

CHAPTER 14

## Digital Seriality

### On the Serial Aesthetics and Practice of Digital Games

SHANE DENSON AND ANDREAS SUDMANN

#### INTRODUCTION

This chapter outlines a set of perspectives on the seriality of digital games and game cultures, that is, the aesthetic forms and cultural practices of game-related serialization, which we see unfolding against the background of media and sociocultural transformations in the wake of popular culture's digitization.<sup>1</sup> Seriality is a factor not only in explicitly marked game series, but also within individual games, as well as on the level of transmedial relations between games and other media. Particularly with respect to processes of temporal "collapse" or "synchronization" that, in the current age of digitization and media convergence, are challenging the temporal dimensions and developmental logics of predigital seriality, computer games are eminently suited for an exemplary investigation of a specifically *digital* type of seriality. In the following, we look at serialization processes in digital games and game series, seeking to understand how they relate to transformations of serially structured experiences and identifications on the part of historically situated actors. These transformations range from the microtemporal scale of players'

---

1. A different version of this chapter appeared in *Eludamos: Journal of Computer Game Culture* 7.1 (2013): 1–32. We thank the editors for granting permission to revise and reprint.

encounters with algorithmic computation processes all the way up to the macrotemporal level of collective brokerings of identities in the digital age. To account for this multilayered complexity, we argue for an interdisciplinary approach, combining media-aesthetic and media-philosophical perspectives with the resources of discourse analysis and cultural history. We approach the seriality of digital games in terms of both textual and aesthetic forms as well as the broader context of serialized game cultures and popular culture at large. An investigation of digital serial forms brings into view a phase of transformation in the experience and construction of seriality that impacts the contemporary practice and aesthetics of popular culture far more broadly than just in those areas directly affected by digitization. In our effort to identify specific differences between digital and nondigital forms of seriality, we seek to demonstrate how games are central to our experience of these changes and to show how the self-reflexive and self-historicizing impulses that have characterized serialized media throughout modernity are now crucially involved in shaping our experience of the contemporary world.

## LOCATING DIGITAL SERIALITY

The history of digital games is above all a history of popular series: it is the story of countless sequels, prequels, remakes, hacks, mods, copies, updates, and franchises. This observation about the essential seriality of digital games may seem obvious in an age of quickly proliferating properties like *Bejeweled* and *Angry Birds*—game series that seem to spawn a new installment every time we turn around, spreading rapidly across platforms and into a variety of merchandising outlets and tie-ins with other media. But if it is true that we have become sensitive to the seriality of such games, the story of digital seriality has yet to be told in any systematic manner. This unwritten story would look beyond the endless stream of recycled physics engines and the birds they've launched to fame; it would survey the history of gaming and look at games themselves as part of larger serial networks, where they often mark a “before,” an “after,” or a “meanwhile” with respect to the popular-cultural practices of other media. Sometimes this takes place in the context of transmedial narratives, where serialized forms and formats of digital gaming find a natural home. But seriality is both more far-reaching in scope and more fundamentally anchored in the media, platforms, and practices of gameplay.

Serial forms and functions are not restricted to the level of diegetic representations, as expressed in the ongoing narratives and their recurring characters—like Mario—that constitute a “game series” proper. Much more basically,

computer games themselves constitute their own internal structures of seriality, for example, through their segmentation into distinct levels or worlds, thus establishing a serial schema of repetition and variation at the very heart of gameplay. At an even deeper level, games are constructed from iterative and modularized scraps of code, so that seriality might be seen to be hard-wired into games at their core. Back at the experiential level of our active interface with them as well, games employ a variety of structures and strategies of serialization. By the 1980s, a game like *Batman* (1986) was not only involved in transmedial relations with a heavily series-based character, but it had also begun introducing the mechanism of save points, thus ordering gameplay itself as an episodically segmented but continuing serial activity. On the side of production, add-ons, ports, mods, and so forth, can be seen as further serial forms by which digital games, their diegetic worlds, and their underlying source codes are all expanded or continued. Moreover, the seriality of digital games is not restricted to the level of software; it is also a hardware phenomenon, as is evidenced in the numbering of console generations: marking innovation serially, the first PlayStation (retroactively dubbed the “PSOne” or “PSX”) is followed by the PS2, PS3, and PS4, for example. However, the dynamics of linear seriality is complicated by the fact that gaming systems like the Atari Flashback revive old or “classic” games and platforms (Atari 2600, 5200, 7800) for the purposes of retrogaming (Suominen 2008), while other systems like the new Xbox One, successor to the Xbox 360, refuse the additive logic of innovation (the would-be “Xbox 720”) and perform a symbolic reboot instead.

The seriality of digital games is thus a multifaceted phenomenon that is complexly imbricated with the serial formats that have developed and proliferated across the media of modern popular culture since the nineteenth century (Kelleter 2012). Digital games therefore pose a challenge to research on popular seriality: Is it possible to account for the media specificity of digital gaming without overlooking the historical and cultural connections between serial forms across media? At stake, moreover, is the conceptual scope of the term *seriality* itself. As the examples above illustrate, digital games challenge us to expand the purview of the serial beyond more common, narrower conceptions; this expansion takes us beyond the confines of ongoing linear narratives and opens onto structures of code, interface, and hardware. At the same time, we must guard against an excessive inflation of the concept, according to which any and every instance of formal or media-technical repetition and variation might be deemed serial. By dulling the analytical value of the category, such an inflationary approach would have exactly the opposite effect of the limited expansion that we deem necessary. That is, the epistemic payoff of

a limited expansion lies in the ability it opens up for us to recognize, sometimes unexpectedly, a range of contemporary and historical media as sharing characteristics and formal attributes associated with popular seriality. The challenge, then, is to find the proper limit for such an expansion.

In the following, we aim to negotiate between the need for conceptual limits and the demand, originating in the media of digital games themselves, to open up a merely formal concept of seriality. Our mission here is largely exploratory, as we seek to chart uncertain waters, in which existing conceptual instruments may lead us off course. We therefore set out from a relatively broad definition of seriality, approaching it in terms of those practice-oriented and media-based processes of repetition and variation that operate in such a way as to solidify chains of sociocultural continuity—chains or threads that are capable of being recognized as such and that can serve an orienting function with regard to trajectories of historical, cultural, or media-technological change. Repetition and iterativity are accordingly necessary but not sufficient conditions of seriality: to become serial in a meaningful sense of the term requires repetition and variation to come together in such a way as to lay the foundation for a recognition or feeling that something is not merely being repeated or varied but that it is, by virtue of this very repetition, part of something that is ongoing, continuing. This base definition allows us to call into question taken-for-granted distinctions between seriality and other terms, such as *transmediality* and *media convergence*. Our larger epistemic point is that, for all the useful work they accomplish, these other terms often obscure the operation of seriality, which is a fundamental force in modern popular culture and one which is instrumental in producing cultural continuities across industrial-era and digital media. An expanded understanding of seriality, based in the relatively blank definition provided above, will therefore help us to recognize these continuities and to see digital games as participating in them in important ways, articulating novel inflections on an ongoing, largely serial, process. We begin by considering three contexts for studying digital seriality as both continuous and discontinuous with popular seriality more generally.

