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Special Issue: Digital Seriality

Guest Editors: Shane Denson and Andreas Jahn-Sudmann

Introduction

Articles

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Introduction: Ludic Seriality, Digital Seriality

Shane Denson and Andreas Jahn-Sudmann

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Introduction: Ludic Seriality, Digital Seriality

SHANE DENSON AND ANDREAS JAHN-SUDMANN

Seriality and the digital are key concepts for an understanding of many current forms, texts, and technologies of media, and they are implicated in much broader media-historical trajectories as well. Beyond the forms and functions of specific cultural artifacts, they are increasingly central to our contemporary global media ecology. Surprisingly, though, relatively few attempts have been made at thinking the digital and the serial together, as intimately connected perspectives on media.

This is precisely the task of the present issue of *Eludamos*. On the one hand, the papers collected here interrogate the serial conditions, forms, and effects of digital culture; on the other hand, they question the role of the digital as technocultural embodiment, determinant, or matrix for serialized media aesthetics and practices. The special issue thus brings together heretofore isolated perspectives and orientations, deriving from studies of new media culture on the one hand (cf. Manovich 2001, Jenkins 2006) and from the emerging scholarship on seriality on the other (cf. Kelleter 2012, Allen and van den Berg 2014). Through this encounter, we hope to shed light on some of the key developments germane to a cultural, media-theoretical, and media-historical (or media-archaeological) assessment of serialization and digitalization as processes central to our increasingly ludic media environments.

According to German media theorist Jens Schröter, the analog/digital divide is *the* "key media-historical and media-theoretical distinction of the second half of the twentieth century" (Schröter 2004, 9, *our translation*). And while this assessment is widely accepted as a relatively uncontroversial account of the most significant media transformation in recent history, the task of evaluating the distinction's inherent epistemological problems is all the more fraught with difficulty (see Hagen 2002, Pias 2003, Schröter 2004). Be that as it may, since the 1990s at the latest, virtually any attempt to address the cultural and material specificity of contemporary media culture has inevitably entailed some sort of (implicit or explicit) evaluation of this key distinction's historical significance, thus giving rise to characterizations of the analog/digital divide as caesura, upheaval, or even revolution (Glaubitz et al. 2011). Seen through the lens of such theoretical histories, the technical and especially visual media that shaped the nineteenth and twentieth centuries (photography, film, television) typically appear today as the *objects* of contemporary digitization processes, i.e. as visible manifestations (or remnants) of a historical transition from an analog (or industrial) to a digital era (Freyermuth and Gotto 2013). Conversely, despite its analog pre-history today's digital computer has primarily been addressed as the *medium* of such digitization processes – or, in another famous account, as the end point of media history itself (Kittler 1986).

The case of digital games (as a software medium) is similar to that of the computer as a hardware medium: although the differences and similarities between digital games and older media were widely discussed in the context of the so-called

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narratology-versus-ludology debate (Eskelinen 2001; Juul 2001; Murray 1997, 2004; Ryan 2006), only marginal attention was paid in these debates to the media-historical significance of the analog/digital distinction itself. Moreover, many game scholars have tended to ontologize the computer game to a certain extent and to treat it as a central form or expression of digital culture, rather than tracing its complex historical emergence and its role in brokering the transition from analog to digital (significant exceptions like Pias 2002 notwithstanding). Other media-historiographical approaches, like Bolter and Grusin's concept of remediation (1999), allow us to situate the digital game within a more capacious history of popular-technical media, but such accounts relate primarily to the representational rather than the operative level of the game, so that the digital game's "ergodic" form (Aarseth 1999) remains largely unconsidered.

Against this background, we would like to suggest an alternative angle from which to situate and theorize the digital game as part of a larger media history (and a broader media ecology), an approach that attends to both the representational level of visible surfaces/interfaces and the operative level of code and algorithmic form: Our suggestion is to look at forms and processes of seriality/serialization as they manifest themselves in digital games and gaming cultures, and to focus on these phenomena as a means to understand both the continuities and the discontinuities that mark the transition from analog to digital media forms and our ludic engagements with them. Ultimately, we propose, the computer game simultaneously occupies a place in a long history of popular seriality (which stretches from pre-digital serial literature, film, radio, and television, to contemporary transmedia franchises) while it also instantiates novel forms of a *specifically digital type of seriality* (cf. Denson and Jahn-Sudmann 2013). By grappling with the formal commensurabilities and differences that characterize digital games' relations to pre-digital (and non-ludic) forms of medial seriality, we therefore hope to contribute to a more nuanced account of the historical process (rather than event) of the analog/digital divide's emergence.

Overall, as we argued in the last issue of *Eludamos*, seriality is a central and multifaceted but largely neglected dimension of popular computer and video games. Seriality is a factor not only in explicitly marked game series (with their sequels, prequels, remakes, and other types of continuation), but also within games themselves (e.g. in their formal-structural constitution as an iterative series of levels, worlds, or missions). Serial forms of variation and repetition also appear in the transmedial relations between games and other media (e.g. expansive serializations of narrative worlds across the media of comics, film, television, and games, etc.). Additionally, we can grasp the relevance of games as a paradigm example of digital seriality when we think of the ways in which the technical conditions of the digital challenge the temporal procedures and developmental logics of the analog era, e.g. because once successively appearing series installments are increasingly available for immediate, repeated, and non-linear forms of consumption. And while this media logic of the database (cf. Manovich 2001, p. 218) can be seen to transform all serial media forms in our current age of digitization and media convergence, a careful study of the interplay between real-time interaction and serialization in digital games promises to shed light on the larger media-aesthetic questions of the transition to a digital media environment. Finally, digital games are not only symptoms and expressions of this transition, but also agents in the larger networks through which it has been navigated and negotiated; serial forms, which inherently track the

processes of temporal and historical change as they unfold over time, have been central to this media-cultural undertaking (for similar perspectives on seriality in a variety of media, cf. Denson and Mayer 2012, Fahle 2012, Jahn-Sudmann and Kelleter 2012, Mayer 2013, Beil et al. 2013, Kelleter 2014).

To better understand the cultural forms and affective dimensions of what we have called digital games' *serial interfacings* and the *collective serializations* of digital gaming cultures (cf. Denson and Jahn-Sudmann 2013), and in order to make sense of the historical and formal relations of seriality to the emergence and negotiation of the analog/digital divide, the articles collected in this special issue of *Eludamos: Journal of Computer Game Culture* explore heterogeneous, sometimes conflicting aspects of game-related seriality from a wide variety of perspectives, including media-philosophical, media-archeological, and cultural-theoretical approaches. They address the relations between seriality, temporality, and digitality in their formal and affective dimensions, and they conceive digital (and sometimes proto-digital) serialities in terms not only of their narrative manifestations but also their technical-operational impacts on our media environments. In this way, they offer a rich and nuanced picture not only of contemporary computer-game cultures but also of the larger ecologies and histories of ludic media practices.

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From NES-4021 to moSMB3.wmv: Speedrunning the Serial Interface

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From NES-4021 to moSMB3.wmv: Speedrunning the Serial Interface

PATRICK LEMIEUX

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—Samuel F. B. Morse, May 24, 1844

A game is input->output. Repeat. Each cycle of this costs 1 unit time. A game also has a state. The game state is the memory. All of the variables. One game state may be observed and agreed upon as the 'start.' Another may be observed and agreed upon as the 'end.' Measuring the number of input->output cycles that occur between the 'start' and 'end' is a speedrun. The goal of a speedrun is to lower this as much as possible.

—Cosmo Wright, July 24, 2014

Introduction

Input 1 then Input 2 then Input 3 in Frame 1. Frame 1 then Frame 2 then Frame 3 in Level 1. Level 1 then Level 2 then Level 3 in World 1. World 1 then World 2 then World 3 in Game 1. Game 1 then Game 2 then Game 3 in Franchise 1. Franchise 1 then Franchise 2 then Franchise 3 in Platform 1. Platform 1 then Platform 2 then Platform 3 in the serial history of videogames. Although play is irreducible, games repeat. Alongside newspapers, magazines, comics, novels, albums, television programs, films, and even websites, industrial forms of seriality structure the diachronic production and synchronic consumption of videogames as a mass medium. Whether taking the form of a succession of actions, a set of levels, or a series of games, the term *seriality* can refer to both a sequence of two or more objects in time or the similitude between two or more objects in space—twin effects of mechanical production. Produced in mass yet consumed individually, the repeating elements of serial media like Nintendo's *Super Mario Bros.* (1985) both reproduce and reduce specific instances of play to generalizable sequences of serial pulses sent both to and from standard controllers. Aside from the haptic sensation of fingers pressing plastic and the physicality of phosphors glowing on the surfaces of CRT screens, games repeat. From subsecond sampling and sequencing of button combinations to the conspicuous consumer culture surrounding videogames as commodities, serial games operate both under and over individual experience, abstracting the specific phenomenal, material, and historical qualities of play into abstract quantities that repeat in time and space. As Jean-Paul Sartre (2004, p. 262) writes, these serial forms of industrial culture "are lived separately as identical instances of the same act."[2]

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In “Digital Seriality: On the Serial Aesthetics and Practice of Digital Games,” Shane Denson and Andreas Jahn-Sudmann differentiate three forms of “ludic seriality” based on three scales of industrial repetition in games. Using *Super Mario Bros.* as an example, their tripartite schema includes “intra-ludic seriality, which manifests itself *within* games” (e.g., the sequence of stages, levels, and worlds inside a given game like Level 1-1, 1-2, and 1-3); “inter-ludic seriality, which emerges *between* games” (e.g., the relationship between sequels, prequels, and remakes which extend a series of games like *Super Mario Bros. 1, 2,* and *3*); and “para-ludic seriality, which is constituted *outside* of the actual games” (e.g., the transmedial and largely fan-produced works that exceed the artificial corporate boundaries of a game as an autonomous, consumer object not unlike Gérard Genette’s concept of “paratext”) (emphasis original, Denson and Jahn-Sudmann 2013, p. 11). Although these forms of ludic seriality are not unique to digital media, the incredible speeds of serial interfaces and widespread distribution of videogames transform industrial modes of spatial and temporal reproduction into what Denson and Jahn-Sudmann characterize as “digital seriality.” Digital seriality hinges on “the microtemporal scale of individual players’ encounters with algorithmic computation processes (the speed of which escapes direct human perception and is measurable only by technological means)”—or “serial interfacing”—and “the macrotemporal (more properly ‘historical’) level of collective brokerings of political, cultural, and social identities in the digital age”—or “collective serialization” (Denson and Jahn-Sudmann 2013, p. 1). Operating both below and above the bandwidth of conscious experience, the serial interfacing and collective serialization of videogames structure and enclose play without the player’s explicit knowledge—a form of alienation that Bernard Stiegler (2010, p. 45) calls “systemic stupidity.” From Nintendo’s NES-4021 shift register to Morimoto’s moSMB.wmv viral video, this essay explores the history and practice of “tool-assisted speedrunning,” a form of metagaming that plays the serial interface.

