg Galaxy*, p. 32.

64 Ibid., p. 31.

65 Cf. Neumann, John von: "First Draft of a Report on the EDVAC," (1945), http://www.histech.rwth-aachen.de/www/quellen/vnedvac.pdf;
Shannon, Claude Elwood: "A Mathematical Theory of Communication," in: *The Bell System Technical Journal* Vol. 27, July / October (1948), pp. 379–423, 623–656.

The outlines of new media practices and, thus, new forms of authorship began to surface a couple of decades after this categorical separation of hard- and software was accomplished. Bit by bit, the virtual production and manipulation of media—texts, sounds, graphics, and moving images—became technically feasible.

For a third time in modern history, the rise of new technology gave rise to a new class of professionals who developed and used the latest means and techniques to their economic advantage: hardware engineers and software programmers, IT entrepreneurs and venture capitalists, system and web administrators, network and satellite technicians, specialists for IT-support or e-commerce, CGI-animators, CAD- and video game designer, scientists working in new fields like robotics, Artificial Intelligence, genetics, superconductivity or nanotechnology and, of course, a new sort of scholars and intellectuals who study and analyze the societal, psychological, and cultural effects of the current transition from industrial to digital civilization.

Around 1960, Peter F. Drucker observed this change and also new forms of work in the established professions. He subsumed both under the term "knowledge work" and traced the swift rise of "knowledge workers" in the following decades.[66] In contrast to labor in the material world, knowledge work mainly occurs in virtuality. Whether writing or illustrating texts, doing financial planning or stock market trading, designing architecture or a new consumer product, editing a film, or developing a game—knowledge workers have in common that they create value by analyzing and manipulating virtual symbols on screens. In the 1990s, thus, Robert Reich spoke of "symbolic analysts" and Arthur Kroker and Michael A. Weinstein of a "virtual class" whose members are "dependent for their economic support on the drive to virtualization."[67] In 2002, Richard Florida proposed for knowledge workers in science and technology, business and management, arts, culture media, and entertainment, who are a central force in post-industrial economies, the term "creative class."[68]

Online reprinted with corrections from *The Bell System Technical Journal*, http://cm.bell-labs.com/cm/ms/what/shannonday/paper.html

66 Drucker used the term "knowledge work" first in 1959, the term "knowledge worker" first in 1967. Cf. Drucker, Peter F.: *Landmarks of Tomorrow: A Report on the New 'Post-modern' World*, New Brunswick, N.J.: Transaction Publishers 1996 [*1959]; Drucker, Peter F.: *The Effective Executive*, London: Heinemann 1967.

67 Kroker, Arthur and Michael A. Weinstein: *Data Trash: The Theory of the Virtual Class*, CultureTexts, New York: St. Martin's Press 1994, p. 15.

68 Florida, Richard L.: *The Rise of the Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life*, New York: Basic Books 2002.

The virtualization of work and consumption that began in the 1960s received its decisive thrust with the implementation and popularization of digital networking through the Internet and the World Wide Web in the last two decades of the century. The once pervasive influence of analog broadcast media—of its schedules and standardized content—was waning. The old analog electronic networks overlaying city life and remote controlling it in the 20th century were replaced by a new virtual, i.e., software-based infrastructure produced by the spatialization of virtuality as well as by the virtualization of space. Mass-mediated proxy participation slowly gave way to virtual involvement. Decentralized and distributed forms of virtual collaboration between highly-specialized knowledge workers evolved, specifically in media production. With the new modes of work and entertainment, authorship practices also started to change.

During industrialization, the transformation of artistic work became most evident in the medium of film. Walter Benjamin noted that the montage of running images effected a series of shocks that corresponded to the experiences of urban life and machine work: "The film is the art form that is in keeping with the increased threat to his life which modern man has to face."[69] Film and later television expressed the life of the industrial masses and trained their sensorium for industrial reality. In the last decades of the 20th century, games took on this role that film once possessed: familiarization with a new world and form of existence. As the moving images related to factory work, the navigations and decisions of digital games relate to knowledge work. Their iterative calls to action virtually mirror the demands of digital work and culture. And just as film required and developed a new form of authorship in the first decades of the 20th century, the new medium of software and the genre of digital games were formative in the last decades.

Software, in general, demanded different modes of production and distribution than hardware. In addition, the transmedia genre of games posed special requirements. On the one hand, these were similar to those of the older linear audiovisual media theater, film, or television. Like them, game development must combine and integrate highly specialized artistic and technical talents. On the other hand, the multilinear audiovisual narratives of digital games are generated virtually and allow for meaningful interactions. Since the 1960s, three components emerged in software development, especially in the burgeoning games industry, that gave rise to a third variant of authorship.

69 W. Benjamin: "The Work of Art," p. 26, footnote 19.

2 The Open Knowledge Work

The first step was the transition from craft work to knowledge work, as described above by the example of authoring texts.[70] Standardized machine cycles do not longer set the pace. Knowledge workers are neither cogs in the industrial machinery nor solitary artisans. This—in comparison to industrialization—radical restoration of autonomous work demands the individual as a universal machine that, as Manuel Castells suggested, is "self-programmable" and gains in capability with each new task solved.[71] Over the last decades, knowledge work has grown to be a leading source of economic value generation, especially in the so-called 'creative industries.'[72]

The economic importance brought about cultural and behavioral changes. At the end of the 20th century, the contradiction between work ethics and play ethics, which industrial rationality presupposed and existed in factories and bureaucracies, started to dissolve to the same extent as the Gutenberg Galaxy. Today, knowledge workers create value through self-determined, explorative, experimental, and, most importantly, playful interactions with virtual symbols, i.e., software programs and files. The production of digital games was based on such knowledge work from the very beginning. However, other areas of media production, which had relied primarily on analog craftsmanship, have now transformed into digital knowledge work as well—in film, for example, the creation of special effects or the central processes of editing images and sound.