## CONTEXTUALIZING DIGITAL SERIALITY

**(a) Digitality, media convergence, and seriality.** With the emergence of digital media, structures and operations of popular seriality established across commercial media channels since the nineteenth century have been fundamentally problematized, particularly as regards their media-historical

functions (Denson/Mayer 2012a and Jahn-Sudmann/Kelleter 2012). Novel forms of seriality in the digital age are closely related to the phenomenon of media convergence. Jenkins's notion of "convergence culture" (2006) describes a media landscape that privileges "transmedial" over monomedial formats, thus transforming the contexts and conditions in which serialization processes take place. Transmedial formats go beyond linear forms of sequential narration: these types of seriality are arranged around the construction and piecemeal exploration of singular, more or less coherent worlds that span the borders of various media—expansive worlds that open up to recipients through the medially discrete entry points of comics, film, games, and so forth—while simultaneously exhibiting a high degree of formal openness with regard to the narrative order of texts, thus allowing for a variable order of consumption. This flexible approach to the sequentiality, rhythm, and frequency of serial reception corresponds in many respects to the more general increase of interactive choices and activities available to media consumers in the digital age. Interactivity is therefore an important background for the seriality of digital games, but it also forms the medium's central appeal and purpose: digital games' processual screen events are generated foremost through the interaction between games and gamers. This activity is itself serially organized, as we shall see, and it is integrated into the serial articulations of transmedial narration and world-building.<sup>2</sup>

In this context, the apparent timelessness produced by digital-media convergence is crucial: in our "convergence culture," historically diverse media contents exist in a state of synchronicity, permanence, and random and repeatable accessibility. But while some critics see digital media portending the virtual end of (media) history (e.g., Kittler 1986), we see the phenomenon of seriality in digital games and game series as a continuation of both the history of popular seriality and modern media history generally. Nevertheless, digital seriality must also be understood as the expression of a transformation in modern media history. With the emergence of digital media, all media are digitally "remediated" (Bolter/Grusin 1999). Most pertinently in our context, the traditional media of serialized production (print, film, etc.) are affected in a variety of ways. Serial literature from the predigital era is increasingly transferred and archived in digital storage media (Mussell 2012). Classic, contemporary, and forgotten film and television series are bundled and released in elaborate DVD box sets (Mittell 2011). Meanwhile, comics, film, and television productions migrate to new online outlets, where they are available for download or streaming.

---

2. For more on world-building, see chapter 12 in the present volume.

As a result of these transformations, serial forms and processes are subject to radically new conditions of mediation. A “logic of the database” (Manovich 2001: 218) emerges, opening long-running, linear narratives to new forms of experience, as text-based searchability and nearly instant access to complete series frees their storyworlds from the publication and distribution frequencies that governed their consumption in the predigital era. Accordingly, media users have more power to decide when and how rapidly they will consume a series, and phenomena such as “binge viewing” become an option with digital infrastructures. Since consumers were previously more dependent on the periodical rhythms of a temporally unfolding distribution process, serial productions had to find ways to deal with the dynamics of remembering and forgetting (Engell 2010)—for example, by reminding the reader or viewer what had happened in previous installments or episodes. In contrast, however, digital networks such as the Internet tend not to forget. The developmental logic and historicity of serial installments is therefore constituted differently in a digital media environment, and the temporality of serial forms is open to new forms of experience.

**(b) The serial aesthetics of digital games.** It is against this background that we approach the aesthetic forms and cultural practices of seriality in digital games. Game studies provides an essential context for coming to terms with these phenomena, but research in the field has seldom dealt with seriality *per se*. Interestingly, however, game studies’ formative debate over “narratological” and “ludological” approaches to digital gaming already touches upon issues that are important for an understanding of digital seriality—especially as regards the temporal impact of digital technologies on serially unfolding stories. Thus, while the generally formalistic parameters of the ludology-vs.-narratology debate are now widely disparaged, we believe that essential insights into the dialectics of digital seriality—that is, the dialectics of a specifically *digital* form of popular *seriality* in general—are to be gained from revisiting this episode in the history of game studies.

Narratologically oriented theorists like Janet Murray (1997) argue that with the introduction of interactivity, digital platforms generally and computer games in particular have significantly and lastingly changed the parameters of storytelling. But against narratologists’ implicit claim that the telling of stories is one of the central functions of digital games, the ludologists (e.g., Juul 2001) argue that narrative elements are only marginal or secondary with respect to the primary “core” of gameplay, which involves the player in negotiations not with stories but with formal rule sets. Juul attributes the conflict between properly ludic and narrative elements to the media specificity of interactive games, which hold out spaces for action, movement, and decision rather

than linear narration. Espen Aarseth (1999) describes these spaces in terms of “ergodic phenomena”; the concept of ergodicity describes digital games, in contrast to other textual forms, as types of a discourse “whose signs emerge as a path produced by a non-trivial element of work” (32). Thus, a game’s narrative “script” is not preexistent, not just “there” for us to read like a novel, but it is instead generated at the moment of interaction, on the fly and in response to a recipient’s input. As Juul (2001) argues, this implies a fundamental paradox with regard to the temporal levels distinguished by narratologists for traditional forms of storytelling: because of their ergodic form, digital games collapse the otherwise distinct levels of “story time,” “plot time,” and the time of actual media consumption. While classical narratology explored the gaps between these levels as essential to the phenomenon of narrativity (Genette 1994), Juul’s early ludology is built on the premise of their indistinguishability in digital games.