NES-4021

Press “START.” Sixty times a second[3] an electrical impulse is sent from the Nintendo Entertainment System (NES)[4] to the sixth pin of its first controller port. From port to plug to cord to controller, the signal travels down one of five colored wires to the NES-4021, an 8-bit, parallel-to-serial shift register housed within a standard controller (see Figure 1). After receiving a high pulse for 12 microseconds[5] from the orange wire connected to pin six, the 4021 “latches” the state of the controller’s eight buttons and immediately sends a single pulse of electricity back to the NES along the yellow wire, pin seven. This pulse represents a single bit of serial data. An absent or “low” current pulse (i.e., 0V), is interpreted as a 0 by the NES’s central processing unit (CPU)—a modified version of MOS Technology’s popular 6502 processor called the Ricoh 2A03. A “high” current pulse (i.e., +5V) is registered as a 1. Although digital media are never quite digital, the infinitely individuated physical attributes of electrical current are measured, sampled, and abstracted into serial units by mechanisms like the flip-flop circuits of the 4021 and the semiconductor arrays of the 6502’s input/output registers.[6] As Matthew Kirschenbaum (2008, p. 61) confirms in *Mechanisms: New Media and the Forensic Imagination*, “while bits are the smallest symbolic units of computation, they are not the smallest inscribed unit.”[7] Serial communication, however, privileges the discrete, repeatable bit over the continuous

flows of electricity. Surges, spikes, static, and other forms of interference are either ignored by the processor, translated into bits by the processor, or crash the processor—there is no middle ground.[8] Press “START.” A continuum of analog phenomena is reduced to the discrete differences that characterize digital media. In the case of this input in this frame of this game on this platform, if the first electrical current measured by the CPU after “latching” is above a certain threshold, the 6502 registers a 1 at memory address $4016. Sent one at a time, always in the same order, the CPU registers the states of each button starting with “A.” If the last bit of memory at $4016 is a 1, the “A” button was not pressed.[9]

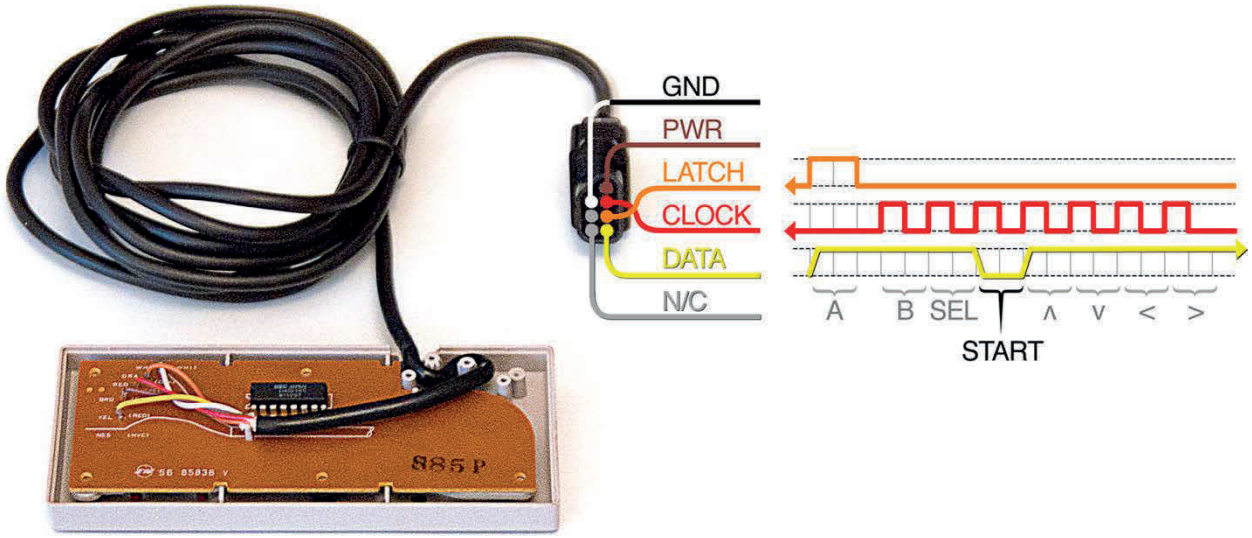

Figure 1. The 4021 parallel-to-serial shift register in a Nintendo Entertainment System controller (left) converts the collective state of eight buttons to a serial stream of electrical pulses transmitted over a single yellow wire (right).

Press “START.” Exactly 6 microseconds after the “A” value was registered by the Nintendo’s CPU, there are still seven values “latched” to the shift register. The remaining buttons are relayed in order and one at a time, according to a series of short pulses (interleaved with pauses) that the shift register receives from the fifth pin, the red wire. For each 6-microsecond tick of this “clock” the next bit of data is shifted forward then serially transmitted to the NES along the yellow wire. Tick, tock, tick, tock, tick, tock, tick. High, high, low, high, high, high. 1, 1, 0, 1, 1, 1, 1. “B” was not pressed. “SELECT” was not pressed. “START” was pressed. “UP” was not pressed. “DOWN” not pressed. “LEFT” not pressed. “RIGHT” not pressed. A final “tick” is sent to complete the sequence. In 108 microseconds (about one ten-thousandth of a second), one “latch” and eight “clocks” were serially “written” to the controller and, in return, eight bits of data were serially “read” by the NES. Every sixtieth of a second, eight more bits representing the states of eight buttons are polled by the NES-4021 then sent serially from the controller to the 6502 processor. Again and again, the states of eight simple contact switches are relayed in sequence at the last bit of memory at CPU address $4016. These values are (typically) inverted and accumulated into a single byte of RAM for future reference. The future, in this case, is very short. If $4016 reads 1, 1, 1, 0, 1, 1, 1, 1, and those values are stored

as 00010000 (written as 10 in hexadecimal), then “START” was pressed. If “START” was pressed, perhaps a software routine will begin the game. The sweaty palms, particular grip, and proprioceptive experiences of the player must be translated into digital data. The phenomenology, materiality, and physicality of play must be sampled, serialized, and stored as bits before it can impact the operation of the videogame. Within the sixtieth of a second between pressing start and the game starting, serial operations unfold at scales and speeds outside the consciousness of the button masher.

Press “START.” On the Nintendo Entertainment System, the interface between player and game, between pressing start and the game starting, is serial. Whereas parallel communication requires synchronizing or “linking” two or more communication channels in order to send multiple bits of information at the same time, “serial communication consists in transmitting a single bit of data at a time, sequentially, forming a serial data stream” (Advantech 2012). From smoke signals and distant drums to transatlantic telegraph cables and the RS-232 standard in computing, long-distance communication is often mediated by a serial interface. Beyond the mere presence or absence of smoke, sound, or signal (which is nevertheless a historically important, albeit rudimentary form of serial data), a second order of complexity emerges in serial communication with time. Morse code, for example, is not only based on repeating tones, but repeating times. The difference between a “dot” and a “dash” is not only defined in terms of the presence or absence of a signal but the division of otherwise undifferentiated durations into repeating, increments. Just as a bit is produced by switching mechanisms such as transistors and shift registers, time is produced by strobing mechanisms such as resonating crystal oscillators. Although a single plume of smoke on the horizon transmits information, the production of temporal patterns within a continuous signal (like covering and uncovering a signal fire with a wet blanket), can expand the message from either 0 or 1 to a series of 0s and 1s able to encode a variety of formal symbols. In order to be decoded on the receiving end, serial communication requires temporal standardization to synchronize not only bits between storage media, but also “ticks.” In 1962, the Electronic Industries Association (EIA) published the “Interface between Data Terminal Equipment and Data Communication Equipment Employing Serial Binary Data Interchange” otherwise known as RS-232, a standard that entails

1. the electrical signal characteristics
2. the interface mechanical characteristics
3. a functional description of the interchange circuits
4. standard interfaces for selected communication system configurations (Wood 1981, p. 301)

Originally implemented to connect teletype machines to early modems, the RS-232 Standard also informed the design of the serial connection and serial cable shipped with the original IBM PC as well as the PS/2 interface for mice and keyboards, Firewire and USB for data transfer, Ethernet for networking, and, of course, the serial protocol for most videogame controllers.

The NES controller is both a serial interface and an example of Denson and Jahn-Sudmann's concept of "serial interfacing." For Denson and Jahn-Sudmann (2013, p. 11), serial interfacing qualitatively describes the "processes of temporal-serial experience that transpire at the interface between humans and digital technologies." This essay explores at greater length how forms of digital seriality also occur between nonhuman actors. Between the temporary storage of bits "latched" to shift register and the bits registered in the CPU's memory (two, independent forms of synchronic seriality), there also lies the diachronic, serial interfacing of pulsing currents. These nonhuman serialities provide technical scaffolding for the emergence of interactions between human players and networked and programmable media. Following Henri Bergson's distinction between temporality as process and temporality as measured, N. Katherine Hayles (2012, p. 86) asks:

> Along what time scales do interactions occur between humans and technical objects, specifically networked and programmable machines? What are the implications of concatenating processual and measured time together in the context of digital technologies? What artistic and literary strategies explore this concatenation, and how does their mediation through networked and programmable machines affect the concatenation?

Perhaps nowhere in the culture around videogames are these questions of both human and nonhuman temporality better explored than in the relatively new (and intertwined) practices of speedrunning and tool-assisted speedrunning. Related to both Henry Lowood's (2006, p. 26) "high-performance play" (i.e., "play as performance, modification of content, and community-based tools and content development") and James Newman's (2008, p. 124) "superplay" (i.e., "the use of the knowledge and techniques uncovered and laid out in Game Guides, the exploitation of the structures, [non-] linearity and limitations of videogames as designs as well as the harnessing of glitches in game code"), speedrunning and tool-assisted speedrunning are community practices which add voluntary constraints to the involuntary mechanics driving digital games, convert videogames from games in and of themselves into equipment for playing larger games, and turn play into a game design practice. These games played in, on, around, and through other games are metagames. While digital seriality articulates the character of videogames as a technical and mass medium, metagames locate the specific, material histories of 21st-century play. Extending Richard Garfield's definition of metagames from "how games interface with life" to "how games *serially* interface with life," tool-assisted speedrunning exemplifies how community practice can both identify and challenge the serial structures governing all videogames (Garfield 2000, p. 1).[10] Metagames like tool-assisted speedrunning remake and remediate videogames according to the conscious choices of small communities rather than the rules of serial consumption. In the case of the *Super Mario Bros.* franchise, the history of speedrunning and tool-assisted speedrunning console games began with a viral video that circulated in 2003.

moSMB3.wmv

Not long after .GIFs of dancing babies (and dancing bananas and dancing hamsters) colonized Geocities websites in the late nineties and "all your base belonged to us" in

2001, a serial Mario meme spread across the Internet alongside *Star Wars Kids* and *Badger Badger Badgers* in 2003. Titled moSMB3.wmv, the 18.4-megabyte Windows Media Video file was traded via torrents, uploaded to university accounts, and, of course, exhibited on eBaum's World as "Super Mario 3 beat in 11 minutes." Before Leroy Jenkins and lonelygirl15 were streaming videos on YouTube in 2006, eBaum's World was one of the earliest entertainment aggregators that hosted—and on more than one occasion claimed to author[11]—much of the early history of Internet memes. Posted in the "Hilarious Video" section of the website on December 3, the .WMV came with a warning: "[t]his video is a very large file and will take 3 hours to download if you are on a slow dial up internet connection. Broadband users only!" (eBaum's World 2003) (see Figure 2). Although moSMB3.wmv is a derivative work based on the third entry of a widely disseminated videogame franchise, these aspects of industrial production and distribution are not unique to digital seriality. Downloaded bit by bit from a central server, the speed and scale of TCP/IP protocol exemplifies one aspect of digital seriality: the diachronic repetition of modular units, rapidly transmitted in vast sequences of 1s and 0s which characterize serial interfacing. Once magnetically etched into the spinning platter of a hard drive client side, moSMB3.wmv enacts a second, related aspect of digital seriality: the synchronic storage of copied data accessed simultaneously on separate screens in the form of collective serialization. From the speed and scale of information exchange to the private experience of consuming media, Internet memes are perhaps one of the best examples of the diverse spatial and temporal modes in which seriality operates. Without the crowd sourced "liking," "upvoting," or "retweeting" now common to the production and consumption of memes within social media networks such as Facebook, Reddit, and Twitter, file trading produced an audience of individuals, separated by the industrial conditions structuring the transmission of files. Beyond the serial production and networked consumption of viral video, moSMB3.wmv, a speedrun of Nintendo's *Super Mario Bros. 3* performed by a Japanese player known as Morimoto (もりもと), reveals the alienating effects of digital seriality and dramatizes the distinction between human and machine scales of temporality.

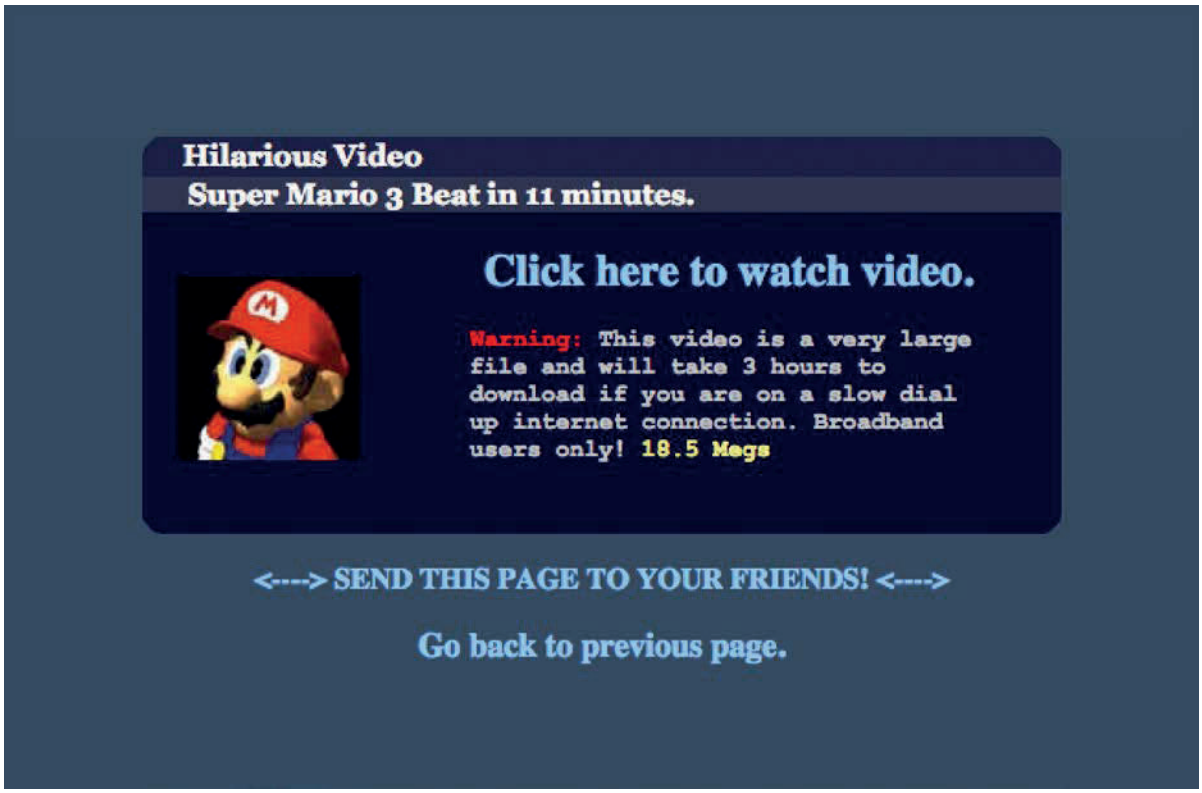

Figure 2: On eBaum's World, Morimoto's "Hilarious Video" was rehosted without attribution and with a broadband warning.