Another essential element that characterizes knowledge work is an interconnected, interactive, and largely egalitarian collaboration of individuals that only became possible with the digitization of media and networking. In contrast to works of analog culture like books, paintings, photographs, or movies, pieces of

70 See above chapter *I Introspection: The Last Fifty Years*.

71 Cf. "Self-programmable labour is equipped with the ability to retrain itself, and adapt to new tasks, new processes and new sources of information […]." (Castells, Manuel: "Materials for an Exploratory Theory of The Network Society," in: *British Journal of Sociology*, January/March, 2000, pp. 5–24, here p. 12.)

72 Cf. P. F. Drucker: *Post-Capitalist Society*, p. 8. "The central wealth-creating activities will be neither the allocation of capital to productive uses, nor 'labor'—the two poles of nineteenth- and twentieth-century economic theory whether classical, Marxist, Keynesian, or neo-classical. Value is now created by 'productivity' and 'innovation,' both applications of knowledge to work."— Drucker's theory, and especially the concept of knowledge work, gained influence over the past quarter century as the digital reorganization of economic life progressed.

software are, in principle, always 'unfinished' in the sense of Umberto Eco's *Open Work*.[73] Programs and files can be continuously and arbitrarily expanded and modified through updates and add-ons.[74] The technological openness inherent in all software corresponds to an aesthetic openness of digital artifacts. While the first forms of software have existed since the 1950s—the term was coined in 1959[75]—the digitization of audiovisual media dates to the last three decades of the 20th century. Digital networking has only been available to most people since the mid-1990s. Around the turn of the century, Barry Wellman termed the result "networked individualism."[76] From it, new creativity arises, which is neither individual nor collective but distributed. The individuals involved don't have to collaborate in traditional ways anymore, i.e., hierarchically organized and at the same place or at the same time. Instead, they act as nodes in a network of peers. Thus, virtualization has enabled a historically new form of authorship: the collaboration of individuals who design, write, produce, modify, and update transmedia projects largely independently of one another and without spatial and temporal constraints.

This distributed creativity is not limited to professionals. It also concerns what used to be the later process of reception. User-centered design is complemented by user-driven design or even user-generated design. The propensity of future consumers to get involved in design processes is essentially due to the fact that design in digital culture no longer concerns artifacts alone but the shaping and enhancement of real and virtual experiences. Amateurs and fans, readers, viewers, players, and users—precisely "the people formerly known as the audience"[77]—increasingly participate in creative processes. Over the last quarter century, very different forms of such 'amateur' contributions have evolved. They range from various interaction opportunities built into games or transmedia worlds to simple interventions to planned or unplanned co-authorship through user-generated content—

73 U. Eco: *The Open Work.*

74 As soon as books or films become digital, they are no less open in terms of technological principle. In artistic practice, however, this new affordance is so far hardly exploited.

75 Cf. Leonhardt, David: "John Tukey, 85, Statistician; Coined the Word 'Software'," in: *The New York Times*, July 28, 2000, http://www.nytimes.com/2000/07/28/us/john-tukey-85-statistician-coined-the-word-software.html

76 Cited after Castells, Manuel: *The Internet Galaxy: Reflections on the Internet, Business, and Society*, Oxford; New York: Oxford University Press 2001, p. 132.

77 Rosen, Jay: "The People Formerly Known as the Audience," *press think*, June 27, 2006, http://archive.pressthink.org/2006/06/27/ppl_frmr.html

add-ons, mods, mashups, remixes, machinima, fan cuts, fan fiction, *Let's-Play-Videos*, etc.[78].

These developments, and particularly the emergence of a new "participatory culture,"[79] questioned once more the culturally still dominating idea of single or collective authorship, i.e., of individual or corporate ownership of intellectual property. Consequently, the 1990s saw new copyright wars. On the one hand, their origins can be traced to these user claims and interventions; on the other hand, the historically unique circumstance that works in the software medium can be copied without generational loss and distributed globally via digital networks. The conflict culminated in the Digital Millennium Copyright Act (DMCA) of 1998, strengthening corporate control once again.

3 Authorship By Design

The third fundamental change that the transition from material to virtual creation brought about is a shift from text-based conception and linear modes of development to design practices. Any real-world production's starting point usually combines precise and typically written plans and signed contracts. In film development, for example, the script and secured financing are prerequisites for the following steps: casting, location scouting or set design, determining the technical requirements, and so on. The transmedium of software permits the abandonment of such sequential order. Design practices—especially cyclical iteration and prototyping—can replace linear procedures and finalized financing.[80]

What we call design originated in the 19th century, in the early days of industrial manufacturing, to evolve functional models for mass production. In the last decades of the 20th century, the established analog practices underwent a digital upgrade.[81] The iterative steps of designing the product or work must happen early in material fabrication. In virtual development, however, the arrow of time has only a limited effect. Software products can be developed, produced, and even

78 See Curtis, Joanna/Oxburgh, Gavin/Briggs, Pam: "Heroes and Hooligans: The Heterogeneity of Video Game Modders," in: *Games and Culture* 0 (0) (2021), pp. 1–25.

79 Jenkins, Henry: *Fans, Bloggers, and Gamers: Exploring Participatory Culture*, New York: New York University Press 2006.

80 Unlike film production, it is quite common in digital game development to produce prototypes—as a vertical or horizontal slice—and then seek funding for the actual production on that basis.

81 Freyermuth, Gundolf S.: *Games | Game Design | Game Studies: An Introduction*, Bielefeld: transcript 2015, pp. 153-159.

distributed entirely with iterative design practices. Moreover, the digital transmedium allows for escalating these techniques, for example, the acceleration ('rapid prototyping') and reuse of essential elements for further prototypes or even end products ('evolutionary prototyping').