This debate raises a number of interesting questions with respect to seriality. Are games able to complement and continue the serialized narratives articulated in transmedial assemblages? Or is the connection purely superficial, a marketing practice that exploits the contents of serial narratives as mere “packaging” (Juul 2001) for games? On an aesthetic level, it is necessary to approach these questions by way of the two previously sketched revisions of temporal structures in digital media, namely, the “synchronization” processes implied by digital media convergence on the one hand and the “collapsed” ergodic-interactive temporality of digital games on the other. The few existing studies of temporal structures in digital games generally either restrict themselves to proposing formalistic models or concentrate exclusively on the emotional and cognitive involvement of the player. A more historically attuned engagement with phenomena of temporality in digital games is largely lacking, as is the connection to larger discussions of digital media and time—or the nexus of temporality and seriality. This latter nexus in particular is overlooked in ludological characterizations of gameplay because proponents of this position generally focus more on the integral “flow” of present events in a continually updated “now” of ergodic play than on its segmentation into discrete gaming sessions. However, the relation between the game-immanent continuity of temporal experience and the empirically discontinuous sessions out of which it emerges would seem to be homologous to the relation between the diegetic continuity and discontinuous reception of episodes that we find in serialized literary, filmic, or televisual productions (O’Sullivan 2010). And just as serial forms more generally continue to thrive in today’s popular culture—*despite* contemporary synchronization processes that work to “bundle” series into units (like DVD boxes) and to make their installments co-present

in digital networks—so too do digital games continue to articulate a form of seriality that arises *despite* the collapse of temporal levels in the real-time interaction of gameplay. As a result, we believe that a successful theoretical account of seriality in digital games will be neither strictly narratological (because insufficiently sensitive to the temporal transformations introduced in ergodic interactivity) nor narrowly ludological (because unable to see beyond these transformations toward the persistence of serial segmentation). Instead, an adequate theory of digital seriality will adapt elements of both approaches in an effort to account for continuity and discontinuity, medial specificity and serial commonalities.

The relations between serial continuity and discontinuity that arise in interactive games correlate in various ways with the interplay of repetition and variation that might be seen to constitute the structural core of serial narration. The precise nature of these correlations remains to be determined, but they suggest the possibility of bridging the gaps between various media, between ludic and narrative forms, and between the specific case of digital games and the broader phenomenon of popular seriality in the digital age. Accordingly, we need a comparative methodology that will make these gaps visible. In order to understand how players are integrated *serially* into the diegetic world of a game or installments of a game series, we will have to revise and expand notions of immersion, identification, and participation by putting them in contact with recent studies of film, television, and literature conducted from within a more decidedly seriality-oriented research paradigm (Kelleter 2012). In this context, one of our particular interests is to understand the affective and phenomenological dimensions of such serialized engagement, and so it will be important to compare the findings of other affect-oriented studies of digital media environments (e.g., Hansen 2004); we believe that the latter, in turn, will profit from a careful consideration of seriality's functions in these environments. We begin to sketch these intermedial relations and consider their implications for a theory of digital seriality in the second half of this chapter.

**(c) The cultural practice of digital seriality.** Games and play have long been the subject of cultural anthropological investigation, and these approaches, familiar in the field of game studies, have been adapted to some extent for digital games (e.g., Wolf/Perron 2003). However, the largely formalistic reception of these works in game studies has compounded the field's blindness to seriality. Play itself, we must recall, is an essentially serial activity, characterized by ritualistic practices of repetition and variation (Schechner/Schuman 1976). This is true of the rule-governed actions executed inside the "magic circle" of gameplay (Huizinga 1955), but it also points us beyond that



circle and reminds us that any such realm of immersion has its own cultural history, one in which the rules of play have been practiced before they could be tacitly assumed as the invisible background for action. The erection of a magic circle, in other words, is never so magical as to be completely integral and self-sufficient, for it always also represents a single episode in an ongoing series. Indeed, it is precisely the circle's serial iterability, its reproducibility as a realm of cultural practice that guarantees the magical integrity it seems to have when we are immersed in it.

For this reason, it is necessary to complement formalistic approaches to the serial aesthetics of digital games with another perspective, one that will highlight the cultural histories and practices of digital seriality. How do gamers interact with game series, and how do gaming cultures arise from collective serialized activities and discourses? There are many ways in which to approach these questions, including direct empirical observation or by way of discourse-analytical (Foucault 1972) and media-archaeological methods (Parikka 2012), as well as through the lenses of cultural studies and culturally oriented media studies. The goal, in any case, would be to move beyond text-based approaches, not merely to contextualize them, but to understand how games and game series are implemented in social contexts and how these contexts (gaming cultures, etc.) are themselves shaped by and around the serialized activity of digital gameplay.

Existing studies of race, ethnicity, or gender in games, game series, and gaming communities (e.g., Poor 2012) offer a good starting point, but they too have generally failed to account for aspects of seriality. How have such identifications and representations been imbricated into the serialized practices and discourses of a community? Under the heading of "imagined community," Benedict Anderson (1991) has theorized the collective and identity-forming functions of serialized media consumption in the predigital age, arguing that the seriality of newspapers and later photography were instrumental in instilling pre-twentieth-century notions of "national identity" (Kelleter 2014b and Mayer 2014). But if studies of game series and their characters (Lara Croft, Mario, etc.) generally focus on audiovisual developments within a series at the expense of social-contextual serial practices, studies of digital communities generally fail to correlate such practices sufficiently with the content-level serialities of serialized media. What is called for is a perspective that would encompass and correlate both of these aspects within a larger framework of popular seriality, relating one to another the iterative deployment of digital games and platforms, the formal qualities of their serialized contents, the practical serialization of individual and collective gameplay, and the serially ongoing negotiations of community that take place upon that basis. Such a

perspective on the cultural practices and serial aesthetics of digital gameplay would allow for a critical reemployment of the parameters of “imagined” community-building in the age of digital synchronicity, while the significance of digital-era transformations would be discernible through a comparative recontextualization vis-à-vis the larger history of popular seriality. To understand the role that ludic serialities play in the construction of (trans)national and (sub)cultural identities today, we must place digital games within the longer history of serialized popular culture, which has played a central role in the commercialized lifeworlds originating in Europe and North America since the nineteenth century and has been embodied in a variety of media (Denson/Mayer 2012a and Kelleter/Stein 2012).

Henry Jenkins’s (2006) observations on transmedial seriality as an aspect of cultures of convergence offer one important point of reference for a comparative and historicizing investigation of digital seriality. Of particular relevance in this context is his discussion of the role of digital games within the transmedia franchise *The Matrix* (2006: 93–130). In looking at such examples, we will have to consider the transmedial roles of games and game series from a historical, social, and medial and material point of view. Especially useful for developing such a perspective are those moments when an established (predigital) serial figure—like Batman—is taken up and redeployed in a game-based serialization. Appearing as the protagonist in over twenty games for various platforms since 1986, Batman has undergone repeated revisions and modifications in appearance, ability, narrative/thematic framing, and interface potential with gamers. Such transitional phenomena between predigital and digital serial forms seem particularly significant for a cultural-historical perspective on digital seriality: already in a predigital media ecology, a plurimedial figure like Batman tends to react to media changes in a highly self-reflexive manner, hence highlighting its own conditions of mediation (Denson/Mayer 2012b and Stein 2012). In comics, television, film, and now digital games, Batman operates sophisticated technical media (e.g., the “Batcomputer”) and reacts to threats mediated to him via televisual or digital media channels. Media, in other words, are an important focus of narrative conflicts, and computational media are especially central to Batman’s role as a high-tech crime-fighter. Such a figure therefore provides an important index of both the continuities and the discontinuities between a specifically digital seriality and serial practices of the predigital era. Placed in the context of its reception, the figure promises to deliver richly detailed snapshots of our serial-media culture in transition. From this perspective, the recent series of *Arkham* video games may be queried for what they tell us not only about the serial figure Batman but about our own changing relations to a computational media environment.