After downloading the file (for what might have been hours) and getting the video to play (after also downloading the proper codec),[12] Morimoto's speedrun begins with the faint sound of the start screen of *Super Mario Bros. 3* accompanied by a white overlay with two lines of green, right-justified text: "super mario bross3 [sic] / time attack video" (see Figure 3). As the overlay dissolves into the World 1 map screen, the first stage is quickly selected and Mario glides through Level 1-1 with mechanical precision. The tiny, four-tone sprite scrolls right at a constant rate of 3.5 pixels per frame,[13] effortlessly avoiding obstacles and bouncing off enemy after enemy before reaching his goal in the first three stages of Grass Land. After two minutes of gameplay and two warp whistles, Mario has already entered World 8 and is nearing the end of his quest to rescue the princess. Instantly transported from the pastoral fields and benign obstacles of World 1 to the dark, industrial hell of what is ostensibly Bowser's home turf,[14] Mario starts to really show off. The final world of *Mario 3* begins three "autoscrollers"—levels in which the screen moves at a fixed rate to simulate the procession of wooden tanks, ships, and planes that make up the Koopa King's army. Since speed is constrained to the slow panning of the stage, rather than simply pressing his nose against the rightmost pixel of the frame, Mario bides his time by bouncing acrobatically from bob-omb to bob-omb to cannonball and back, racking up thousands of points and extra lives. Whereas the streamlined speedrun through the first three levels seemed practiced, Mario's death-defying antics and carefree hot-dogging at the end of the game are downright superhuman. The first stage of the Dark Land is completed with 79 lives. The entire game is over in eleven minutes, three seconds, and ninety five milliseconds—exactly 39,837 frames—and

fades to another white slide with green credits: “played by もりもと / @やるきなす / http://soramimi.egoism.jp/ / http://homepage3.nifty.com/nura/.”

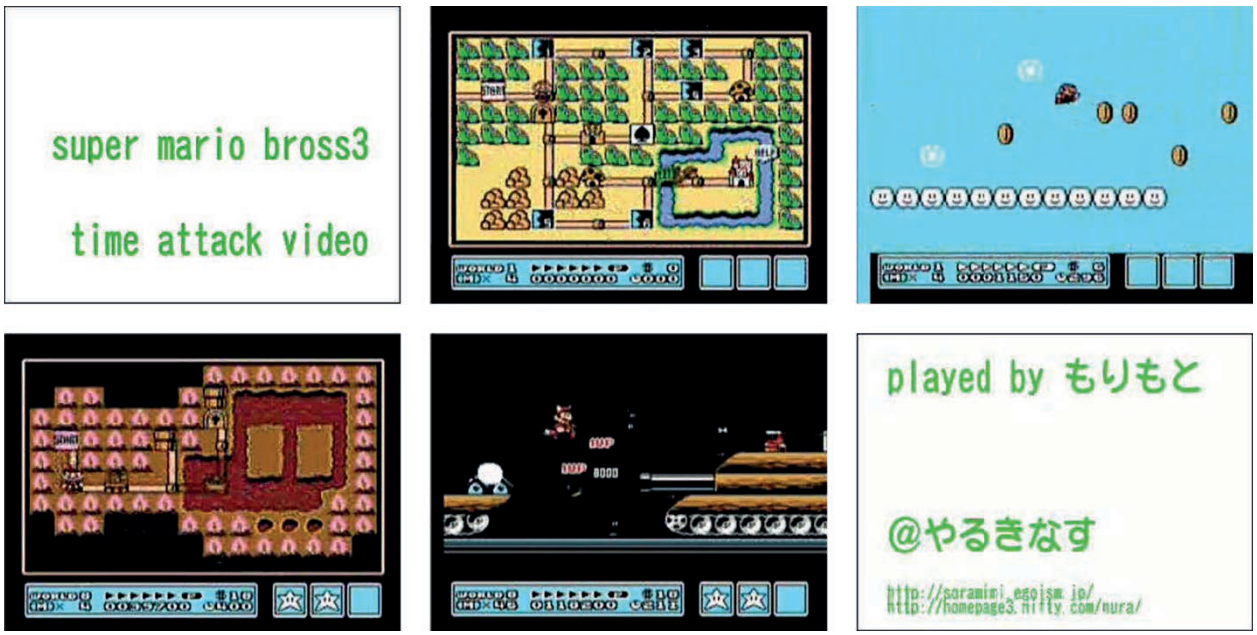

Figure 3: Screenshots from moSMB3.wmv reveal the low resolution and high compression of Morimoto’s original movie file, adapted for the speed and scale of file sharing in the early 2000s.

When Morimoto first released the video in late November 2003, direct links from the popular Japanese bulletin board 2channel (http://2ch.net)[15] quickly exceeded the bandwidth limits of his personal website. Scrambling to subsidize server costs with online advertisements on November 28, Morimoto lamented, “the end of the world is near” (Morimoto 2003). Five days later, on the other side of the world, moSMB3.wmv was rehosted on eBaum’s world and downloaded thousands of times. Although consumed privately, the collective serialization was captured across various web forums and online communities. Initially viewers were dumbfounded by the spectacle of such play:

> OH MY GOD... i cant beleive what i just saw.. this guy is awesome and at the same time SCARY.. i cant put this into words only one WOW!!!! (Yessie 2003)[16]
>
> Pure madeness. Gods among men... yes. Super l337-human powers? Yes. (NSPIRE 2003)
>
> If I didn’t know any better I’d say he knew the position of every gumba, cannonball, and man-eater plant int he whole game!!! (5stringdna 2003a)
>
> The jumping was amazing. He finished with 99 lives . . . I considered myself a Mario nerd, but I never knew about the first whistle he gets, the walk-through-the-wall thing he does on the last level, or the fact that you can kill Bowser by jumping on him enough times. (Erroneus 2003)

> h4x!!!!!! (Sonic 2003)

As is already evident in the preceding posts, there was a pervasive sense of disbelief that morphed into a kind of antipathy towards the player who performed such virtuosic, yet "alien" play:

> :shock: that's inhuman... that's just wrong..... (nublu01 2003)

> I think some things are better left alone or untold so they don't shatter peoples' hopes and dreams. I cried tears of joy when I saw that. (fizzlephox 2003)

> Morimoto-sama, I bow before thee... even though to get this good, you must have wasted an incredible amount of your life. ::mourns this Morimoto person:: tongue.gif (Spectrum 2003)

> Ok, so if this guy spent an equal amount of time doing something like, kung-fu or whatever, he coudl be the grand-master mac-daddy, but instead he's decided to master an 8-bit nintendo game? (5stringdna 2003b)

> *Cough "No life!" (Toddathon 2003)

Skepticism and sarcasm gave way to overt racism:

> I think the guy that did that is japenese or chinese, notice its not the english version of the game. Either that or it's done on an emulator and he didnt get the english rom. (Vamp 2003)

> :eek: :wtf: :eek: :wtf: :eek: That was 100% FLAWLESS. As I watched that, I asked myself... "what human being possesses such robotic precision?" Then I saw the Japanese writing at the end, and it all made sense (Bluefire 2003)

> It's about an extremely lonely man who had nothing but his Nintendo, a 2 liter, and a desire to be the best at his craft. . . . With a little determination and love (and absolutely no desire to ever leave his home prefacture), this wacky asian man was able to conquer Super Mario 3 in 11 minutes and some odd seconds. . . . Easy peezy Japaneezy. (Snaggletooth 2003)

> teh japanese are :alien: (Ilitirit 2003a)

The attitudes surrounding an "alien" invasion onto the site of traditional play are in keeping with the projection of techno-Orientalist anxieties common to science fiction like William Gibson's *Neuromancer* (1984) and Ridley Scott's *Blade Runner* (1982). In adjacent posts, Morimoto is described as a "cybernetic soldier," "made in germany and exported to japan," and "designed on a genetic level to destroy joysticks" as posters channel racist characterizations that "[t]he Japanese are unfeeling aliens [...] cyborgs and replicants" (PhazeORage 2003, Iliterit 2003b, Riot999 2003, Morley and Robins qtd. in Sohn 2008, p. 7). As Stephen Hong Sohn (2008, p. 6) points out, "the connection between the Asian American and the alien other still remains a force to draw upon to allegorize racial tension and exclusion." Analyzing how both "alien" and "Asian" are entangled concepts within the contemporary Western imaginary, Sohn (2008, p. 6) further emphasizes, "Alien/Asian does invoke conceptions of its homonymic counterparts, alienation and alien-nation." In terms of Sartre's theory of seriality, alienation is the effect that both distances producer from produced (or player

from play) and separates individuals from community group formation—literally forming alien nations behind the folds of newspapers (or perhaps in today's context, the glowing screens of smartphones). MoSMB3.wmv continues this tradition digitally. Both the spectacular play and the hostile spectatorship function together to allegorize the alien and alienating effects of serial interfacing as speculations about Morimoto's racial identity ultimately stand in for the technological apparatus of "tool-assisted speedrunning," a form of metagaming that attempts to play the serial interface at human conscious timescales.[17]

Tool-Assisted Speedrunning

In *Alien Phenomenology, or What It's Like to Be a Thing* (2013), Ian Bogost deploys the figure of the alien to different effect. Working alongside the anti-correlationist philosophies of Graham Harman and Levi Bryant, Bogost (2013, p. 34) argues that "[t]he true alien recedes interminably even as it surrounds us completely. It is not hidden in the darkness of the outer cosmos or in the deep-sea shelf but in plain sight, everywhere, in everything." Although this claim privileges chips and circuits as much as coffee cups and ice cream cones, videogames like Atari's *E.T. the Extra-Terrestrial* (1982) feature heavily in Bogost's book. For Bogost (2013, pp. 17-18), *E.T.* is "8 kilobytes of 6402 opcodes and operands," "a flow of RF modulations," "a molded plastic cartridge," "a consumer good," "a system of rules or mechanics," "an interactive experience," "a unit of intellectual property," and "a sign that depicts the circumstances surrounding the videogame crash of 1983." A similarly irreducible, alien assemblage of technical media and cultural significance, in the early 2000s Internet users confronted the profound disconnect between their own lived experiences of *Super Mario Bros. 3* as a consumer good and its uncanny technical capacities. After initial reactions of stunned disbelief and racist speculation, forum threads settled into a more analytic approach to the video as almost all posters were learning about a metagaming practice called "tool-assisted speedrunning" for the first time:

> . . . there are some things that i don't think add up in the video, but i'm not sure if i should start listing, since there might be a chance no one really played the game here. Are there any experienced mario 3 players out there that think there's something's wrong with the video? (KQX 2003)
>
> I've not done any reading on the matter but I am quite convinced (having played a LOT of mario 3 myself) that this was not done on an actual NES console. (Algorithm 2003)
>
> Does it seem odd to anyone else that this video is encoded in wmv? I didn't think Microsoft had a big presence over there. Wouldn't it be easier to encode it as a avi? (cletus 2003)
>
> . . . he did it frame by frame on an emulator and it took two years to complete. Sorta like putting a cartoon together. (Tremmie 2003)
>
> Oh, after examining the [emulator] file closer, I have realized that Famtasia allows you to save state in the middle of a movie and rerecord from this state. Thus, the 11 minute video was actually interrupted and restarted over 40,000 times... move

> than the number of frames in the movie! Also, apparently the guy took a couple years to do it, according to his website. Thus, while no hacks were used, it was far, far from being 'real.' (MEGAß¥TE 2003)
>
> Doesn't seem quite so impressive, now :/ (Axyon 2003)

Although there was initial confusion among the global audience over what exactly they were watching, the small green links at the end of the video led to two Japanese websites, authored by Morimoto, that explained in detail the process of making the video—the inaugural tool-assisted speedrun.[18]

The first person to carry out a full investigation of Morimoto's work outside of Japan was Joel "Bisqwit" Yliluoma, the Finnish software engineer and computer hobbyist who would go on to found TASVideos.org in 2006. TASVideos is currently the largest community dedicated to making and publishing tool-assisted speedruns. Using tools, the community at TASVideos claim to "overcome human limitations to complete games with extremely high precision . . . [to] tear through games at seemingly impossible speeds. The end result of this process is simply a series of key-presses which may be performed on the original hardware" (TASVideos 2014). By the second week of December 2003, Yliluoma had translated a rough version of Morimoto's documentation and produced his own website, "Bisqwit's NES bittorrent video downloads" (later known simply as NESvideos), which attempted to dispel rumors and popularize Morimoto's methods by detailing exactly how moSMB3.wmv was made (Yliluoma 2004).[19] According to Morimoto's documentation, moSMB3.wmv was not an inimitable, real-time performance of *Super Mario Bros. 3* on the NES, but a carefully constructed sequence of serial inputs planned in advanced, manipulated during production, and executed according to the affordances of NES emulators for the personal computer. Morimoto's .WMV was not a recording of real-time, human play but visual evidence of another kind of play altogether: an .FMV, or Famtasia Movie Capture file, detailing a linear sequence of inputs which could be replayed and edited in the NES emulator, Famtasia, named after the Japanese Family Computer or Famicom.