Since the turn of the century, design practices have penetrated almost all areas of digital media production. A particularly significant role they gained in game development. Unlike the older audiovisual media of theater, film, and television, games do not offer prefabricated narratives but rather "systems of interaction," as Katie Salen and Eric Zimmerman have noted.[82] Designers craft these systems and prefigure their use in varying degrees, not least from genre to genre. Nevertheless, the design of games almost always aims not at the audiovisual representation of actions in their temporal sequences but at the provision of procedures that are first to be realized in the act of playing: "The game designer only indirectly designs the player's experience, by directly designing the rules."[83] Therefore, game development is not about creating a text in the narrower or broader sense but about narrative spaces and possibilities for action. Henry Jenkins speaks of "story architecture" and designers as "narrative architects […] privileging spatial exploration over plot development."[84] Authorship thus turns from writing stories to designing, for example, 'narrative corridors' that players can traverse and experience with a certain range of variation in their—iterative—efforts to get from A to B.

A particularly far-reaching variant of this 'authorship by design' is constructing open worlds that can be arbitrarily navigated and manipulated in real time. Such world-building is not an entirely new practice in the history of the arts.[85] Literature strove to capture dying worlds, as, for example, Honoré de Balzac undertook with the *Comédie Humaine*.[86] Others attempted to invent new epic worlds,

82 Salen, Katie/Zimmerman, Eric: *Rules of Play: Game Design Fundamentals*, Cambridge, Mass.: MIT Press, Kindle Edition 2003, loc. 651.

83 Ibid., loc. 4940.

84 Chatfield, Tom: "Bridging the Gap," *Prospect*, 2011, http://www.prospectmagazine.co.uk/arts-and-books/bridging-the-gap

85 For the following see G. S. Freyermuth: *Games | Game Design | Game Studies*, pp. 173-175.

86 French writer Honoré de Balzac (1799-1850) conceived the idea of a panoramic portrait of society which came to be known as *La Comédie humaine* in 1832. It "consists of 91 finished works (stories, novels or analytical essays) and 46 unfinished works (some of which exist only as titles)." (https://en.wikipedia.org/wiki/La_Comédie_humaine#cite_note-1)

like J. R. R. Tolkien with *The Lord of the Rings*.[87] Dramatic storytelling, however, bound to audiovisual representation in time and space, was barred from such world-building—primarily due to media-technological constraints, both the production conditions and the reception modes in theater, cinema, and television. Only with the transition to virtual, i.e., software-based audiovisuality, did the construction and experience of complete audiovisual worlds become feasible.

Digital world-building was pioneered in games but is also practiced in filmmaking. "Constructing worlds is the main idea," stated Hollywood production designer Alex McDowell: "By creating a 3-D virtual production space, you can work with your fellow filmmakers in a very descriptive, data-rich, virtual representation of the film before you even start making it."[88] Similarly, director James Cameron described AVATAR'S hyperrealistic "movie-scape": "It's like a big, powerful game engine. If I want to fly through space or change my perspective, I can. I can turn the whole scene into a living miniature."[89] Tom Chatfield thus considers the "aesthetics of world-building" central to digital culture.[90] By empowering humans to engage in situations and conflicts, they would try to avoid outside of a game and take actions they would not dare to do in real life for better or worse, game designers—unlike writers or directors who tell and show fixed and completed stories in different linear media—are "metacreators of meaning."[91]

In summary, postmodernity experienced a successive transition from the paradigms of the book and reading and linear audio visions and viewing—closed works and their interpretative comprehension—to the paradigm of games and playing—the open work and its participatory appropriation. The social character of modern culture, the "typographic man" (McLuhan), as well as the 'cinematic

87 British writer and professor of English language John Ronald Reuel Tolkien (1892-1973) wrote the epic saga *The Lord of the Rings* as a sequel to his children's book *The Hobbit* (1937) between 1937 and 1949. Published in three parts in 1954 and 1955, the saga created a whole fantasy world whose strong influence on popular culture and specifically games and transmedia productions is ongoing.

88 Quoted from Hart, Hugh: "Virtual Sets Move Hollywood Closer to Holodeck," *Wired*, March 27, 2009, http://www.wired.com/underwire/2009/03/filmmakers-use/

89 Quoted from Chatfield, Tom: *Fun Inc.: Why Games are the Twenty-First Century's Most Serious Business*, London: Virgin, Kindle Edition 2010, loc. 623-625.

90 Schell, Jesse: *The Art of Game Design: A Book of Lenses*, Amsterdam, Boston: Elsevier/Morgan Kaufmann, Kindle Edition 2008, loc. 2188-92.

91 Fullerton, Tracy/Swain, Christopher/Hoffman, Steven et al.: *Game Design Workshop: Designing, Prototyping and Playtesting Games*, San Francisco, Calif.: CMP 2004, loc. 289.

collectives,' shaped by textual and audiovisual sequentiality, hermeneutical interpretation, and causal rationality, were gradually giving way to the digital "homo ludens" (Huizinga), characterized by transmedial simultaneity, playful interactivity, and contingency thinking. The prototypical authors preconfigured by digital tools—programs—were networked knowledge workers who, largely independent of one another and without restrictions regarding space and time, designed media by playfully manipulating virtual symbols in distributed non-hierarchical collaboration with other knowledge workers and also future users.

The constant interplay between the audiovisual systems created by game designers expressing worldviews such as expectations of how one should act and the actual realization of these potentials by those playing, individuals, and groups, make it clear that fundamentally new forms of storytelling are emerging. "Most of all, the procedural medium will challenge our notions of authorship," Janet Murray foresaw in 1997.[92] A quarter century later, artificial—and artistically relevant—intelligence adds the fourth and most essential facet to digital authorship.