As we come to embody the avatar of the caped crusader in these games, we operate his sophisticated diegetic machinery through the physical manipulation of our own computational devices (gamepads and other controllers). It is precisely here, in this convergence of physical and imaginary embodiments of technology, that we may seek the broadly ideological contours of our evolving relations to the digital.

Finally, what this example points to is the way that concrete serial practices, spanning the fields of production and reception, might be approached via the perspective of actor-network theory (ANT), as it has emerged in the writings of Bruno Latour and others, in order to better understand the cultural work of digital games and game series. While several ANT-oriented studies of videogames have appeared in recent years (e.g., Giddings 2007), the main focus has been limited to the interactions between individual players and the apparatuses of digital gaming platforms. Nor has seriality played a role in these investigations, although an ANT perspective is well suited to illuminate the complex articulations of seriality and collectivity that we have here been considering (Kelleter 2014a). With respect to series-oriented actions (i.e., actions related to or constitutive of series, as well as serially executed actions) within the commercial, technological, aesthetic, and social networks surrounding digital games, ANT's methodological focus on the concrete mediations of agency in assemblages that are "simultaneously real, discursive, and social" (Latour 1993: 64) offers a way to think about how games that are *textually* situated in the above-mentioned transmedial contexts can also mark, in terms of *cultural practice*, a "before," an "after," or a "meanwhile" with respect to other popular-cultural (media) practices and thus serve as nodes for networking and community-building processes.

## LUDIC SERIALITIES

Having explored a number of contexts within which to study digital seriality, we turn now to the task of bringing these perspectives together in order to outline a program for a more detailed examination of the various levels of seriality informing digital games, game series, and gaming cultures. We distinguish three categories or levels of digital seriality that are pertinent in the context of digital games:

- *intra-ludic seriality*, which manifests itself *within* games (paradigmatic for this level are the structures of repetition and variation that characterize the various "levels" or "worlds" of a game);

- *inter-ludic seriality*, which emerges *between* games (paradigmatic for this level are the explicit continuations of games—sequels, prequels, and so on—that identify game series as such); and
- *para-ludic seriality*, which is constituted *outside* of the actual games (paradigmatic for this level are the transmedial narrativizations of game scenarios, for example, adaptations on film, television, or other media, often in connection with the merchandising of iconic game-related figures and/or the social practices of fan communities).

On the basis of these distinctions, we propose looking at serialization processes in digital games and gaming cultures from two distinct perspectives:

- From the perspective of a philosophically informed *media aesthetics*: An affective-phenomenological approach addresses, primarily, the significance of intra- and inter-ludic serialities that inform gameplay. Of particular interest here is the serialized negotiation and aesthetic mediation of the difference between human temporal experience and the nonhuman temporalities of digital media. The aim of this perspective is to deliver qualitative descriptions of the processes of temporal-serial experience that transpire at the interface between humans and digital technologies. The focus thus lies on what we call the phenomenon of *serial interfacing* between games and gamers.
- From the perspective of *media history/cultural history*: This sociocultural and media-ecological perspective aims to illuminate the serial practices of digital games, especially at the inter- and para-ludic levels, in the context of collective negotiations of community and of the broader sociopolitical imagination (e.g., categories of identity and difference such as nationality, gender, race, etc., as they are reinforced or opened to question through serialized gameplay and related practices of gaming communities). This analytical mode seeks to locate the practices and experiences of play in their concrete historical settings. The focus here lies on what we term phenomena of *collective serialization*, that is, processes of community formation in connection with the consumption of serialized media.

We position these two modes of approach against the background of the media-historical transformations taking place with the emergence of a digital-media ecology. These processes of change, according to our central hypothesis, are registered in the practices and experiences of the serial-temporal structures of digital gameplay. Of decisive importance for this hypothesis are

(1) a homology between the temporal “collapse” of real-time interaction in digital games and the “synchronization” processes that form an aspect of digital culture more generally, and (2) the integration of serial games and game series in the fabric of our contemporary convergence culture, where they serve important functions with regard to the changing parameters of digital-era community. On the basis of these two central relations between the serial structures of digital games and the larger ecology of our digital media environment, our complementary media-aesthetic and cultural-historical perspectives work together to illuminate not only the forms and processes of seriality in digital games but also the changing contexts and conditions of popular seriality in the twenty-first century—and with them the very conditions of practice in our increasingly digitally mediated lifeworlds.

The common ground for the two analytical perspectives is located in the forms and practices of serialization that emerge on the inter-ludic level, generating explicitly marked game series. Of the three levels of ludic seriality sketched above, it is certainly this inter-ludic form that most closely resembles the dominant types of popular series of the past two centuries (as in the ongoing tales of serialized novels, film and television serials, etc.). For example, by numerating their installments or otherwise signaling continuation among serial parts, videogame series highlight their sequential structures and present themselves on a narrative level as the continuing unfolding of a previously established storyworld. These series can therefore be analyzed with the help of categories developed in the growing body of research on other forms of seriality, for example, notions of “operational aesthetics” (Mittell 2006) or “serial outbidding” (Jahn-Sudmann/Kelleter 2012). More significantly, though, the comparison with other forms of seriality allows for the identification of specific *differences* that arise between digital and predigital serialities, thus pointing to the ongoing emergence of new forms of popular culture manifesting themselves in digital games and the practical contexts of gamers’ serial activities. Branching out from the common denominator of inter-ludic seriality toward the intra- and para-ludic serialities of digital games and gaming cultures, a media-aesthetic focus on “serial interfacing” and a media-historical focus on “collective serialization” work to reveal these differences from two complementary perspectives, as illustrated in table 14.1.