In computing, an emulator is a piece of hardware or software that implements the functions and operations of another piece of hardware or software. As Nathan Altice (2011) nicely summarizes

> Console emulation mimics a target platform on another, typically more powerful, platform, ideally permitting users to play game software with the closest approximation to the original experience as possible. Accuracy is a key constraint and never perfect. Emulation is not solely a matter of replicating the target console's CPU, but also any additional co-processors, input/output devices, lower level instruction sets, and so on. The NES had dedicated Picture and Audio Processing Units (PPU and APU) in addition to its 6502-based CPU.

Released by nori and taka2 in 1999, Famtasia attempts to recreate the operations of Nintendo's first videogame platform on the personal computer. Ian Bogost and Nick Montfort define "platform" as "an abstraction, a particular standard or specification before any particular implementation of it" and, like the NES or Famicom, Famtasia supports a wide array of software (Bogost and Montfort 2009, p. 2). Whereas the operations of the original system were constrained by its CPU, PPU, and APU (which

were, in turn, constrained mostly by money), emulators like Famtasia support additional features like save states, slow down, instant replay, and cutting/pasting—functions which allow players to access, rearrange, re-record, and write the units of serial communication that structure the interface between controller and game. No longer bound to the temporality of the physical platform, Famtasia allows for multiple approaches to playing the serial interface out of order and out of time. Although the player can still steer Mario with a controller (or keyboard), the emulator also allows for play at the level of bit-wise manipulation of the numbers.

Morimoto's .FMV file begins with a 144-byte header that Famtasia identifies based on a simple, four-byte file extension: "46 4D 56 1A." Each cluster of hexadecimal characters represents a byte of data. Unlike binary notation in which only two digits—0 and 1—are used to signify arrangements of bits, hexadecimal notation uses *sixteen* characters: 0 through F (see Figure 4). Like most file headers, the first four bytes of Morimoto's movie declares the file extension "FMV" followed by an escape character interpreted as "/x1a." The remainder of the header contains metadata such as the title ("Morimoto's SMB3 speedrun/recorded by Bisqwit"),[20] how the movie was constructed (resets or save states), and the number of total rerecords (40268 times). After the header, beginning at address 0x0090 (i.e., byte 144), every subsequent byte in the .FMV stands in for an instance of serial input. A byte can be described numerically as a series of eight binary digits (e.g., 00110001), three decimal digital (e.g. 049), or two hexidecimal digits (e.g., 31) that stand in for controller input (see Figure 5). The data temporarily "latched" to the 4021 shift register signifies the state of all eight buttons, and Famtasia's movie files store a sequence of these states. 60 inputs per second become 60 bytes per second. From 00 to FF, all 256 possible combinations of controller input can be represented. For example, exactly 9.85 seconds into Morimoto's video, on frame 591, the byte stored at address 0x02E0 (i.e., byte 736) of the the .FMV file is 00100000, which represents pressing the "A" button the controller and, when played back, selects Level 1-1 from the Grass Land map screen of *Super Mario Bros. 3*. After pressing "A" (20 in hex notation) for 5 frames to select the level, Morimoto makes his way through Level 1, running (11) and jumping (31) over goombas and green pipes (see Figure 6).

Binary (Base 2)	Decimal (Base 10)	Hexadecimal (Base 16)
0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	10	A
1011	11	B
1100	12	C
1101	13	D
1110	14	E
1111	15	F

Figure 4: This sixteen-digit binary to decimal to hexadecimal conversion chart details half a byte of data.

Button	Binary	Decimal	Hexadecimal
NONE	00000000	0	00
RIGHT	00000001	1	01
LEFT	00000010	2	02
UP	00000100	4	04
DOWN	00001000	8	08
B	00010000	16	10
A	00100000	32	20
SELECT	01000000	64	40
START	10000000	128	80
ALL	11111111	256	FF

Figure 5: This conversion chart illustrates how the eight buttons of an NES controller are represented as two-digit hexadecimal numbers in Famtasia's .FMV file.

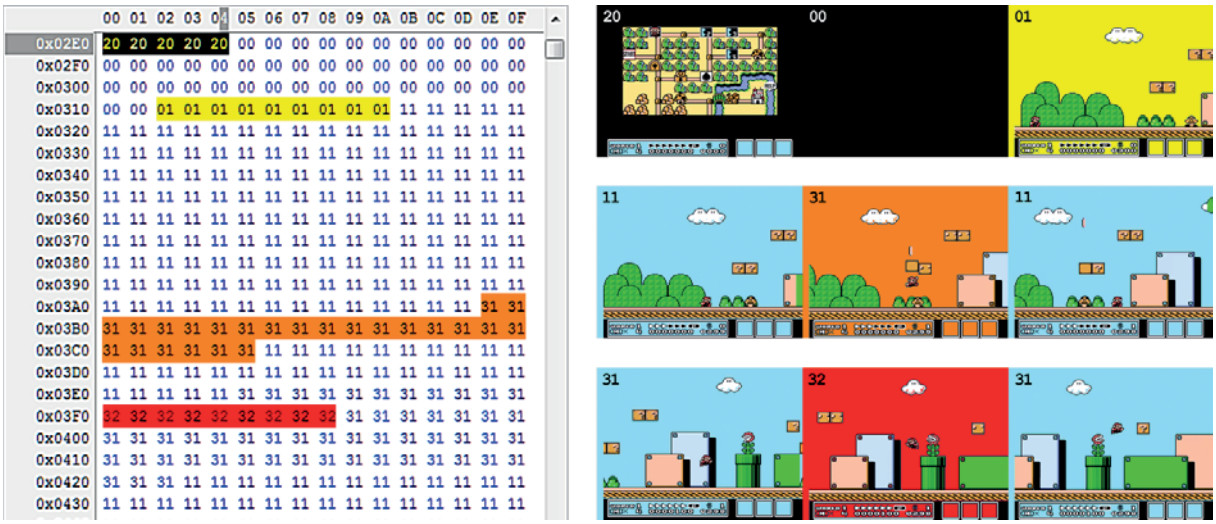

Figure 6: A brief comparison of the hexadecimal representation of Morimoto's .FMV to the visualization of his .WMV reveals a synchronic serial interface—a serial database detailing every button press.

On the original platform, the temporality of controller input is synchronized with the speed at which the NES's Picture Processing Unit (PPU) can update 262 scanlines on a CRT screen. Because the PPU interfaces with CRTs about 60 times a second, the CPU also samples the 4021 about 60 times a second. In the same way a sequence of cinematic stills rolling from reel to reel in a movie projector produce a form of diachronic, industrial seriality, the stream of bit-wise data sent from the 4021 to the Nintendo Entertainment System is an example of the accelerated temporality of digital seriality. However, once the serialized bits sent from controller to console can be represented in the bytes of Famtasia's "movie" files, the diachronic temporality of serial interfacing is put on pause. Rather than real-time streaming, the serial interface is collected and spatially distributed, articulating previously out of reach microgestures in a synchronic, serial database. Like a film reel that has been linearly laid out for editing, Famtasia's .FMV files store every frame of input and can be manipulated by hand in the non-linear interface of a hexadecimal editor. Rather than the serial operations of a time-based movie, it is a manipulable movie file. Tool-assisted speedrunning is not a movie in the sense of a frame-by-frame animation of Mario's sprite within the Mushroom Kingdom, but simply the record of a series of inputs which, when replayed, drive a new instance of the game. Crucially, this kind of play depends on a deterministic relationship between input and output. As Cosmo Wright (2014) states curtly, "[a] game is input->output. Repeat." On videogame platforms like the Nintendo Entertainment System, a series of button presses performed at the same place and at the same time in the same game will always yield the same output. Cycling timers and random variables stored within the system's RAM are reinitialized upon reset so rebooting the game not only restarts the various software routines and processes, but also starts them from the same predictable state. Timed button presses not only determine Mario's movement but, by extension, the value of every single variable in the NES's CPU. As long as the temporal relation between input and output remains consistent, enemies will appear and act predictably and physics will adhere to deterministic patterns. Importantly, slowing down the speed of the CPU and serial input in tandem does not change the mechanics of the game, just their duration. Twitch-based platform games like Super

Mario Bros. become turn-based puzzle games as tool-assisted speedrunners like Morimoto consider the best strategy frame-by-frame by playing the serial interface.

Playing the Serial Interface

The NES-4021 shift register, Morimoto's moSMB3.wmv viral video, and the larger practice of tool-assisted speedrunning provide examples of playing the times and scales constitutive of what Denson and Jahn-Sudmann (2013, p. 13) call "serial interfacing" and "collective serialization." Whether in the context of literature, comics, film, or videogames, discussions of seriality in digital media often overlook the underlying processes of sampling, sending, and storing sequences of data over a single channel. Serial communication, however, is the durational substrate that ultimately governs all forms of digital seriality. From the intra-ludic levels and worlds to the inter-ludic series and sequels to the para-ludic transmedia of convergence culture, modes of seriality are contingent on these atomistic forms of serial communication that network computational media. Although both human and nonhuman players are oblivious to these underlying serial operations—what Denson and Jahn-Sudmann (2013, p. 15) call "blindness to computational temporality"—these forms of serial interfacing nevertheless structure the phenomenal, affective, cognitive experience of play within the collective serialization of consumer culture. While serial communication is the medium through which videogame play occurs, metagaming practices like tool-assisted speedrunning do not simply play videogames but attempt to play the serial interface itself.

Understanding the industrial design, electrical engineering, and computational logic of a given process or platform (via tool-assisted speedrunning) does not necessarily provide conscious access to the alien territories and alienating effects of digital seriality. However, playing the serial interface both dramatizes the difference between the duration of human experience and that of videogame consoles like the Nintendo Entertainment System and offers a possible strategy for intervening in the operations of serial media. Bogost (2013, p. 10), for his part, acknowledges that "[a]s operators or engineers, we may be able to describe how such objects and assemblages *work*. But what do they *experience?*" (emphasis original). Similarly, Hayles (2012, p. 86) suggests, "there can be no account of how duration is experienced by objects." On the other hand, in his forthcoming book, *Feed Forward: On the "Future" of 21st Century Media,* Mark Hansen (forthcoming, pp. 24-25) suggests it is possible to gain "digital insight" by "strategically deploying technical intervention to modulate the inaccessible operational present of sensibility." Hansen (forthcoming, p. 43) calls for "*a supplementary layer of mediation* between technical recording and human experience" and claims "where mediation once named the technical inscription of human experience, today mediation must be redirected to the task of composing relations *between* technical circuits *and* human experience" (*emphasis original*). Tool-assisted speedrunning, as it plays the serial interface and disrupts the expectations of videogame play, offers one possible example of this form of mediation—a supplementary interface between technical circuits and human experience.