VI DIGITAL AUTHORSHIP: THE LUDIC CYBORG

The conditioning of human authorship by machines predates digital culture. Filmmaker Dziga Vertov famously initiated the Kino-Eye movement. In 1923, he wrote:

> "I am kino-eye, I am a mechanical eye. I, a machine, show you the world as only I can see it. Now and forever, I free myself from human immobility, I am in constant motion, I draw near, then away from objects, I crawl under, I climb onto them. [...] My path leads to the creation of a fresh perception of the world. I decipher in a new way a world unknown to you."[93]

In "A Berlin Diary (Autumn 1930)," the first chapter of his novel *Goodbye to Berlin*, Christopher Isherwood described a similar reshaping of his perception, memory, and writing by an optical machine: "I am a camera with its shutter open,

92 Murray, Janet Horowitz: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, New York: Free Press 1997, p. 275.

93 Vertov, Dziga: "Kinoks—A Revolution," in: Vertov, Dziga/Michelson, Annette (eds.), *Kino-Eye: The Writings of Dziga Vertov*, Berkeley, Ca.: University of California Press 1984, pp. 11-21, pp. 17-18.

quite passive, recording, not thinking. [...] Some day, all this will have to be developed, carefully printed, fixed."[94]

1 The Origin of the Cyborg

Three decades later, J.C.R. Licklider did not speak of a symbiosis with analog machines but computers, so-called Von Neumann machines with separate hardware and software components. Licklider observed that they enabled a qualitatively enhanced interaction between humans and machines. The psychologist, computer scientist, and science manager—later instrumental, among other things, in the development of the computer mouse and Arpanet—no longer saw computers as mere calculating machines to be operated by experts but as amplifiers of human intelligence that should benefit everyone. Thus, he proposed a "man-computer-symbiosis": "The hope is that, in not too many years, human brains and computing machines will be coupled together very tightly, and that the resulting partnership will think as no human brain has ever thought."[95] Thereby, Licklider launched the concept of human authorship augmented by artificial intelligence.

However, shortly after, two other researchers coined the term by which this augmentation was to become known. To express the human fusion with the technology necessary for journeys into space, the neurologist Manfred E. Clynes and his co-author Nathan S. Kline formed—from the first syllables of 'cybernetic' and 'organism'—the term 'cyborg': "The Cyborg deliberately incorporates exogenous components extending the self-regulatory control function of the organism in order to adapt it to new environments."[96] The radically new idea immediately seized contemporary thinking and dreaming. By the mid-1960s, cooperations and combinations of flesh, steel, and silicone, hard-, soft- and wetware were conjured up in almost all media, from non-fiction literature to science fiction in novels, film, and television, to the visual arts.[97]

Highly unusual was the fact that the fascination emanating from the figure of the cyborg was by no means limited to fiction but also encompassed the humanities, social sciences, and natural sciences. Marshall McLuhan was among the first

94 Isherwood, Christopher: *Goodbye to Berlin*, New York: Random House 1939, p. 11.

95 J. C. R. Licklider: "Man-Computer Symbiosis."

96 M. Clynes and N. Kline: "Cyborgs and Space."

97 Cf. for example Halacy, D. S.: *Cyborg: Evolution of the Superman*, New York,: Harper & Row 1965; Herbert, Frank: *The Eyes of Heisenberg*, New York: Berkley Books 1966. *The Avengers*, Season 4, Episode 3*: The Cybernauts*, October 12, 1965, https://en.wikipedia.org/wiki/The_Cybernauts

researchers to recognize cyborgization as a historical process: "New technology breeds new man [...] The Eskimo is a servomechanism of his kayak, [...] the businessman of his clock, the cyberneticist—and soon the entire world—of his computer. In other words, to the spoils belongs the victor."[98] Particularly influential became Donna J. Haraway's "Cyborg Manifesto." In 1985, the feminist historian of science declared the symbiosis with our machines to be the *human condition*: "[W]e are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are Cyborgs."[99]

Two factors, however, distinguished Licklider's 1960 vision from later cyborg fantasies and theories. First, he was not seeking a physical fusion with digital machines but a functional symbiosis. Licklider assigned the decisive role to the software. The concept of such "machine intelligence" had been independently conceptualized around 1950 by Alan Turing and Claude Elwood Shannon. Both had sought to prove the viability of their concepts by means of digital (chess) games.[100] John McCarthy then proposed the term "Artificial Intelligence" in 1956. Second, Licklider did not suggest that the software portion of the human-computer symbiosis should act autonomously—as Vertov's optical kino-eye was to replace the biological and Isherwood's celluloid film replace human memory—but to assist in human work.

2 Short History of Cyborg Textuality

The longing for such cooperation did not begin with digital technology either. What "generative pre-trained transformers" do today, forming seemingly meaningful sentences word for word according to defined rules, was attempted by literary avant-gardes as early as the 1920s. Dadaist Tristan Tzara, for example,

98 Norden, Eric: "Playboy Interview: Marshall McLuhan—a Candid Conversation with the High Priest of Popcult and Metaphysician of Media (1969)," in: McLuhan, Marshall/McLuhan, Eric/Zingrone, Frank (eds.), *Essential McLuhan*, New York NY: BasicBooks, 1995, pp. 233-269, here p. 264.

99 Haraway, Donna Jeanne: "A Cyborg Manifesto," in: *Simians, Cyborgs, and Women: The Reinvention of Nature*, ed. dies., New York: Routledge, 1991, pp. 149-182, here p. 150.

100 Turing, Alan: "Computing Machinery and Intelligence," in: *Mind*, no. 59 (1950), pp. 433-460, http://www.loebner.net/Prizef/TuringArticle.html; Shannon, Claude Elwood: "XXII. Programming a Computer for Playing Chess," in: *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 1950, pp. 256-275, https://vision.unipv.it/IA1/ProgrammingaComputerforPlayingChess.pdf

created poems by drawing words out of a hat like raffle tickets.[101] André Breton and other surrealists experimented with various rule-based methods of "écriture automatique," automatic writing.[102] Around 1960, the birth year of the cyborg concept, William S. Burroughs used the cut-up technique proposed by painter Brion Gysin to produce random passages of text for the novels in his *Nova* trilogy.[103] In France, Raymond Queneau published the interactive poetry collection *Cent mille milliards de poèmes (Hundred Thousand Billion Poems)* that let the readers create their own sonnets by browsing.[104] And in Germany, the philosopher and writer Max Bense—already using computers—had his stochastic literature created automatically by combining rules and vocabulary, such as words from Franz Kafka's novels. Like GPT technology, Bense's "generative aesthetics" efforts were based on probability rules.[105]