**(a) Serial interfacing.** Early “ludological” positions offer a first glimpse of such differences. Unlike in film and television, framing stories in game series often turn out to be marginal in comparison to the serializing effects of players’ engagement with games and their procedural logics. For example, the patterns of repetition and variation that organize gamers’ interactions with hardware and software across the various levels of *Super Mario Bros.* (the eight “worlds,”

TABLE 14.1

	INTRA-LUDIC SERIALITY	INTER-LUDIC SERIALITY	PARA-LUDIC SERIALITY
<i>Serial Interfacing</i> (media-philosophical / media-aesthetic perspective)	X	X	
<i>Collective Serialization</i> (media-historical / cultural-historical perspective)		X	X

each subdivided into four “stages”) are more significant from an intra-ludic point of view than the rudimentary narrative that is related over the course of the game: in order to rescue the kidnapped princess, our protagonist runs and jumps his way through the Mushroom Kingdom, fighting countless enemies—who have various abilities but absolutely no depth of character—along the way. Repeatedly, this culminates in a boss battle in the castle at the end of each “world.” And repeatedly, Mario finds there a princess, but unfortunately—with the exception of the final castle—it is always the *wrong* princess, so he has to set out once more. This repetitive story is varied somewhat over the course of Mario’s inter-ludic serialization, but from an intra-ludic perspective the narrative content remains clearly subordinate to the interactive gameplay that it frames. This hierarchy, which marks a significant difference from many predigital serial forms, accentuates an important aspect of digital media generally: their open processuality, which problematizes the discrete temporal dimensions of narration. The framing story about Mario’s quest is static and predictable, but its instantiation in a concrete game session is subject to all sorts of eventualities because the player directly controls Mario and acts in real time. The comparison between digital inter-ludic and predigital narrative serialities must therefore be supplemented with a media-phenomenological investigation of serial interfacing in order for us to come to terms with the changed material and affective basis of digital seriality.

The significance, in this respect, of serial interfacing can be gleaned from the example of the so-called bullet time employed in games like *Enter the Matrix* or the *Max Payne* series. As an aesthetic operation in which an impossibly fast-moving (virtual) camera dolly revolves around actors and objects as they move in extreme slow-motion, bullet time was made famous, above all, through its use in the first installment of the popular *Matrix* film trilogy. On the basis of its spectacular and innovative character, the effect itself soon underwent a form of serial continuation and dissemination across a variety

of media, not least of which was the videogame tie-ins to the transmedial universe of *The Matrix*, as well as narratively unrelated games and game series such as *Max Payne*.

In terms of visual execution, the bullet time of games like *Max Payne* or *Enter the Matrix* might not be able to compete with its spectacular staging as a special effect in the Wachowskis' films; in games, this quality of a spectacle is still there, but it is subordinated in some respects to the effect's foregrounded ludic functionality: bullet time is there to help the player master in-game events by slowing down the opponents'—and his or her own—movements, while the technical polling of input devices continues to take place in real time. With respect to the affective dimension of the gamer's experience, however, bullet time qua gameplay mode has consequences that are not altogether different from those of bullet time qua cinematic spectacle. Byron Hawk (2007) has argued that bullet time in the *Matrix* films corresponds to the "virtual" as described by Brian Massumi (2002): it depicts something that happens so fast that the human brain is incapable of perceiving it—"something that happens too quickly to have happened, actually" (30). Bullet time, as it is employed both in film and in digital games, makes visible the duration of what is not actually perceptible—what we could call, with Bergson (1911), the "rhythm of duration" itself or, with Deleuze (1989), the ineffable "interval" that gives rise to the revolutionary effect of the "time-image" in post-World War II cinema (Hawk 2007). In digital games, bullet time furthermore stands out for the way it aesthetically exposes or "mediates" *algorithmic time*—that is, it makes experientable exactly that level of digital microtemporality that a player does not and cannot perceive, especially when he or she is wrapped up affectively and responding quasi-automatically to the constant flow of challenges that the game presents. Against this blindness to computational temporality, bullet-time sequences put the player in a position to experience an otherwise unheard-of level of control over space via the manipulation of time, so that an algorithmically generated time is rendered—paradoxically—as a *haptically experientiable duration*. This transduction produces not so much a substantial as a relational duration, that is, a duration that *marks the difference between the time of conscious experience and the imperceptible time of microtemporal computation processes* taking place during each and every gameplay event.

And because bullet time is serially organized on the intra-ludic level—because, in other words, the effect is progressively but intermittently (i.e., with gaps between discrete episodes) reactivated, and not simply repeated but varied in a range of forms—the phenomenological implications sketched above are compounded over time: the perception of an otherwise invisible time of

algorithmic computation, as mediated by digital games employing the bullet-time effect, is strengthened through repeated exposure. Over the course of these incidents, the bullet-time experience takes on the quality of an experimental configuration, a setting in which one can probe, aesthetically and ludically, the temporal parameters of a new form of “anthropotechnical interface” (Denson 2014). Moreover, the bullet time of digital games is serially organized not merely in the sense of being continually repeatable within a particular game; rather, the effect gains partial autonomy and becomes visible as part of a larger series of similar processes precisely when it is activated outside of an immediate gameplay challenge, that is, apart from the diegetic and functional motivation of the effect within the game. (For example, the bullet-time perspective may be activated in an empty hallway, where no opponent is threatening the player and where there is accordingly “no good reason” to employ the technique—except for the perhaps unconscious purpose of probing the temporal dimensions of interfacing with the computer.) From an inter-ludic perspective as well, it is precisely with respect to such moments of “gratuitous” experimentation that the aesthetic differences between implementations of bullet time—in different games and over the course of ongoing game series, as well as in various media and transmedial assemblages—become most clearly visible and open to critical scrutiny. Here we witness a culture testing, by means of its popular media, the aesthetic bounds and trajectories of its transition to a computational environment. It is therefore not without significance that we find, finally—at the level of para-ludic seriality—countless examples attesting to the “serial autonomy” of bullet time in contemporary social-network-driven online spaces, for instance, in the compilations of especially spectacular instances of the effect that gamers have uploaded to YouTube, thus making their individual experiences of serialized temporal-technical mediation available for comment, comparison, and community-building.

**(b) Collective serialization.** User-generated videos and related para-ludic practices lead us to the level of collective serialization, where materially “individual experiences” are subject to reproduction, collocation, and interchange. In short, experiences that were uniquely “mine” become open, at this level, to appropriation by “you,” and they form a potential basis for the recognition and negotiation of “our” shared experience. Here, the individual turns collective, as the unique goes serial in digital environments. From a comparative cultural and media-historical perspective, Anderson’s notion of “imagined community” facilitates a focus on these sociocultural dealings with intra- and inter-ludic serialities, including their tendency to generate para-ludic discourses and material practices of all sorts. But again we find differences that are owing to the specificities of digital seriality. To begin with, the expansive



transmedia franchises into which games and game series are often integrated exhibit a level of narrative, material, and operational totality (Harrigan/Wardrip-Fruin 2009) that is virtually unheard of in predigital forms of seriality. More significantly, though, digital “world-building” (Jenkins 2006: 114) gives rise to structures and formats of community-formation that presuppose a new flexibility in the temporal organization of serial consumption, which is now susceptible to nonlinear sequences and arbitrary rhythms.