Moving from serial communication to playing the serial interface, Morimoto's video also exemplifies how networked culture at the turn of the millennium (a time when

modem speeds were measured in Kbps, not Mbps) produced specific forms of serial collectivity. In this sense, tool-assisted speedrunning not only transforms platformers into puzzles, but also converts single-player software designed for the home console into massively multi-player online games as networked communities collaborate to discover new ways to play and compete with each other for the fastest time. Initially misinterpreted as a virtuosic performance, Morimoto's video inspired players to begin performing "real-time attacks" (RTAs) of console games like *Super Mario Bros.* It is no coincidence that Speed Demos Archive—a clearinghouse for collecting *Quake* demos created by Nolan "Radix" Pflug—began accepting real-time attacks of console games performed live by human players around the time Joel Yliluoma created NESvideos (the precursor of TASVideos). While not the first tool-assisted speedrun, Morimoto's video signals the genesis of these two very different metagaming communities who have subsequently changed the way games are played.[21] As one prescient forum poster noted after watching Morimoto's video in 2003, "[i]t seems like this is turning into a new genre of gaming: seeing how fast you can beat the game. And not just running through it fast, literally training to the point that you know where everything in the game is at all times" (CAPiTA 2003). Input 1 then Input 2 then Input 3 in Frame 1. Frame 1 then Frame 2 then Frame 3 in Game 1. Game 1 then Game 2 then Game 3 in Platform 1. Platform 1 then Platform 2 then Platform 3 in a decade of speedrunning the serial interface. From minutes to seconds to milliseconds, both speedrunning and tool-assisted speedrunning asymptotically approach the limits of serial play (see Figure 7).

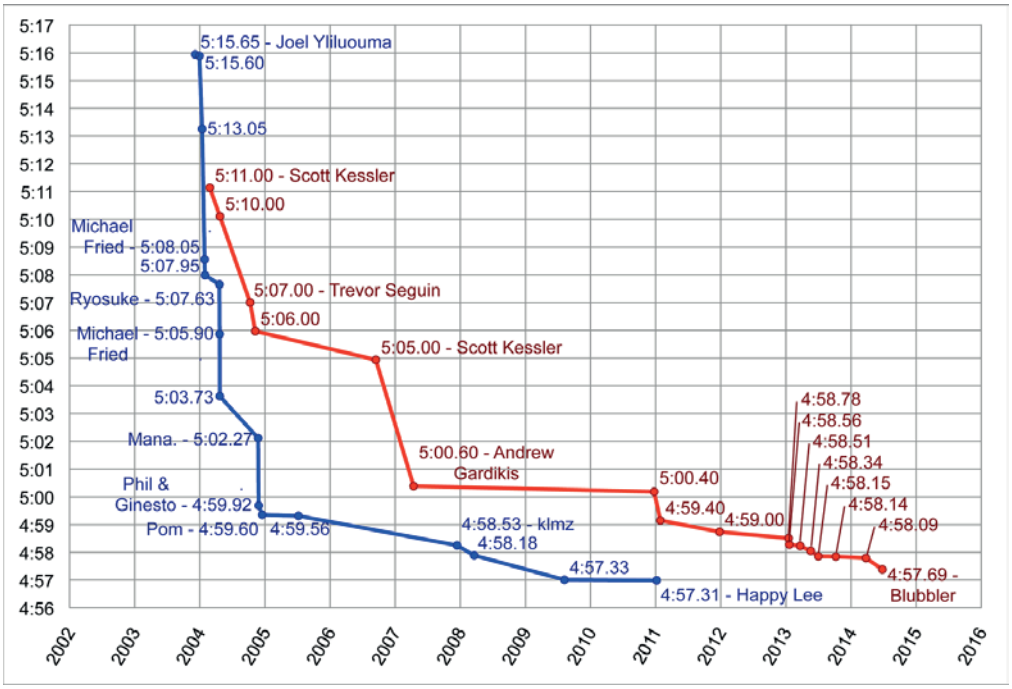

Figure 7. In a little over a decade of speedrunning (red) and tool-assisted speedrunning (blue), players in both communities are approaching the end of games such as Super Mario Bros. In this case, optimized routes and perfectly performed exploits converge on a common limit: 4 minutes and 57 seconds.[22]

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Notes

[1] The first long distance telegraph message, "WHAT HATH GOD WROUGHT," was serially transmitted from Samuel Morse at a hearing in the chamber of the Supreme Court in Washington, DC to Albert Vail at the Mount Clair depot in Baltimore and back.

[2] In Sartre's Critique of Dialectical Reason, seriality becomes a means of expressing contemporary urban anomie. For Sartre, seriality is the process by which individuals are organized and arranged in relation to one another through a social and technical apparatus. Yet membership within the series goes unacknowledged as each member remains oblivious to their larger systemic relations. Sartre (2004, p. xxviii) contrasts seriality to what he calls "group

formation," the process of becoming conscious of one's relationship to a group identity—which subsequently enables the possibility for political action.

[3] Outside of those regions that implement PAL or SECAM encoding standards for color television (e.g., Europe, Africa, Australia, most of Asia, and the eastern half of South America), the Nintendo Entertainment System (NES) operates at about 60 Hz. In Japan and North America, for example, the NES's central processing unit (CPU) runs at 1.789773 MHz. Its picture processing unit (PPU), the Ricoh RP2C02, requires 1 CPU cycle for every 3 "dots" it renders. There are 341 dots in a single scanline and 262 scanlines in a single frame. Therefore if the 1.789773 MHz refresh rate of the CPU is multiplied by 3 PPU cycles then divided by the 341 dots in each of the 262 scanlines, the system can update the screen about 60.0988 times a second or 60.0988 Hz, very close to the NTSC encoding standard. This standard refresh rate limits observable output. Although the states of the buttons can be (and in some cases are) sampled numerous times per frame, this essay assumes a standard of 60 inputs every second for the sake of clarity when describing serial input and the frame rates of NES emulators.

[4] Although there are major design differences and minor technical differences between the North American Nintendo Entertainment System (NES) and the original Japanese Famicom (FC), for the purposes of simplicity this essay refers to both systems as the NES.

[5] A microsecond (μs) is one millionth of a second.

[6] In *How We Think: Digital Media and Contemporary Technogenesis*, N. Katherine Hayles (2012, p. 91) argues that both formal and forensic "[m]ateriality comes into existence [ ] when attention fuses with physicality to identify and isolate some particular attribute (or attributes) of interest." Importantly, as is the case with shift registers and CPUs, "attention" and "interest" are not necessarily human attributes as a wide variety of mechanisms can observe, identify, and isolate patterns.

[7] Although Kirschenbaum focuses on how magnetic inscriptions of data are stored and retrieved on hard disks and drives, his distinction between the formal materiality of bits and the forensic materiality of physical media also applies to the so-called "volatile" memory stored in the semiconductors of RAM or CPU chips. Kirschenbaum (2009, p. 50) notes "even the popular myth that RAM is always absolutely volatile, gone forever at the flip of a switch, proves false; there are at least experimental techniques for recovering data from RAM semiconductor memory."

[8] As McKenzie Wark (2007, 023) claims in *Gamer Theory*, "[t]he real violence of gamespace is its dicing of everything analog into the digital, cutting continuums into bits."

[9] Unlike the other seven buttons connected to the NES-4021, the state of the "A" button transmits to the NES's CPU directly after latching. The other seven values are shifted forward and relayed only after receiving signal from the "clock" or "pulse" line.

[10] Garfield's definition of metagaming closely mirrors Mark B. N. Hansen's (2006, p. 297) articulation of media as "an environment for life." Following Marshall McLuhan's definition of media as the extensions of man and Bernard Stiegler's concept of epiphylogenesis, in Hansen's essay, "Media Theory," he "conceptualizes the medium as an environment for life: by giving concrete form to 'epiphylogenesis' (the exteriorization of human evolution) . . . media find their most 'originary' function not as artifacts but through their participation in human technogenesis (i.e., our co-evolution with technics)" (2006, p. 297). Similarly, one might argue games do not function as autonomous or abstract sets of rules but require participation or play by players (be they human or nonhuman). If media is an environment for life, then the metagame is an environment for games.

[11] Since eBaum's World incorporated at the end of 2002 the website has been the subject of multiple lawsuits and copyright claims by corporate entities, Internet communities, and individual users. Perhaps the company's best known infringement (aside from Viacom's cease and desist letters targeting an interactive soundboard based on copyrighted clips of Howard Stern) was the misappropriation and watermarking of the "Lindsay Lohan does not change facial expressions" or "Lohan Facial" .GIF originally released on YTMND.com by Derek Lutz (Kushner 2006). "The face that started a war" was finally removed from the site after multiple denial-of-service (DOS) attacks, on-site delivery pranks, and other threats from individual Internet users (Lutz 2005).

[12] The history of media players is remarkably difficult to trace due to the separation between discussions of video content and video players on online forums. Since the Windows Media Video file format was new in 2003, only certain video players included codecs able to interpret .WMVs such as Windows Media Player, RealPlayer, Media Player Classic, and VLC Media Player. Because of the large file size and new format, some users were not able to see Morimoto's *Mario 3*: "::tear:: I couldn't get it to open. I guess too many hits to the page. But just hearing you guys talk about it... wow. That's both impressive and frightening" (mikomonk, 2004).

[13] Like the original *Super Mario Bros.*, movement speed and collision detection in *Super Mario Bros. 3* are based on manipulating Mario's position on the screen. Position is calculated at a "subpixel" scale stored within a single byte of RAM at memory address 0x074D. Despite the fact that a byte can represent 256 discrete values, in *Mario 3*, the byte at 0x074D is incremented by 16, thus subdividing subpixel into sixteenths of a pixel (adelikat et al. 2014). This value is updated sixty times a second, according to the speed of both the Nintendo Entertainment System's PPU and the refresh rate of CRT television screens that comply to the NTSC color encoding standard.

[14] In their "Workers' History of Videogames," Nick Dyer-Witheford and Greig de Peuter (2009, p. 3) frame Mario as a "working-class hero," "an overall-clad, cloth-capped industrial artisan who liberates Princess Toadstool by overcoming a series of bosses."

[15] Bored while on exchange at the University of Central Arkansas in 1999, Hiroyuki Nishimura built a text-based bulletin board with a twist: anonymity. Over the next

decade, 2channel became one of the most popular websites in Japan and, in 2006, was followed by Nishimura's Nico Nico Douga, a video portal (originally a Japanese frontend to YouTube) that allowed users to anonymously overlay comments on top of video (Katayama 2008). 2channel, abbreviated as 2ch, is a subtle reference to radio frequency modulators—a standard video and audio interface between videogame consoles like the Famicom and channel 2 of most Japanese televisions.

[16] The spelling, punctuation, and typography in this passage and all subsequent quotations from online forums have been transcribed exactly as they were found.

[17] In "Race and/as Technology" Wendy Chun (2012, p. 38) asks, "[t]o what degree are race and technology intertwined? To what extent can race be considered a technology and mode of mediatization, that is, not only a mechanism, but also a practical or industrial art?" In this particular case, the comments of the posters—a mixture of aversion and envy—conflate the machinic apparatus and the objectified, racialized body of the imagined Japanese player on to which the posters project their fantasies about both the content and production of Morimoto's video. The "tool-assisted speedrun" becomes a "race-assisted speedrun" as race itself functions as a technology through which forum posters interface with Morimoto's playthrough of *Super Mario Bros. 3.*

[18] Although Morimoto's *Super Mario Bros. 3* video was a popular and widespread example of tool-assisted speedrunning, similar techniques had been used to play both *Doom* (1993) and earlier *Super Mario Bros.* titles. As the founder of TASVideos.org, Joel "Bisqwit" Yliluoma, notes in a 2005 interview, "[w]hile Morimoto's movie was the igniter for the western world to start making tool-assisted emulator movies using the feature called 're-recording', Morimoto's movie wasn't the first of its kind. According to my knowledge, another Japanese person called Tokushin made also a *Super Mario Bros 3* movie in 2001, and yet another Japanese person called Yy made a tool-assisted *Super Mario Bros* movie in 2000. . . . the exact origin of tool-assisted speedruns (emulator or not) is not known, [but] it's clear that it was Morimoto's movie in November 2003 that made the phenomenon world-wide famous" (Yliluoma 2005). Although the early history of tool-assisted speedruns of PC games in the form of "speed demos" is well documented in the work of Henry Lowood and James Newman, Morimoto's video represents a major turning point in the history of the practice as applied to console games.

[19] Yliluoma also archived Morimoto's previous projects including speedruns of *Rockman* (1987), *Rockman 2* (1988), *Youkai Douchuuki* (1988), *Hi no Tori Hououhen: Gaou no Bouken* (1987), *Atlantis no Nazo* (1986), reproducing and re-rendering Morimoto's work as high-quality .AVIs available via bittorrent.

[20] Since Morimoto's original movie file was created before TASVideos.org was established, it was reproduced and republished by Yliluoma for archival purposes in the fall of 2006.