The many artistic experiments of the avant-gardes correlated with technical advances. In the 1960s, the electrification and electronification of writing began. Its mechanization dates back to the late 19th century when the typewriter entered offices. Friedrich Kittler regarded typing as part of the automation of writing and associated it with the experiments of the Surrealists.[106] Culturally, replacing handwriting with standardized type meant that suddenly people could write who actually couldn't—because the typists had mastered spelling and punctuation, and the people dictating had to only sign their names. The electric "golf ball" typewriter

101 Cf. Burroughs, William S.: "The Cut-Up Method of Brion Gysin," *UbuWeb*, [*1961], https://ubu.com/papers/burroughs_gysin.html

102 C.f. Esman, Aaron H.: "Psychoanalysis and Surrealism: André Breton and Sigmund Freud," in: *Journal of the American Psychoanalytic Association*, 2011, pp. 173-181, https://journals.sagepub.com/doi/pdf/10.1177/00030651114031 46?casa_token=D72Zb_S54R0AAAAA:GyF4FKqrnqxhfJa12t78kzFo5m3O_JtV8fOHhyndFTSdb2LYuGJjwI4kvEfMrM7myWdDJol6VV1LN88

103 W. S. Burroughs: "The Cut-Up Method of Brion Gysin."

104 Queneau, Raymond: *Cent mille milliards de poèmes*, Paris: Gallimard 1961. An English interactive online version can be found here: http://www.bevrowe.info/Internet/Queneau/Queneau.html

105 Cf. Beals, Kurt: *From Dada to Digital: Experimental Poetry in the Media Age*, Berkeley: eScholarship.org 2013, pp. 102 ff., https://escholarship.org/uc/item/7wc7510k

106 Kittler, Friedrich A.: *Gramophone, Film, Typewriter*, Stanford, Calif.: Stanford University Press 1999.

was introduced in 1961,[107] the electronic word processor in 1964,[108] and the first writing program for computers in the early1970s.[109] The transition from analog to digital machines did not only entail the virtualization of hardware to software, i.e., the typewriter to the writing program. Gradually, the expertise of those who had previously operated the machines was also virtualized—in the case of writing, spelling, and punctuation skills, knowledge of the structure and stylistic elements of certain types of texts. The first autocorrect function, for example, was introduced in 1993 with Microsoft Word 6.[110]

While AI research worked on more complex assistance systems, artistic experiments with augmented authorship continued as well. Singer-Songwriter David Bowie, for example, texted his songs in the mid-1990s using a sentence randomizer called *Verbasizer* that a friend had programmed for him. The app was a digital version of the traditional cut-up method. *Verbasizer* songs appeared on all three albums of Bowie's famous Berlin trilogy.[111] A quarter century later, many AI bots augment literary authorship—*Jasper, Jenni, Otter, Bing, Quillbot, Summari, Instatext, Granthika, Grammarly, Wordtune, Trint, Neuroflash, NovelAI, AuthorsAI,* just to name a few.[112] They all no longer function as mere tools like mechanical typewriters or simple applications but have risen to more or less intelligent collaborators. With tireless zeal, they make up for human weaknesses, obtain information, painstakingly correct countless errors, and sometimes have good ideas.

107 Reisinger, Don: "IBM celebrates 50 years with the Selectric typewriter," *CNET*, July 27,2011, https://www.cnet.com/home/smart-home/ibm-celebrates-50-years-with-the-selectric-typewriter/

108 Haigh, Thomas: "Remembering the Office of the Future: The Origins of Word Processing and Office Automation," in: *IEEE Annals of the History of Computing*, October-December, 2006, pp. 6-31, here p. 9f, https://ieeexplore.ieee.org/abstract/document/4042483?casa_token=QMSUE2RkzXQAAAAA:IVuonyyPk52ifOIO3ka4-EU65L3uIAJBbZSShkKCLoPvmB6JU1xgn8FoDv2Yakg6Y2Nc0j-zAfBP9hA

109 Ibid., p. 16f.

110 Lewis-Kraus, Gideon: "The Fasinatng... Fascinating History of Autocorrect," *Wired*, July 22, 2014, https://www.wired.com/2014/07/history-of-autocorrect/

111 Braga, Matthew: "The Verbasizer was David Bowie's 1995 Lyric-Writing Mac App," *Vice*, January 11, 2016, https://www.vice.com/en/article/xygxpn/the-verbasizer-was-david-bowies-1995-lyric-writing-mac-app

112 https://www.jasper.ai; https://jenni.ai; https://otter.ai; https://www.bing.com; https://quillbot.com; https://www.summari.com; https://www.granthika.co; https://www.grammarly.com; https://www.wordtune.com; https://trint.com; https://neuroflash.com; https://novelai.net; https://authors.ai

3 Short History of Cyborg Visuality

As textual production changed through functional cyborgization, so did visual and audiovisual authorship. Again, experiments by the avant-gardes over decades pointed the way in the direction that AI research would eventually take. 20th-century art history is rich in procedures of decontextualizing and recombining existing materials and works on the one hand and producing visuals (semi-) automatically on the other. Examples range from the 1910s and 1920s—such as Pablo Picasso's and Marcel Duchamp's Found Objects and Readymades and John Heartfield's Photomontages—to the 1940s and 1950s—such as Jackson Pollock's or Willem de Kooning's Action Paintings—to the 1960s and 1970s, especially Andy Warhol's Pop Art, from the exhibition of 'found' consumer goods to the serial reworking of 'found' photographic images in analog manners reminiscent of digital image processing. All these experiments have in common that they do not so much probe styles and materials as play with the established understanding and accepted practices of authorship.[113]