It is precisely in this connection that the processual openness of games is significant, for the real-time interactivity of digital games puts the teleological “directedness” of narratives partly out of play and places gamers in the role of actors whose own subjectivities are open to negotiation and revision. This has consequences on the para-ludic level of imagined communities because not only diegetic identities (imagined identifications with fictional avatars) but also players’ real-world social self-descriptions in terms of nation, class, gender, and so on—or simply their imagined inclusion in the class of gamers—are activated in serialized gameplay, reinforced through serial repetition or opened up to revision. Anderson has shown how the serialization of media like the daily newspaper was involved in the production of collectives—or “serialities” (Anderson 1991)—such as the nation. Setting out from the practices accompanying long-running inter-ludic series, we can now ask about the implications of serialized gameplay’s negotiable agencies and identities for the social world of lived differences and hierarchies under digital conditions.

To approach such questions, we must attend to the complex imbrication of para- and intra-ludic serialities. As in the case of bullet time, which links aesthetic experiments to the serial proliferation of YouTube videos documenting those experiments, the *prima facie* isolated activities of individual gamers necessarily raise broader questions of community. Conversely, collective negotiations of gaming communities are inseparable from low-level interfaces with computational technologies and the temporalities they embody; the seriality of collective serialization is itself a temporal experimentation, one that concerns the larger temporalities of historical becoming in relation to their transformation at the molecular level of digital computation. In short, processes of collective serialization are intimately tied to the same basic transformations that are at stake in practices of serial interfacing, which we described earlier as mediating “the difference between human temporal experience and the nonhuman temporalities of digital media.” Hence, with respect to gameplay’s cultural and thematic framings, it is no surprise that space-age scenarios have occupied a central place in computer games from the start; sci-fi visions of the future offer one means of imaginative engagement with the historical estrangement of our sensorial capacities from the computerized processes

and “alien” (i.e., nonhuman) temporalities that increasingly structure our environments. Moreover, these technology-centric scenarios foreground an operational aesthetic according to which early gamers (often computer scientists or programmers) could imagine themselves operating machinery from the future or from an advanced civilization. But whereas the relatively recent example of bullet time emphasizes the incredible speed of our contemporary technical infrastructure, which threatens at every moment to outstrip our phenomenal capacities, earlier examples often mediated something of an inverse experience: a mismatch between the futurist fantasy and the much slower pace necessitated by the technomaterial realities of the day.

The example of *Super Star Trek* (1978) illuminates this inverse sort of experience and casts a media-archaeological light on collective serialization by way of the early history of gaming communities and their initially halting articulation into prototransmedia worlds. A quick look at the game’s source code (figure 14.1) is revealing. Here, the opening comment lines (“REM” indicates a nonexecutable “remark” in BASIC) mention not only the “Star Trek TV show” as an influence but also a serial trajectory of inter-ludic programming, modification, debugging, and conversion that begins to outline a serialized collectivity of sorts. Beyond those mentioned by name (Mike Mayfield, David Ahl, etc.), a diffuse community is invoked and, in fact, solicited: “comments, epithets, and suggestions” are to be sent personally to R. C. Leedom at Westinghouse Defense & Electronics. Reminiscent of a comic-book series’ “letters to the editor” page (Kelleter/Stein 2012), this invitation promises, in conjunction with the listing of the game’s serial lineage, that readers’ opinions are valued and that significant contributions will be rewarded (or honored with a hat tip in the REMs). In these few preliminary lines, the program demonstrates its common ground with serialized production forms across media: since the nineteenth century, readers have written to the authors of ongoing series in order to influence the course of serial unfolding; authors dependent on the demands of a commercial marketplace were not at liberty simply to disregard their audience’s wishes. From an actor-network perspective, popular series therefore operate to create feedback loops in which authors and readers alike are involved in the production of serial forms—which therefore organize themselves as self-observing systems around which serialized forms of (para-) social interaction coalesce (Kelleter 2014a).

The snippet of code below thus attests to the aspirations of a germinal community of hackers and gamers, which has tellingly chosen to align itself with one of the most significant and quickly growing popular-culture fan communities of the time: the Trekkie subculture, which can be seen to constitute a paradigmatic “seriality” in Anderson’s sense—a nationlike collective (complete

## Program Listing - The Game

```

10 REM SUPER STARTREK - MAY 16, 1978 - REQUIRES 24K MEMORY
30 REM
40 REM ****          **** STAR TREK ****          ****
50 REM **** SIMULATION OF A MISSION OF THE STARSHIP ENTERPRISE,
60 REM **** AS SEEN ON THE STAR TREK TV SHOW.
70 REM **** ORIGINAL PROGRAM BY MIKE MAYFIELD, MODIFIED VERSION
80 REM **** PUBLISHED IN DEC'S "101 BASIC GAMES", BY DAVE AHL.
90 REM **** MODIFICATIONS TO THE LATTER (PLUS DEBUGGING) BY BOB
100 REM *** LEEDOM - APRIL & DECEMBER 1974,
110 REM *** WITH A LITTLE HELP FROM HIS FRIENDS . . .
120 REM *** COMMENTS, EPIHETS, AND SUGGESTIONS SOLICITED --
130 REM *** SEND TO:  R. C. LEEDOM
140 REM ***          WESTINGHOUSE DEFENSE & ELECTRONICS SYSTEMS CNTR.
150 REM ***          BOX 746, H.S. 338
160 REM ***          BALTIMORE, MD 21203
170 REM ***
180 REM *** CONVERTED TO MICROSOFT 8 K BASIC 3/16/78 BY JOHN BORDERS
190 REM *** LINE NUMBERS FROM VERSION STREK7 OF 1/12/75 PRESERVED AS
200 REM *** MUCH AS POSSIBLE WHILE USING MULTIPLE STATEMENTS PER LINE
205 REM *** SOME LINES ARE LONGER THAN 72 CHARACTERS; THIS WAS DONE
210 REM *** BY USING "?" INSTEAD OF "PRINT" WHEN ENTERING LINES
215 REM ***
220 PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT
221 PRINT"
222 PRINT"          ,-----,-----*-----"
223 PRINT"          '-----' / '/'
224 PRINT"          ,---'-----' /---"
225 PRINT"          '-----':PRINT
226 PRINT"          THE USS ENTERPRISE --- NCC-1701"
227 PRINT:PRINT:PRINT:PRINT:PRINT
260 CLEAR 600
270 Z$=""
330 DIM G(8,8),C(9,2),K(3,3),N(3),Z(8,8),D(8)
370 T=INT(RND(1)*20+20)*100:T0=T:T9=25+INT(RND(1)*10):D0=0:E=3000:E2=E
440 P=10:P0=P:S9=200:S=0:E9=0:K9=0:X5="":X05="" IS "
470 DEF FND(D)=SQR((K(I,1)-S1)+2+(K(I,2)-S2)+2)
475 DEF FNR(R)=INT(RND(R)*7.98+1.01)
480 REM INITIALIZE ENTERPRISE'S POSITION