[21] At Awesome Games Done Quick 2014, a week-long charity event that raised over a million dollars for Médecins Sans Frontières, members of speedrunning

community were joined for the first time by tool-assisted speedrunners who demonstrated their metagaming practice live and on physical hardware by electrically manipulating the NES-4021 through a custom controller. Automated controllers, colloquially referred to as “NESbots,” are able to play the serial interface in real-time, verifying that input designed for digital emulators like Famtasia can reliably reproduce the output patterns of tool-assisted speedruns on original hardware when synced with the speed of the Nintendo Entertainment System and translated into electrical currents running through the NES-4021 shift register.

[22] Because of a discrepancy in standard timing between the tool-assisted speedrunning community on TASVideos.org and the speedrunning community on SpeedDemosArchive.com, these records appear closer than they actually are. In general, speedrunners begin their timers when they first gain control of the game (i.e., at the beginning of Level 1-1 in *Super Mario Bros.*) whereas tool-assisted speedrunners begin timing when the system is turned on. If the tool-assisted speedruns (blue) were retimed according to RTA standards (red), they would each be approximately 3.27 seconds faster.

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“Tap, tap, flap, flap.” Ludic Seriality, Digitality, and the Finger

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“Tap, tap, flap, flap.” Ludic Seriality, Digitality, and the Finger

TILL A. HEILMANN

Flappy Bird

In early 2014, a small game for Apple iOS and Google Android devices called *Flappy Bird* enjoyed a short-lived but spectacular success. The game by Thai indie developer Dong Nguyen had been published almost a year before but for months had remained one of thousands of little-noticed titles on Apple’s App Store. Then, almost overnight in December 2013, it shot to the top of the download charts and started earning Nguyen $50,000 a day from in-game advertisements. Suddenly, *Flappy Bird* was all over the news sites and social media. Players found the game frustratingly difficult but highly addictive. Accusations arose that Nguyen had plagiarized from other games and that he had used bots to promote his title. Amidst a rising media frenzy, the reclusive developer eventually pulled the game from Apple’s and Google’s online stores in March 2014. In the guise of countless clones, however, *Flappy Bird* remains popular to this day (so much so, in fact, that many of these clones serve to spread malware; cf. McAfee 2014).

The story of *Flappy Bird* has been told many times. The purpose of this paper is not to give another account of the game’s “rise and fall” (see Kushner 2014, Rigney 2014), to try to explain its success (see Juul 2014), to analyze its carefully balanced mechanics (see Stuart 2014), to comment on its roots in game history and its aesthetic allusions (see Schreier 2014), or to give an existentialist critique of the gameplay (see Bogost 2014). Instead, *Flappy Bird* is approached here as a paradigmatic example of seriality in videogames in order to discuss some theoretical aspects of digitality, both in games and at large. Formulated in the most general way, the question this paper addresses is this: What is “digital” about digital media? Let us begin our investigation of this question with a detailed description of *Flappy Bird*.

After selecting “START” on the splash screen (the only other options being “SCORE” and “RATE”), you are presented with what might be called the instruction screen: Viewed from the side, you see a small yellow bird—“Flappy Bird” himself—against a backdrop of turquoise sky. Flying from left to right, Flappy Bird is a roughly ball-shaped creature with huge white eyes (of which you can see only one), a big red beak that looks more like a pair of painted lips, and small wings (of which, again, you can see only one). The ground at the bottom of the screen is a straight band of striped green with a thin black line on top. The horizon is lined with treetops, skyscrapers, and a sea of white clouds. At the top of the screen, there is a blocky “0” in black and white (apparently some sort of counter) and a pause button in the upper left-hand corner. While the game waits for your input to begin, Flappy Bird flaps its small wing(s), lightly bouncing through the air while the ground scrolls by endlessly. In the center of the screen sits a grey, motionless “ghost” double of the bird. Below it there is a black upward-pointing arrow and a white cartoon hand with the index finger

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also pointing upwards, next to which is a red guide-post arm that reads “TAP.” Right above Flappy Bird and its ghost, words spelled in big letters tell you to “Get Ready.”

Now you touch the screen with your finger (or your thumb[1]) and Flappy Bird’s “ghost” double, along with the instructional signs and messages, disappear as the game begins: After an initial bounce upwards and without further action from your side, Flappy Bird stops flapping its wing(s) and starts to dive steeply towards the ground. As you were told to do by the game’s instructions, you quickly tap the screen and the bird reacts by moving its wing(s) once, sending it up a bit. Every time you tap the screen, the bird’s wing(s) flap and it gains some altitude. When you don’t, it loses height fast. Just as you have grasped this basic mechanism and have learned to keep Flappy Bird from crashing, green pipes appear from the right side of the screen. Protruding up from the ground and hanging down from the top of the screen, each pair of pipes leaves a small gap in between. Coming one after the other, the evenly spaced pairs of pipes are the only enemy Flappy Bird faces—a simple yet dangerous obstacle. When Flappy Bird hits a pipe (and the game’s collision detection is unforgiving), it falls to the ground with a whacking sound and the game ends. Another tap lets you play again, and *Flappy Bird* starts over from the beginning.

Whenever Flappy Bird successfully passes a pair of pipes, the counter at the top of screen is increased by one. Manoeuvering the bird through the gaps sounds easy enough, but due to the physics of bird flight involved and the carefully chosen width of the pipes and the spaces between them, it proves extremely difficult. You will probably need half a dozen tries or more just to master the first pair of pipes. And it doesn’t get much better after that. Still, no matter how many pipes you pass, nothing ever changes except the random vertical position of the gaps and the steadily increasing counter. All you see is more and more pipes, and all you do is tap and tap again and again. This most simple of gestures—touching the screen with the tip of a finger, it doesn’t even matter where you put it—is the only interaction you have with the game. Reduced to a single rudimentary mechanism and having no other goal than for Flappy Bird to stay airborne and alive as long as possible, the game forces you to concentrate on the temporal pattern of minute bodily movement, the right rhythm of the hand, the constant drum of your finger. It consists entirely of a (potentially infinite) series of minimal inputs to and outputs of the machine: Tap, tap, flap, flap.[2]

Ludic Seriality

A serially organized input and output circuit between man and machine is a basic trait of all videogames. On the most fundamental level, “seriality” simply means that any kind of minimally complex behavior necessarily unfolds as a chain of actions in time. In videogames, these chains of actions constitute specific temporal “patterns of repetition and variation” (Denson and Jahn-Sudmann 2013, p. 13) which are characteristic of different sorts of gameplay and genres (e.g. shoot ‘em up, text adventure, or city-building game). Denson and Jahn-Sudmann have proposed the term “ludic seriality” to designate the different aspects of seriality pertaining to (video-)games and to call attention to the various “aesthetic forms and the cultural practices of serialization as they are articulated in and around interactive digital media” (pp. 10-11). Denson and Jahn-Sudmann distinguish three categories of ludic

serialization: para-ludic, inter-ludic, and intra-ludic seriality. Whereas para- and inter-ludic seriality occur between individual games (e.g. in the form of game sequels and series) and in relation to their larger cultural framework (e.g. as games adapted from other media such as comic or film), intra-ludic seriality manifests in recurrent ludic elements and structures within games: power-ups, lives, boss fights, levels, and so on.

Let us try to apply Denson and Jahn-Sudmann's categories to an analysis of *Flappy Bird*'s serial character. While no obvious cases of para-ludic seriality come to mind, examples of inter-ludic seriality abound. The origins of the game's concept can be traced back to early arcade titles like *Defender* (Williams Electronics 1980). More specifically, though, *Flappy Bird*'s simplistic execution of the endless side-scroller formula has an unmistakable forerunner in a little-known Flash-based browser game called *Helicopter Game* (SeeThru.co.uk 2000), a tie-in to a BBC TV show. Particularly striking are the similarities to *Piou-Piou contre les cactus* (Zanorg 2011), a side-scroller in which you have to navigate a small yellow bird with big red lips (!) through a row of green cacti growing up from below and hanging down from above (!). Indeed, there have been repeated accusations of plagiarism, all of which Dong Nguyen has firmly denied.[3] In addition to the overall design of the game, certain of its elements also seem to be heavily inspired by earlier games. The green pipes Flappy Bird has to evade look a lot like the pipes from Nintendo's *Super Mario* series. And the sound *Flappy Bird* makes when you pass a pair of pipes is very reminiscent of the famous *Super Mario* coin sound effect. All in all, *Flappy Bird* takes up and continues a long series of genre titles on the one hand and a distinct tradition of 8-bit aesthetics rooted in early Nintendo culture on the other hand. And at least as numerous as the serial forms it carries on in this way are the inter-ludic serializations that refer back to *Flappy Bird*—particularly, the dozens of clones that appeared for iOS and Android devices and for web browsers after Ngyuen removed *Flappy Bird* from the iTunes App Store (cf. Tassi 2014).

Of course, *Flappy Bird*'s serial character shows strongest on the intra-ludic level. Seriality, one could say, is the kernel of the game. It is, in fact, the one and only principle of gameplay. To play *Flappy Bird* means to perform a series of taps on the screen in order to guide the bird successfully through a series of pipes so as to increase the counter one by one over the series of natural numbers. Every pair of pipes, every tap of the finger, every beat of the wing and every stepping of the counter is just like the one before, the only variation being in the position of the gaps between pipes, the cadence of the finger, the bird's altitude and pitch and the value of the counter. In concept, aesthetic, and practice, *Flappy Bird* presents us with seriality stripped down to a minimal yet enjoyable form.

Operator Action

The simplicity of *Flappy Bird*'s gameplay certainly contributes to its addictive appeal. It also makes evident an important point about play in videogames. "Play itself, we must recall, is an essentially serial activity" (Denson and Jahn-Sudmann 2013, p. 8). Seriality is not an option you can choose (or choose to ignore) when designing or playing a game. It is the very structure of play. "*[V]ideo games are actions,*" as Alexander Galloway (2006, p. 2) puts it. "To understand video games, then, one

needs to understand how action exists in gameplay" (p. 3). What appears as a "*unified single phenomenon*" (p. 5) in the course of a game can be analyzed into actions caused by the player—or *operator actions*, as Galloway calls them, e.g. moving an avatar through the game world—and actions caused by the hardware and software used to play—called *machine actions* by Galloway, e.g. movements by enemies. A particular play of a game, then, can be described as the series of operator and machine actions that constitute the gaming process from beginning to end.[4]

The word "series" in the last sentence implies more than just a succession of actions. It also means repetition. For the choices a player has in playing a videogame are never without limit. The range of operator actions can be very narrow, as is the case with *Flappy Bird*, or it can be very broad, as is the case with *Flight Simulator X* (Microsoft Game Studios 2006)—or it can be anywhere in between. But just as the number of game rules or mechanisms is always finite, so is the number of possible operator actions. A title like *Flight Simulator X* may tend to obscure this fact while one like *Flappy Bird* rather exposes it. In either case, though, the player is only free to choose from a finite set of options. In *Flappy Bird*, there is only "tap to flap" (and "don't tap to dive," if you want to count inactivity as an option). In *Flight Simulator X*, you can pilot a Boeing 747 aircraft around the world using dozens of controls in the simulated cockpit of the plane—but you cannot walk around the passenger cabin and have a drink at the in-flight bar. Playing a videogame, in short, means performing a series of predetermined actions in which some or all of the actions performed occur repeatedly. The elementary form of intra-ludic seriality is thus not to be found in recurrent ludic structures (levels, lives, etc.) or features (enemies, power-ups, etc.) but in the set of operator actions that a player may execute.

Flappy Bird and *Flight Simulator X* represent two extremes in a continuum of intra-ludic seriality. Considering this continuum, one can characterize videogames by the way in which their gameplay implements the serialization of operator actions. A first, fundamental distinction could then be made between games that overtly exhibit serialized action and games that don't. A game may emphasize seriality not only by using recurrent structures and features but also by keeping the number of operator actions low, down to the bare minimum of one, as in *Flappy Bird* or other endless runners like *Canabalt* (Semi Secret Software 2009). Conversely, it can de-emphasize seriality not only by presenting the player with multiple, rich scenarios (levels, "worlds" etc.) but by offering her a wide range of options, as in *Flight Simulator X*'s dozens of cockpit controls. The two types of games described—let's call them *strongly* and *weakly serialized* for the sake of simplicity—correspond roughly to the contrary conceptual models of gameplay advocated by ludological and narratological positions. Strongly serialized titles like *Tetris* (Pajitnov et al. 1987) showcase the abstract, formal, rule-based nature of (video-)games theorized by ludologists. Weakly serialized titles like *Heavy Rain* (Quantic Dream 2010), on the other hand, display the narrative qualities of games discussed by narratologists.