Again, technological developments followed and complemented the aesthetic experiments of the avant-gardes. Around 1960, CAD (computer-aided drafting, later called computer-aided design) was developed. In 1961 Ivan Sutherland at MIT programmed the first application for interactive computer graphics.[114] Sutherland's *Sketchpad* represented digital data visually and allowed its interactive manipulation, with the program automatically correcting human imperfections such as the angles of triangles or rectangles. Automated digital generation of moving images commenced in the second half of the 1960s with so-called scene generators for flight simulators. In 1967, General Electric delivered the first real-time 3-D electronic simulator to the Johnson Space Center in Houston, Texas. Another digital prototype was independently constructed in 1968 by David Evans in

113 See the long-running lawsuit over whether Andy Warhol infringed photographer Lynn Goldsmith's copyrights: Moynihan, Colin: "Why Warhol Images Are Making Museums Nervous," *New York Times*, March 1, 2023, https://www.nytimes.com/2023/03/01/arts/design/warhol-prince-goldsmith-museums.html. After decades, the Supreme Court decided that Warhol had infringed on the photographers copyright: Liptak, Adam: "Supreme Court Rules Against Andy Warhol in Copyright Case," *New York Times*, May 1, 2023, https://www.nytimes.com/2023/05/18/us/supreme-court-warhol-copyright.html

114 Sutherland, Ivan Edward: *Sketchpad: A Man-Machine Graphical Communication System*, New York: Garland Pub. 1980 [*1963], https://www.cl.cam.ac.uk/techreports/UCAM-CL-TR-574.pdf

collaboration with Ivan Sutherland. The combination of optimized hardware and innovative software calculated new images from digitized recordings of real scenes that corresponded in perspective to the training pilot's commands.[115]

From the origins of CAD in the 1960s, the historical path leads to computer-generated imagery (CGI), the digitization of analog captured still and moving images, and, above all, to their arbitrary manipulation. The cyborgization of the creative processes started with semi-automated image editing applications like *Photoshop* (1987) or film editing programs like *Premiere* (1991) and *Final Cut* (2004). Currently, a variety of AI applications allow still images to be generated by simple text prompts.[116] Others restore or colorize black and white photos 'true to original.'[117] Text-based video generation is in promising early stages,[118] as is AI-assisted editing of footage.[119] Subtitles and synchronizations can be created automatically—lip-syncing and cloning voices in many languages included.[120] In the same way, the early Scene Generators point to our present. On the one hand, they led to the procedural—i.e., algorithmic and thus, in the traditional sense, authorless—generation of AV content, such as assets or game levels, as it became possible in the 1980s and gained significant importance in the past decade.[121] On the other hand, scene generators were the precursors of present-day game engines, automating the real-time generation of audiovisual worlds in digital games since the 1990s.[122]

115 The first computer image generation systems for simulations were produced by the US General Electric Company for the space program. Rolfe, J. M./Staples, K. J.: *Flight Simulation*, Cambridge [Cambridgeshire]; New York: Cambridge University Press 1986, p. 35.

116 For example, https://leonardo.ai; https://www.midjourney.com; https://openai.com/product/dall-e-2;

117 For example, https://cleanup.pictures

118 For example, https://www.synthesia.io

119 For example, https://runwayml.com

120 For example, https://www.flawlessai.com

121 In 1984, "Elite was the first game to feature a procedurally generated world, while Frontier: Elite II was the first game to feature procedurally generated star systems." (N.N.: "First Use of Procedural Generationina Videogame," *guinnessworldrecords.com*, 2023, https://www.guinnessworldrecords.com/world-records/first-use-of-procedural-generation-in-a-video-game)

122 Of particular importance were and are the Unreal Engine (Epic Games, since 1998), the CryEngine (Crytek, since 2004), and the Unity Engine (Unity, since 2005).

Games, however, do not present themselves as authored audiovisual works ready for passive consumption. Only the process of playing generates, through numerous interactions between the procedures laid out in the game engine and the players' decisions, the game's gestalt, one of many possible. This structured web of ludic and narrative elements experienced by individual players has no single author but at least two kinds of authors: the designer(s) and the player(s). Like the designers, the players owe their co-authorship to the processes of cyborgization. Digital games not only empower players to meaningfully co-create their experiences. This playful activity is also radically different from real-world actions as the technological conditioning of playing digital games puts players in "mixed realities."[123] While their bodies remain in reality, they control virtual characters in cybernetically generated worlds. This "integration of virtuality and actuality" transforms the players into—functional—cyborgs, as Seth Giddings analyzed: "Digital games aestheticize this cyborg world, but they also realize it: this is an aesthetics of control and agency (or the loss of these) through immersive, embodied pleasures and anxieties [...] "[124] Brendan Keogh concurred: "[T]he hybridity of the videogame text demands a cyborg identity that understands the player as posthuman […]."[125]

123 Hayles, N. Katherine: "Cybernetics," in: Mitchell, W. J. T./Hansen, Mark B. N. (eds.), *Critical Terms for Media Studies*, Chicago, London: The University of Chicago Press (Kindle Edition), 2010, pp. 145-156, here p. 148.

124 Giddings, Seth: "Playing With Non-Humans: Digital Games as Techno-Cultural Form," *DiGRA '05—Proceedings of the 2005 DiGRA International Conference: Changing Views: Worlds in Play*, 2005, http://www.digra.org/wp-content/uploads/digital-library/06278.24323.pdf.—See also: "The gamer as simultaneously avatar acting in the gameworld, player sitting by her computer and perhaps being part of an (both online and offline) community around the game can perhaps be characterized as a cyborg." (Albrechtslund, Anne-Mette Bech: "Gender and the Player Cyborg: Ideological Representation and Construction in Online Games," *Paper presented at Internet Research 8.0: Let's play, Vancouver, Canada*, 2007, https://vbn.aau.dk/en/publications/gender-and-the-player-cyborg-ideological-representation-and-const).