```

FIGURE 14.1. Source code: *Super Star Trek* (Ahl/Leedom, 1978).

with its own language) organized around the serialized consumption of serially structured media. Operating in parallel to that community, early gamers serialized code as their organizing medium, but they circulated it in a crude, paperbound form that was in many ways out of step with the space-age fantasy embodied in *Super Star Trek*. In order to play the game, one had to go through the painstaking (and mistake-prone) process of keying in the code by hand. If, afterwards, the program failed to run, the user would have to search for a misspelled command, a missing line, or some other bug in the system. And God forbid there was an error in the listing from which one was copying! Moreover, early versions of the game were designed for mainframe and mini-computers that, in many cases, were lacking a video terminal. The process of programming the game—or playing it, for that matter—was thus a slow process made even slower by interactions with punch-card interfaces. How, under these conditions, could one imagine oneself at the helm of the *USS Enterprise*? There was a mismatch, in other words, between the fantasy and the reality of

early 1970s-era computing. But this discrepancy, with its own temporal and affective dynamics, was a framing condition for a form of collective serialization organized along very different lines from contemporary dreams of games' seamless integration into transmedia worlds.

To begin with, it is quite significant that *Super Star Trek's* functional equivalent of the "letters to the editor" page, where the ongoing serialization of the game is both documented and continued, is not printed in an instruction manual or other accompanying paraphernalia but embedded in the code itself. In contrast to the mostly invisible code executed in mainstream games today, *Super Star Trek's* code was regarded as highly visible, the place where early gamers were most likely to read the solicitation to participate in a collective effort of development. Clearly, the reason is that they would have to read (and rewrite) the code if they wished to play the game—while their success in actually getting it to work was more doubtful. Gameplay is here subordinated to coding, while the pleasures of both were those of an operational aesthetic: whether coding the game or playing it, mastery and control over the machine were at stake. Unlike the bullet time of *The Matrix* or *Max Payne*, which responds to an environment in which gamers (and others) are hard-pressed to keep up with the speed of computation, *Super Star Trek* speaks to a somewhat quainter, more humanistic dream of getting a computational (or intergalactic) jalopy up and running in the first place. In terms of temporal affectivities, patience is tested more so than quick reactions. If bullet time slowed down screen events while continuing to poll input devices as a means for players to cope with high-velocity challenges, the tasks of coding and playing *Super Star Trek* turn this situation around: it is not the computer but the human user who waits for—hopes for—a response. As a corollary, however, relatively quick progress was observable in the game's inter-ludic development, which responded to rapid innovations in hardware and programming languages. This fact, which corresponded well with the basically humanistic optimism of the Star Trek fantasy (as opposed to the basically inhuman scenario of *The Matrix*), motivated further involvement in the series of inter-ludic developments (programming, modification, debugging, conversion, etc.), which necessarily involved coders/tinkerers in the para-ludic exchanges upon which a gaming community was being built.

Interestingly, in this case, the primary interfacing activities, revolving around coding as an act of "serial interfacing" in the sense outlined above, were themselves strictly para-ludic (rather than intra-ludic)—but this distinction seems to blur in the context of *Super Star Trek's* inter-ludic career, which tellingly mediates low-level interfacing and high-level community-building as equally directed at the serialized task of building a better machine.

In contemporary gaming cultures, the latter task has since given way, for the most part, to professional game developers. Mainstream games still employ operational configurations for players to manipulate, but they tend to contain such elements within the diegetic fantasy world of the game—they certainly do not expect players to get their hands dirty with coding. What the example of *Super Star Trek* reminds us, however, is that even in the apparently more integral and contained spaces of contemporary gaming, there is still a deep realm of serial practice and collective seriality at stake in gameplay. The “magic circle” that gets ever more magically sealed off as the infrastructure of code is pushed out of view has a rich and deep history of material exchanges, inter-ludic genealogies, and para-ludic activities.

## TO BE CONTINUED . . .

The study of digital seriality has just begun. The ideas presented here are designed to outline possible research perspectives and to offer preliminary theoretical distinctions that suggest themselves when we turn our attention to the seriality of digital games. We find it hardly necessary, however, to emphasize the cultural relevance of a seriality-oriented approach in connection with the digital or the medium of the computer game. The notorious efforts to habilitate popular culture as a worthy object of academic study have rarely been very productive anyway. The field of game studies may well have understood this fact more quickly than television studies. Nevertheless, in memoriam of a controversy that maybe never took place (or just possibly never should have taken place), perhaps we will be excused if we repeat, in this context, a line of argumentation that we seem to have heard somewhere before: a focus on seriality does not imply that the media specificities of the digital game should be ignored or that we can simply apply approaches from television studies or popular culture studies, without modification, to digital games and game series. On the contrary, we are calling for a serious consideration of both the specificities of game-based serialities *and* the common ground they share with other media-cultural practices and aesthetic forms. Our model of a media-philosophical, media-archaeological, and cultural-theoretical approach to serial interfacing and collective serialization does justice, we believe, to this basic idea that continuity and change are not essentially opposed but capable of complex interrelation. We have sought here to remain true to this thought both on an epistemic and on a quasi-ontological level. To reassert at the end of this volume a theme from its first chapter: What is a series, after all, if not the continuing production of the same in the guise of the new or, conversely,

the constant production of the new in the guise of the same? The series has recently been called—and rightly so, we believe—the central “mark of modernity” (Beil et al. 2012). Thus, in the context of digital games as well, we should reappraise the significance of serial processes; we should regard them as nothing less than the media of an experimental aesthetics of modern life, at least to the extent that they offer a playful mode of access to the vicissitudes of the modern lifeworld—even, and perhaps especially, where the media-aesthetic processes of the digital elude our conscious experience.