Arcade Legacy

To be sure, the distinction between strongly and weakly serialized games is as problematic as the dichotomy between the ludological or narratological nature of

videogames. Nevertheless, the distinction can serve as a basis for further investigation into the workings of intra-ludic seriality. Historically, videogames seem to have started out strongly serialized and have since gained an ever greater potential for weakly serialized gameplay. This is, of course, mainly due to the limited resources of the early hardware and software and the spectacular advances in integrated circuits during the last three decades. As arcade machines, PCs, and game consoles grew more and more powerful, the design of increasingly complex games became possible. That is how, in the genre of racing games, we have come from simple arcade racers like *Night Driver* (Michon 1976) to "real driving simulators" like *Gran Turismo 6* (Polyphony Digital 2013) and open world action-adventures like *Grand Theft Auto V* (Rockstar North 2013).

Indeed, arcade titles have been a major driver of strongly serialized gameplay. During the late 1970s and early 1980s—right before PCs and game consoles became mainstream and brought videogames into most private households—they were one of the principal sites for playing videogames. As the hardware used by arcade machines was relatively simple (typically one or more 8-bit microprocessors), so were the games. The decisive factor in gameplay design, though, was not the hardware but the socio-economic setting of the arcades, which forbid complex and elaborate forms of play. Arcade games not only had to appeal to a wide demographic; above all, they had to be easy-to-learn but hard-to-master so that they would generate a constant stream of coins being deposited into the machines. Steep learning curves (intuitive controls for a handful of operator actions) and steep increases in difficulty are therefore characteristic of arcade titles. Playing in the arcades is almost by definition a serial activity: "Game over. Insert coin to play again."

Intra-ludic seriality permeated arcade games of the "golden age," their recurrent graphics and sounds mirroring the repetitive gameplay on the machine's surface. Multiple lives, linear progression through "screens" or levels, cyclical or infinite play[5] and scoring are structural hallmarks of arcade titles, exemplified by classics such as *Space Invaders* (Taito 1978), *Asteroids* (Atari 1979), *Galaxian* (Namco 1979), *Pac-Man* (Namco 1980), *Missile Command* (Atari 1980), and *Centipede* (Atari 1981). *Flappy Bird*'s design—the pixelated aesthetic, bare-bones game mechanism and extremely high difficulty—places it squarely within the tradition of these strongly serialized titles. It is the paradigmatic case of seriality in play. By reducing its gameplay to an absolute minimum, *Flappy Bird* reveals the fundamental dynamic embodied by arcade games: More often than not, playing a videogame means doing a series of actions *with the goal of being able to continue doing these actions for as long as possible.* The serialization of operator action aims at the (ideally endless) perpetuation of the series.[6] Game success is succession of operation[7]: You shoot rows of aliens so you can shoot even more aliens. You eat pellets (and avoid ghosts) in order to be given new pellets (and new ghosts). You destroy missile after missile only to be faced with yet another round of missiles. You flap the bird's wings to keep it flying, flapping its wings again and again. Play is its own purpose.

Sticks and Buttons

With the commercial success of the PC and the third generation of game consoles in the 1980s came the decline of the arcade. The social setting and ever-increasing

power of home platforms allowed videogames to evolve, and titles like *Elite* (Braben/Bell 1984), *The Legend of Zelda* (Nintendo R&D4 1986), *Maniac Mansion* (LucasFilm Games 1987), *Pirates!* (Microprose 1987), *SimCity* (Maxis 1989), and *Final Fantasy IV* (Square 1991) advanced the weakly serialized format. In recent years, however, the massive proliferation of smart phones, tablets, and portable media players has spawned a boom of "mobile games": small titles such as *Flappy Bird* that embrace the qualities of early arcade games and mark a return to strongly serialized gameplay. Reality, though, is more complicated than is suggested by the picture of a historical cycle from basic forms of gameplay to more sophisticated ones and back to the simplicity of mobile games, from arcade machines to PCs and consoles to mobile devices, from entertainment centers to private homes to backpacks, purses, and pockets. For one thing, the range of operator action is heavily dependent on the genre of the game. Certain genres (prevalent in arcade machines), like shoot 'em ups, favor a more strongly serialized gameplay while others (prevalent on PCs and game consoles), like role-playing games, strive for greater freedom of choice. Text adventures are a case in point here, with some of the earliest titles such as *Zork I* (Infocom 1980) already demonstrating an impressive range of possible operator action owing to their clever text parsers. Secondly, while titles like *Heavy Rain* do provide a multitude of in-game actions, these actions are performed by the player through the repeated use of a few control elements, typically the buttons and sticks of a gamepad.

Naturally, this does not apply only to *Heavy Rain* and similar titles, but it is true for all kinds of videogames. And this is why, when speaking of operator actions, we have to distinguish carefully between *in-game actions* (e.g. the change in *Pac-Man*'s direction of movement through the maze displayed on the screen) and *interface actions* causing in-game actions (e.g. the push of the joystick mounted on the arcade cabinet) (cf. GamesCoop 2012, p. 55). For playing a game is always *playing at an interface,* whether the interface be a joystick, gamepad, mouse, or keyboard (or, more rarely, the player's arms, hands, and feet tracked by motion sensing hard- and software). Trivial as the point may seem, it deserves closer examination.

In some cases, the same in-game action can be effected by way of different interface actions. For example, when running the MAME emulator software to play old arcade titles on a personal computer, the player can choose whether she wants to press keys on a keyboard or push a joystick to, say, direct Jumpman over a series of platforms. Far more common, though, is for the same interface action to cause a variety of different in-game actions depending on the game situation. In *Super Mario Bros.* (Nintendo EAD 1985), the gamepad's A and B buttons control two separate actions each. Pressing the A button makes Mario (or Luigi) either jump or swim, depending on the situation, while the B button makes the character either run or throw a fireball. Because the link between interface and in-game action is determined by computer code, the possibilities are, in effect, endless, restricted only by the concrete means of input and the design of the game. So, in *Heavy Rain*, a few sticks, buttons, and triggers on the DualShock gamepad can control a myriad of in-game actions, from throwing a punch to determining the tone and topic of a conversation to using an asthma inhaler.

Hands and Fingers

The many different ways in which in-game and interface actions can be linked deserve a study of their own. Concerning the question of intra-ludic seriality at hand, we may content ourselves to state that restriction to a small number of possible in-game actions, standing in a strict one-to-one correspondence with respective interface actions, emphasizes the serial character of gameplay and produces strongly serialized games (whereas a larger number of in-game actions, in conjunction with one-to-many correspondences with the interface, de-emphasizes the serialization of operator action and leads to weakly serialized games). *Flappy Bird* is exemplary in this regard. One single interface action (“tap”) causes one single in-game action (“flap”).[8]

But whatever the relation between in-game action and interface action might be: in the end, all action in gaming comes down to a sequence of swift finger movements. To be sure, there are other kinds of interfaces, using speech and gesture recognition like the Microsoft Kinect and PlayStation Move systems, and these have gained prominence in recent years with titles like *Dance Central* (Harmonix 2010) and *Just Dance 3* (Ubisoft 2011). It is telling, though, that such interfaces are usually promoted and experienced as “extraordinary” controls—the exception rather than the norm. The norm is the use of hands and fingers on sticks and buttons. Whether it is *Space Invaders*, *Grand Theft Auto V*, or *Flappy Bird*—what we are really *doing* when playing these games is guiding our hands and fingers through a series of motions, pushing mice and sticks, clicking buttons and keys, swiping, pinching, and tapping trackpads and screens. And this fact, surprisingly, brings us back to our initial question about the nature of digital media.

Denson and Jahn-Sudmann treat *digital* seriality as a special case of popular seriality and suggest that the current digitization of popular media constitutes a “transformation, if not a radical break, in modern media history” (2013, p. 5). As computerized media enforce the “logic of the database” (Lev Manovich) on today’s culture, established serial forms following the linear logic of the narrative give way to novel forms of seriality characterized by interactivity, flexibility, and synchronicity (cf. Denson and Jahn-Sudmann 2013, pp. 3-5). Denson’s and Jahn-Sudmann’s approach opens up new possibilities for the study of serialities in popular culture by calling attention to “the aesthetic forms and the cultural practices of serialization as they are articulated in and around interactive digital media” (pp. 10-11). Taking up the category of intra-ludic seriality, we have followed a path of investigation that has led us to consider the role of hands and fingers in playing videogames.

In the remainder of the paper, I would like to broaden the perspective on digital media a bit. I will try to sketch, very briefly, an alternative view of digital seriality in particular and of digitality in general—one that seeks to strategically shift the common notion of the word “digital” by bringing into focus the primary organ of digitality: the fingered hand.

Digital Seriality

Let us step back from the topic of videogames for a moment and start with this basic premise: *There is no seriality but digital seriality.*

A series is a row, succession, or sequence. The word derives from the Latin *serere* meaning "to link," "to join," or "to string together."[9] Analytically, of course, what is linked or strung together in a series are separate parts. A series is a series in the strict sense of the word only when it is possible, at least in theory, to discern the individual parts of the sequence. (Otherwise, what you have is not a series but an undifferentiated, continuous wholeness, e.g. a line, curve, or wave.) For a series to exist, there need to be at least two discrete parts "in" it. Arranged in the right way, discrete parts act as elements of a digital system.

Note the distinction I draw between "discrete" and "digital." Regarded in isolation, parts are simply discrete—discreteness meaning they are individual objects insofar as they can or could (if only hypothetically) exist independently of each other. It is when they are combined to constitute a system that discrete parts turn into *digital* elements. For it is the structural configuration of separate parts in a larger framework that renders each part of the framework a digital element. This is to say that "digital" is a relational or a functional term while "discrete" is typically used as an ontological term.[10] Collected in a glass jar, wooden beads are discrete objects; strung on wires in a frame, the same beads can act as digital elements of an abacus. Compared to the complex operations of the abacus, the functional systematicity of the series is a simple but powerful mechanism: The defined succession of elements permits easy and reliable shifting from any given position to every other by "moving" stepwise in one "direction" of the sequential order.

To be sure, not all digital systems are plain and simple series (as the abacus shows). But the series, being a very basic type of digitality, is a fundamental form of human culture. Seriality governs, among others, the two most important symbol systems of occidental culture: numerals and (alphabetic) letters. For more than 3,000 years, the standard sequence *a, b, g(c)* has given order to the sets of written characters from the Ugaritic writing system to the Phoenician, Hebrew, Greek, and Latin scripts and the modern Western alphabets (cf. Naveh 1982, p. 11). The seriality of the alphabet allows, for example, for sorting and collation of information. Cornerstone techniques of data processing, alphabetic sorting and collating have made possible tools and aids such as dictionaries, encyclopedias, filing systems, library catalogues, and telephone directories. Our most recent and sophisticated tools for data processing, on the other hand, implement the seriality not of letters but of numbers: digital computers.

Numbers and Fingers

What is "digital" about digital computers? Commonly, the word is used to denote the fact that computers operate with instructions and on data that are expressed in numerical form. In science as well as in the humanities, numerical representation is taken to be one of the key principles of computers and digital media (cf. Manovich 2001, pp. 27-28). This notion of the "digital" fits well with the distinction between

discrete and digital I have given above. On the level of both computer hardware and software, instructions and data are reduced to a minimal set of (usually two) discrete states: on and off in the case of the current in a transistor, one or zero in the case of a bit. Within the framework of circuits and programs, these discrete states operate as digital elements of logic gates and algorithms. Of course, integrated circuits and computer programs can be highly complex configurations with millions or even billions of elements.[11] Ultimately, though, electronic computation is nothing but a sequence of numerically expressed instructions and data to be executed and processed one after the other by a machine capable of carrying out the corresponding operations. On the diachronic axis and the most fundamental level of hard- and software, digital computing comes down to a series of (typically binary) numbers registering physically and logically in changes of state of transistors and bits.[12]

But the term “digital” not only designates the numerical representation of instructions and data that lies at the heart of electronic computation. The word also points us to the origin of number itself. Historically, the idea of abstract number developed from mastering the natural sequence *one, two, three* The concept of the (infinite) sequence of natural numbers, in turn, most certainly goes back to the technique of finger counting (cf. Dantzig 1940, pp. 9-10). The human’s “number sense,” i.e. our ability to recognize the number of visually grouped objects without counting them, is extremely limited, typically not exceeding four objects (cf. Way n.d.). To correctly determine the number of larger quantities one must resort to counting. And in every culture that knows how to count (beyond the first few numbers, anyway), counting seems to be inextricably linked to the fingers of the hand, our *digits*. For in our fingers, humans have always close “at hand” a set of proxies for all things to be counted.