125 Keogh, Brendan: "Across Worlds and Bodies: Criticism in the Age of Video Games," *Journal of Games Criticism*, Januar, 2014, http://gamescriticism.org/articles/keogh-1-1.—See also: "Videogame play in particular is a vivid and explicit performance of the cyborg, as scholars have noted […]. To play a videogame is to both expand and constrain bodily ability through technological augmentations (controllers, motion sensors, touchscreens)." (Keogh, Brendan: "Hackers and Cyborgs: Binary Domain and Two Formative Videogame Technicities," in: *Transactions of the Digital Games*

In summary, prototypical authors preconfigured by digital machines—engines—are networked knowledge workers who, in collaboration or individually, manipulate virtual symbols in playful cyborgian relationships with Artificial Intelligence, providing the augmentation of human skills, talent, and knowledge as a service. These cyborg authors are like all cyborgs, as Alexis C. Madrigal wrote in his portrait of Manfred Clynes, "not less human, but more."[126]

VII ELEMENTS FOR A THEORY OF AUTHORSHIP

In the previous chapters, I have undertaken an investigation of the origins and development of authorship in Western modernity. It demonstrated a close dialectical relationship between the emergence of new media, their specific affordances, modes of production and distribution, and new practices and forms of authorship. This interdependence makes an understanding of the evolution and accumulation of media between the early modern period and our present a precondition for a historical theory of authorship.

The first centuries of these roughly 800 years saw the rise of new mechanical media like perspectival canvas painting, stage, and print, affording originals or small series. In the 19th century, the transition to industrial technology and mass-produced media like photography, film, radio, and television commenced. Despite their differences, pre-industrial and industrial media had in common that they were produced and received in the material world. The third evolutionary step brought virtualization, i.e., the replacement of hardware tools and materials with software. Since the mid-20th century, digitalization has modified the existing analog media and given rise to entirely new ones.

1 Medialities and Dispositifs

In the early days of this last phase, Harry Pross proposed a categorization of medialities that can provide a historical and systematic framework for understanding

Research Association (2/3), 2016, pp. 195-220, http://www.digra.org/wp-content/uploads/digital-library/26_Keogh_Hackers-and-Cyborgs.pdf.)

126 Madrigal, Alexis C.: "The Man Who First Said 'Cyborg,' 50 Years Later," *The Atlantic*, September 30, 2010, https://www.theatlantic.com/technology/archive/2010/09/the-man-who-first-said-cyborg-50-years-later/63821/

this evolution of modern media and authorship.[127] Pross' central criterion was the escalating use of 'technology,' which he understood narrowly as material realizations of scientific insights. Accordingly, he distinguished three medialities. Primary mediality characterizes technology-free communication and aesthetic presentation. Everyone involved can participate interactively. Examples are personal conversations, improvised vocal performances, or improvisational theater. Secondary mediality uses advanced technology on the production side. New secondary media evolving in the early modern era include letter printing, perspectival canvas painting, and the performances of the illusionary stage. Works of these media could still be received technology-free and autonomously, even though they could no longer be influenced in form and content or only peripherally. Tertiary mediality then emerged with industrialization. It required advanced technology for both production and reception. Analog film, radio, and television enforced a heteronomous reception dictated by their respective programming, at least before 'remedial' options were introduced, such as private sound or video recording.

Half a century ago, when Harry Pross presented this taxonomy, the rise of the digital transmedium was not yet in sight. Today, it constitutes a new quaternary mediality that is software-based.[128] While it also requires technology for both production and reception, software virtualizes formerly material processes—e.g., word processing, creating and editing of graphics and moving images—and enables real-time interactions through feedback channels. Quaternary mediality also successfully integrates the modes of reception associated with primary, secondary, and tertiary mediality. For the first time, choosing or switching arbitrarily between autonomous, heteronomous, and interactive use of media artifacts is possible.

The outlined medialities' technological foundations generate their affordances, i.e., their different modes of production and reception. All four coexist at present and are connected by a complex, multilayered system of relationships and dependencies:

- First, technological possibilities; e.g., in production, modes of storage and manipulation; in distribution and reception, capacities for material or immaterial transport as well as for the exchange between producers and their customers;

127 Pross, Harry: *Medienforschung: Film, Funk, Presse, Fernsehen*, Darmstadt: Habel 1972.

128 The digital transmedium as a quaternary medium is already spoken of to some extent by Faßler, Manfred: *Was ist Kommunikation?*, Munich: Wilhelm Fink 1997, p. 117.

- Second, economic conditions; e.g., in production and distribution, variants of financing and recouping; in reception, the quantity of disposable income and free time for media consumption;
- Third, legislative frames, such as regulations on censorship or copyright and authors' rights;
- Fourth, cultural aspects; e.g., in production, the role and reputation of authors; in reception, questions of literacy concerning certain media and the established communicative practices in different age groups, genders, classes, and societies.

Following Michel Foucault, this systemic network can be conceptualized as the contemporary media dispositif containing various interwoven sub-dispositifs for single media.[129] A historical theory must reflect on authorship's embeddedness in these dispositifs. At the core is whether and how the four basic medialities—irrespective of the individual media falling under them, for example, the stage under secondary or film under tertiary mediality—preconfigure media practices and authorship. Both evolved in four significant shifts since the Renaissance: under pre-industrial, industrial, post-industrial, and digital conditions. These four shifts further divide into an analog and a digital phase and can be summarized in seven assumptions per shift.

2 Pre-Industrial Authorship: The Individual Artisan

1) In the Christian mythology of the Middle Ages, authorship—i.e., original creative power—belonged only to God. In the wake of the Renaissance, it was secularized according to humanist ideology and became a human capability.
2) In this first phase, the affordances of pre-industrial media, such as texts and images that could be produced by manually operated hardware—with craft tools—prefigured the individual authorship of independent artisans.
3) Literature provided the pre-industrial model of individual authorship—practically, legally, and economically.
4) The individual authorship of textual media correlated with their—historically new—'silent' and 'solitary' individual reception.