## BIBLIOGRAPHY

- Aarseth, Espen (1999). “Aporia and Epiphany in *Doom* and *The Speaking Clock*: The Temporality of Ergodic Art.” *Cyberspace Textuality: Computer Technology and Literary Theory*. Ed. Marie-Laure Ryan. Bloomington: Indiana University Press. 31–41.
- Anderson, Benedict (1991). *Imagined Communities: Reflections on the Origin and Spread of Nationalism* [1983]. London: Verso.
- Beil, Benjamin, Lorenz Engell, Jens Schröter, Herbert Schwaab, and Daniela Wentz (2012). “Die Serie. Einleitung in den Schwerpunkt.” *Zeitschrift für Medienwissenschaft* 7.2: 10–16.
- Bergson, Henri (1911). *Creative Evolution* [1907]. London: Macmillan.
- Bolter, Jay David and Richard Grusin (1999). *Remediation: Understanding New Media*. Cambridge: MIT.
- Deleuze, Gilles (1989). *Cinema 2: The Time-Image* [1985]. Minnesota: University of Minnesota Press.
- Denson, Shane (2014). *Postnaturalism: Frankenstein, Film, and the Anthropotechnical Interface*. Bielefeld: Transcript-Verlag.
- Denson, Shane and Ruth Mayer (2012a). “Grenzgänger: Serielle Figuren im Medienwechsel.” *Populäre Serialität: Narration—Evolution—Distinktion. Zum seriellen Erzählen seit dem 19. Jahrhundert*. Ed. Frank Kelleter. Bielefeld: Transcript-Verlag. 185–203.
- (2012b). “Bildstörung: Serielle Figuren und der Fernseher.” *Zeitschrift für Medienwissenschaft* 7.2: 90–102.
- Engell, Lorenz (2010). “Erinnern/Vergessen: Serien als operatives Gedächtnis des Fernsehens.” *Serielle Formen: Von den frühen Film-Serials zu aktuellen Quality-TV- und Online-Serien*. Ed. Robert Blanchet et al. Marburg: Schüren. 115–33.
- Foucault, Michel (1972). *The Archaeology of Knowledge and the Discourse on Language*. New York: Pantheon.
- Genette, Gérard (1994). *Die Erzählung*. München: Fink.
- Giddings, Seth (2007). “Playing with Non-Humans: Digital Games as Technocultural Form.” *Worlds in Play: International Perspectives on Digital Games Research*. Ed. Suzanne De Castell and Jennifer Jenson. New York: Lang. 115–28.
- Hansen, Mark B. N. (2004). *New Philosophy for New Media*. Cambridge: MIT.
- Harrigan, Pat and Noah Wardrip-Fruin, eds. (2009). *Third Person: Authoring and Exploring Vast Narratives*. Cambridge: MIT.
- Hawk, Byron (2007). *A Counter-History of Composition: Toward Methodologies of Complexity*. Pittsburgh: University of Pittsburgh Press.
- Huizinga, Johan (1955). *Homo Ludens: A Study of the Play Element in Culture* [1938]. Boston: Beacon.

- Jahn-Sudmann, Andreas and Frank Kelleter (2012). "Die Dynamik serieller Überbietung: Zeitgenössische amerikanische Fernsehserien und das Konzept des Quality TV." *Populäre Serialität: Narration—Evolution—Distinktion. Zum seriellen Erzählen seit dem 19. Jahrhundert*. Ed. Frank Kelleter. Bielefeld: Transcript-Verlag. 205–24.
- Jenkins, Henry (2006). *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press.
- Juul, Jesper (2001). "Games Telling Stories? A Brief Note on Games and Narratives." *Game Studies* 1.1. August 20, 2013. <http://www.gamestudies.org/0101/juul-gts/>.
- Kelleter, Frank. (2012). "Populäre Serialität: Eine Einführung." *Populäre Serialität: Narration—Evolution—Distinktion. Zum seriellen Erzählen seit dem 19. Jahrhundert*. Ed. Frank Kelleter. Bielefeld: Transcript-Verlag. 11–46.
- (2014a). *Serial Agencies: "The Wire" and Its Readers*. Washington: Zero Books.
- (2014b). "Trust and Sprawl: Seriality, Radio, and the First Fireside Chat." *Media Economies: Perspectives on American Cultural Practices*. Ed. Marcel Hartwig, Evelyne Keitel, and Gunter Süß. Trier: wvt. 47–66.
- Kelleter, Frank and Daniel Stein (2012). "Autorisierungspraktiken seriellen Erzählens: Zur Gattungsentwicklung von Superheldencomics." *Populäre Serialität: Narration—Evolution—Distinktion. Zum seriellen Erzählen seit dem 19. Jahrhundert*. Ed. Frank Kelleter. Bielefeld: Transcript-Verlag. 259–90.
- Kittler, Friedrich (1986). *Grammophon Film Typewriter*. Berlin: Brinkmann & Bose.
- Latour, Bruno (1993). *We Have Never Been Modern*. Cambridge, MA: Harvard University Press.
- Manovich, Lev (2001). *The Language of New Media*. Cambridge: MIT.
- Massumi, Brian (2002). *Parables for the Virtual: Movement, Affect, Sensation*. Durham: Duke University Press.
- Mayer, Ruth (2014). *Serial Fu Manchu: Iconoccity, Ideology, and the Logic of Global Spread*. Philadelphia: Temple University Press.
- Mittell, Jason (2006). "Narrative Complexity in Contemporary American Television." *The Velvet Light Trap* 58: 29–40.
- (2011). "Serial Boxes: DVD-Editionen und der kulturelle Wert amerikanischer Fernsehserien." *Serielle Formen: Von den frühen Film-Serials zu aktuellen Quality-TV- und Online-Serien*. Ed. Robert Blanchet et al. Marburg: Schüren. 133–52.
- Murray, Janet H. (1997). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Cambridge: MIT.
- Mussell, James (2012). *The Nineteenth-Century Press in the Digital Age*. New York: Palgrave Macmillan.
- O'Sullivan, Sean (2010). "Broken on Purpose: Poetry, Serial Television, and the Season." *Story-Worlds: A Journal of Narrative Studies* 2: 59–77.
- Parikka, Jussi (2012). *What Is Media Archaeology?* Cambridge: Polity.
- Poor, Nathaniel (2012). "Digital Elves as a Racial Other in Video Games: Acknowledgment and Avoidance." *Games and Culture* 7.5: 375–96.
- Schechner, Richard and Mady Schuman, eds. (1976). *Ritual, Play, and Performance: Readings in the Social Sciences/Theatre*. New York: Seabury.
- Stein, Daniel (2012). "Spoonin' Spidey—Rebooting the Bat: Immersive Story Worlds and the Narrative Complexities of Video Spoofs in the Era of the Superhero Blockbuster." *Film Remakes, Adaptations, and Fan Productions: Remake / Remodel*. Ed. Kathleen Loock and Constantine Verevis. Basingstoke: Palgrave Macmillan. 231–47.
- Suominen, Jaakko (2008). "The Past as the Future? Nostalgia and Retrogaming in Digital Culture." *Fibreculture* 11. August 19, 2013. <http://eleven.fibreculturejournal.org/fcj-075-the-past-as-the-future-nostalgia-and-retrogaming-in-digital-culture/>.
- Wolf, Mark J. P. and Bernard Perron, eds. (2003). *The Video Game Theory Reader*. London: Routledge.