129 On the meaning of the term dispositif in Foucault's work, and in particular his change from the term apparatus to that of dispositif, cf. Panagia, Davide: "On the Political Ontology of the Dispositif," *Critical Inquiry*, January 3, 2019, https://escholarship.org/uc/item/7kg7p7d5

5) With letterpress printing, the reproducibility dilemma arose: whatever authorship produced could be mechanically reproduced for the first time. Thus, the new potential to market literary works was challenged by 'piracy.'
6) Between 1700 and 1800, two new legal principles secured individual authorship legally and economically: intangible property (copyright, following Locke) and inalienable property (authors' right, following Kant).
7) Around 1800, the Romantic genius aesthetics and art religion glorified individual authorship as a cultural ideal.

3 Industrial Authorship: The Hierarchical Collective of Workers

1) Industrial mass media required high capital investment and specialized knowledge that individuals generally did not command. They challenged individual authorship in three phases: starting with the steam-driven mass press of the 19th century and continuing in the 20th century with electric film and the electronic broadcast media of radio and television.
2) The affordances of media that, such as film, radio, and television, could be produced using automated hardware—with industrial machines—prefigured collective authorship by teams of salaried workers working in a division of labor.
3) Film provided the industrial model of collective authorship—practically, legally, and economically.
4) The collective authorship of the film correlated with its collective reception (in the cinema).
5) After 1800, new leadership functions emerged in the auditory and audiovisual media. These functions can be understood—parallel to industrial Chief Executive Officers (CEOs)—as Chief Artistic Officers (CAOs): conductors in music and directors in theater, film, and television. The director's theater and the auteur film are examples of how these new managerial functions were used to appropriate the collective achievements of industrial teams. Such authorship through artistic direction can be seen as both an adaptation to and a rebellion against culture-industrial working conditions and corporate control.
6) In the 19th and 20th centuries, the interests of media corporations in securing 'their' intellectual property, created through collective work, were met by politics with a multitude of international agreements as well as extensions and modifications of copyright and authors' rights regulations. At the same time, the mass media, with their free offers, undercut the cultural view that works are the property of individual authors.

7) The practical questioning of individual authorship was supported by the findings of new academic disciplines that evolved in the industrial age. These disciplines included literary studies, sociology, and psychology. They deconstructed individual authorship in favor of social and cultural influences and finally declared the "death of the author" (Barthes, Foucault) at the end of the 1960s.

4 Postindustrial Authorship: The Distributed Network of Digital Knowledge Workers

1) Digitalization, commencing in the postmodern era, increasingly replaced hardware with software in media production. Craft and industrial work turned into knowledge work, creating values and works in the manipulation of virtual symbols. Authorship thus gradually shifted from the material world to virtuality.
2) The affordances of media that can be produced using individually operated software—software tools—prefigured a distributed authorship of networked knowledge workers.
3) Digital games provide the post-industrial model of networked-distributed authorship in media practice and, to some extent, already legally and economically.
4) The distributed authorship of digital games correlates with their networked-distributed reception ('online,' participatory practices such as modding, Let's Play, etc.).
5) The digital transmedium allows works to be reproduced without generational loss and distributed via global networks. This affordance gave rise to new copyright conflicts. At the turn of the century, these conflicts led to new legislation worldwide and adjustments by media corporations to the changing needs of consumers, such as digital distribution and streaming.
6) After 2000, professional media production—in textuality, visuality, and audiovisuality—increasingly switched to networked virtual production following design principles, thus promoting distributed authorship (e.g., 'Writers Room,' agile working).
7) The involvement of future consumers in design and development processes originated in digital games and social media. Such involvement is spreading to almost all media and occasionally amounts to co-authorship.

5 Digital Authorship: The Ludic Cyborg

1) The progressive automation of knowledge work marked the transition to a digital culture around 2020. Authorship enters into "man-computer symbioses" as imagined around 1960 and promoted under the term "cyborg."
2) The affordances of media that can be produced using automated software—engines, GPTs, etc. (machines)—prefigure cyborgian authorship shared between human and artificial intelligence.
3) The model of cyborgian authorship evolved in the production of digital games with the procedural generation of assets, levels, and so on. Since then, the combination of human and artificial intelligence has expanded to include producing text, sound, still, and moving images.
4) Reception is starting to reflect authorship again. Cyborgian relations characterize the interaction with and in digital games. Reading and watching content in virtuality are increasingly integrated into AI feedback systems. And the utopian vision of the metaverse aims cyborgize all media consumption.
5) Compared to analog media production, creation in the digital transmedium allows unlimited undo's at zero cost, thus enabling arbitrary experimentation. With its virtualization and cyborgization, authorship becomes ludified.
6) Authorship is currently undergoing a new historical cesura. As digitization accelerates, new conflicts and opportunities are emerging. Two examples of these are: On the one hand, training AIs typically use copyrighted material without permission; on the other hand, NFTs automate the permanent establishment of authorship and could secure authors' participation in future resales for the first time.
7) Under analogous circumstances, variants of authorship accumulated. Not only did secularization not settle the belief in the divine creative power. Parallel to the collectivization of authorship in the tertiary media of industrial mass culture, individual authorship continued to exist in the secondary media, especially in high culture. However, the transition to digital media production seems to transform both variants of analog authorship—craft and industrial labor—into networked and cyborgized knowledge work. Soon, as was once the case at the beginning of the modern era, there could be only one variant left.

Thus, in the modern era, authorship has undergone a fourfold transformation. First, it went from being a divine to a human capability exercised with hand tools by artisans. Second, it evolved from manual labor by individuals to industrial labor by hierarchical collectives simultaneously working in the same place. Third, it

transitioned to virtual knowledge work carried out de-localized-asynchronously by networked individuals on an essentially equal basis. Fourth and most recently, it progressed to cyborgian authorship performed by networked individuals in symbiosis with Artificial Intelligence to accomplish work neither individuals nor collectives could previously achieve.

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