> It is to his *articulate ten fingers* that man owes his success in calculation. It is these fingers which have taught him to count and thus extend the scope of number indefinitely. Without this device the number technique of man could not have advanced far beyond the rudimentary number sense. And it is reasonable to conjecture that without our fingers the development of number, and consequently that of the exact sciences, to which we owe our material and intellectual progress, would have been hopelessly dwarfed. (p. 10)

In the first sentence of this passage, Dantzig makes a point (haplessly phrased and maybe even unintentionally) that is completely obvious, while its significance is easily overlooked: The fingers of the human hand make up a closed set of bodily “elements.” Together, they constitute a functional unit. But it is not only the fingers that, as Dantzig says, are “articulate.” So are, on a higher level, the hand and the body as a whole. The articulation of one hand into five individual yet interrelated fingers provides a set. Two articulated hands provide two sets or, to put it another way, a set of sets. With our two hands and two feet, we are given multiple series of digits. Elaborating Dantzig’s idea, Menninger claims that the multiple but finite seriality of fingers (and of toes) has led to the discovery of the single but infinite seriality of natural numbers:

> While matching [things] with pebbles and parts of the body will only result in a sequenced auxiliary set, the set of fingers and toes is by nature *articulated*: 5 fingers complete a hand, 10 two hands; 20 hands and feet! [ ] What is the

> unforeseen implication of this articulation? It shows the way by which the counting series [Zählreihe] can proceed beyond the first words: Once 'man' is counted, the second counting begins in the same way as the first, then the third, the fourth and so on. In this way, the levels are stacked up. *Articulation creates the regular progress of the counting series* [Zählreihe]*. In this deep sense, articulation is a gift from nature.* (Menninger 1957, pp. 47-48; *my translation*)

Language often attests to the link between finger and number: The English word *digit*, for example, has preserved the double meaning of the Latin *digitus* for "finger" (or "toe") and for the numerals 1 through 9; in Slavic languages, the words for "hand" (or "fist") and "five" are closely related; also, many of the world's tongues take ten, the number of fingers on both hands, as the base for numeration (meaning numbers greater then ten are expressed as compounds of individual words for ones, tens, hundreds and so on). Numbers, in short, are digital not only in that they are sequenced, discrete "objects" but also in that their concept originates in the ordered, discrete digits of the hand.

Digitality

What is "digital" about digital media? Every answer seems to point, like an index, at our fingers—the fingers that taught us to count and to devise of number as an abstract concept (cf. Dantzig 1940); the fingers that, since the beginning of graphism, have guided our instruments in writing and drawing (cf. Leroi-Gourhan 1964) and thus made possible mathematics (cf. Mersch 2005); the fingers that implemented mathematics in ever more technologically advanced machines and media, up to and including the computers of our day (cf. Kittler 1993); the fingers we use constantly to press the keys, buttons, and switches on almost any electric, electronic, or digital device from an alarm clock to an automated teller; the fingers that let us control the various interfaces of digital media, from the keyboard of our desktop computer to the touchscreen of our mobile phone; the fingers that help navigate Flappy Bird through pipe after pipe by a series of well-timed taps, counting the immemorial series of numbers: 1, 2, 3,

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Notes

1 The thumb, of course, also counts as a finger; cf. Trumble (2010, pp.207–221).

2 Incidentally, the game’s original title was *Flap Flap*.

3 See, for example, Schreier (2014).

4 Sid Meier famously defined a game as “a series of interesting choices” (Rollings and Morris 1999, p.38).

5 While many arcade games theoretically offer an infinite play, some do have an end, if only because of programming errors like the famous “split-screen” bug in *Pac-Man*.

6 There are exceptions, of course. In racing games like *Pole Position* (Namco 1982) or *Wipeout* (Psygnosis 1995), the goal is usually to finish a course as fast as possible. In many titles, though, achieving this goal qualifies the player to race on yet another course so that the principle of perpetual seriality applies even in this case.

[7] In competitive games, like *Pong* (Atari 1972), the goal is to make one's own series of actions outlast, exceed, or break the opponent's series.

[8] Even starting the game with the first tap on the screen makes Flappy Bird beat his wings.

[9] The reconstructed Proto-Indo-European root of the Latin verb *serere* and noun *series* is *ser-.

[10] John von Neumann, one of the fathers of digital computing, remarked that "the question regarding the continuous or digital character relates to the main functional traits or large, reasonably self-contained parts of the entire organ"; quoted in Pias (ed.) (2003, p.177).

[11] In 2014, an Intel Core i7 CPU has more than a billion transistors, while the source code for Google's Chrome browser has about five million lines of code.

[12] Note that in the "real world" of transistors there are no precise levels of voltage corresponding to the discrete values "on" and "off" or 1 and 0. Rather, there is a range of voltage and the actual level of voltage is compared to an internal threshold separating "high" from "low" signal levels which in turn represent 1 and 0 (or vice versa).

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Prolonging the Magic: The political economy of the 7th generation console game

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Prolonging the Magic: The political economy of the 7th generation console game

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In the summer of 2008, the seventh generation of video game consoles was in full swing. During that year's E3 Media and Business Summit, the game industry's annual game trade show and a major marketing event, a gleeful Don Mattrick took the stage to outline the Xbox 360 strategy for the years to come. "[Welcome] to Xbox 360", Microsoft's Senior Vice President opened the press conference, "home of the biggest blockbusters and home to fun and entertainment for everyone. [ ] Big franchises are a mainstay of our industry. And the biggest sellers are on Xbox 360" (Nicholas 2008).

Mattrick's opening statement neatly summarizes the core tenets of the publishing strategy pursued by Microsoft. Above all, his statement singles out the importance of the blockbuster, a term generally associated with post-classical Hollywood movies (cf. Cucco 2009, Stringer 2003). Drawing on the concept of the blockbuster makes sense because the game industry's console segment compares well with the hit-driven nature of large parts of the movie industry. Both rely heavily on high-risk, high-return productions that have "high production and marketing costs" (Egenfeldt Nielsen et al. 2008, p.17; cf. Rifkin 2000, p.199). In addition, both share a mode of production and circulation that can be characterized as rationalized and technology-driven (Tschang 2005, Tschang & Szczypula 2006).

Apart from highlighting the scope and scale of blockbuster productions, Mattrick emphasizes the importance of "big franchises." Five action-themed titles in particular were singled out during the trade show: *Halo 3* (Bungie Studios 2007), *Call of Duty 4: Modern Warfare* (Infinity Ward and Treyarch 2007), *Bioshock* (Irrational Games and Digital Extremes 2007), and *Assassin's Creed* (Ubisoft Montreal 2007), all released during the 2007 holiday season, along with *Grand Theft Auto IV* (Rockstar North), released April 2008. These titles illustrate well how the franchising strategy—that is, the serialization of discrete game titles, or what Denson and Jahn-Sudmann (2013) label "inter-ludic seriality"—dominates video game publishing. Three of these titles are the third and fourth installments in a series, whereas *Bioshock* and *Assassin's Creed* are positioned as "franchise starters," launched early in the console cycle to establish new series.

While blockbuster economics and the logic of serialization are not exclusive to the game industry, what does differentiate video game publishing from other sectors in the cultural industries is the cyclical introduction of standardized hardware platforms, typically every five to seven years (Schilling 2003). From the introduction of the Magnavox Odyssey (1972) onwards, the console market segment has been economically driven and technologically structured by a series of hardware cycles. Apart from changes in game technology, every consecutive console cycle is a moment of disruption and marks a shift in gamer discourse, institutional practices, as

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well as the form and format of the blockbuster video game (cf. Bissell 2010, Chatfield 2011, pp.27-38, Dymek 2010).

The most recent cycle would be the eight generation of hardware initiated by the Wii U (2012) and complemented by the Xbox One (2013) and Playstation 4 (2013). Of particular interest to the argument in this paper is the era of the Xbox 360 (2005) and the Playstation 3 (2006). Together with the Wii these machines started the seventh console cycle, sometimes referred to as the high-definition (HD) cycle.[1] Compared to previous cycles, what defines the seventh generation is the networked nature of the hardware, combined with a leap in storage and computational capabilities, allowing for higher resolution images and thus more (photo)realistic video.

The advent of the seventh cycle should be seen against the background of a number of transformations in the wider cultural industries (cf. Jenkins 2006, Lessig 2008, Rifkin 2000). Similar to other sectors, the game industry is in a transitional phase moving from a physical, or packaged goods industry (i.e. selling boxes in retail stores) towards an on-demand circulation model based on digital distribution (Broekhuizen et al. 2013). Whereas big franchises are indeed "the mainstay" of the console segment, as Mattrick put it, what he did not explicitly allude to in his introduction is the fact that the seventh generation is specifically positioned to generate additional revenue beyond traditional retail sales. What has become a novel publishing strategy for blockbuster or "Triple-A" franchises is the digital distribution of game extensions that expand on the original stand-alone game via paid-for content in order to keep gamers engaged and to have the "disc remain fresh." In this sense, the seventh generation blockbuster game is a hybrid product, signaling the mixture of physical and digital circulation mechanisms.

To be sure, adding post-launch content to a physically distributed game predates the seventh generation. A decade ago game publishers released so-called expansion packs—a format best understood as a self-contained retail addition to a stand-alone game—for PC-based franchises such as *The Sims* (2000) or *Battlefield* (2002). Yet, I would contend that what sets the post-launch publishing strategy for the Xbox 360 and Playstation 3 apart from previous generations is the ubiquity and institutional integration of paid-for downloadable content (PDLC or DLC) for virtually all titles.

The goal of this paper, then, is to critically engage with the seventh generation blockbuster console game, specifically by drawing on political economic theory. Blockbuster games are a significant part of contemporary game culture and popular objects played by tens of millions of gamers, but also rarely theorized artifacts. It must be noted that instead of blockbuster games, gamers, critics, as well as industry professionals more often speak of "Triple-A" games. The select number of transnational console game publishers, such as Ubisoft, Electronic Arts, and Activision Blizzard, that publish Triple-A games, typically categorize them as "packaged goods"—stand-alone, disc-based titles sold primarily via retail outlets.

Rather than discussing seriality vis-à-vis a Triple-A games' "aesthetic-formal" qualities (Denson and Jahn-Sudmann 2013), the Triple-A game will be theorized here as a cultural commodity. I will argue that understanding contemporary console games inherently means investigating game technology as well as realizing that the Triple-A game is always also a cultural product and cannot therefore be fully understood without acknowledging and unpacking its commodity form.[2] In other

words, retracing the process of commodification—the process by which a cultural product's use value is transformed into exchange value (cf. Mosco 2009, p.132)—gives us an approach suited to studying *what kind* of Triple-A games are made, *under what conditions*, and *how* they are circulated. The core of my argument is that the Triple-A game is neither simply a discrete cultural commodity, nor just a mere object of play, but is best understood as an incremental and seemingly infinite stream of renewable gaming experiences. Furthermore, the Triple-A game in its commodity form functions fully inside a capitalist framework, and it is hence tied into a specific production and circulation logic.

A techno-economic logic

A console game's platform-dependent nature invites questions concerning the interaction between the technological properties of proprietary game hardware and the publishing strategies of industrial actors. In order to gain a deeper understanding of the political economy of franchising, I will first discuss how the Triple-A console game is afforded and constrained by game hardware. Does the networked mode of circulation alter our understanding of the Triple-A commodity form? In the second part of this paper I argue that the transformation of culture into commodities leads to a particular codification of culture, and as a result the Triple-A game adheres to a particular logic of cultural production, circulation, and consumption. Drawing on Bill Ryan's work on the sociology of capitalist cultural production, attention is drawn to the argument that the Triple-A commodity form acts as a "system of control," steering game publishers and developers "towards repetition of the particular cultural forms in which companies have invested" (1991, p.178). The third and last part will then offer a case study of the seventh generation installments of the *Call of Duty* franchise to illustrate how publisher Activision Blizzard aims to rationalize game production and circulation. The *Call of Duty* series shows that the Triple-A game has transformed from a stand alone, singular artifact into a perpetually extended, more open-ended commodity type that corresponds with a particular "system of control," combining the franchising publishing strategy with digitally distributed game extensions.

The console game's platform-dependent nature enforces what one might call a platform-specific modality of production and circulation. Montfort & Bogost (2009, pp.145-150) point out that a game console ties together the computational side of a platform (hardware), interfaces (game controllers and graphical user interfaces), and code (software). Taken together, these elements influence, facilitate, and constrain "particular forms of computational expression" (ibid., p.3). For example, the Xbox 360 uses the DVD format that limits the maximum game size to 7.8 Gigabytes, while the built-in Blu-ray drive of the Playstation 3 is able to read 50 Gigabyte discs. Added to that are a set of more arbitrary but equally restrictive instances of standardization codified in a set of rules and regulations outlined by platform holders such as Microsoft, who enforce intricate TRCs (Technical Requirements Checklists) that apply to all Triple-A games published on a platform.

Technological standardization aids, eases, and from a game publisher's perspective necessitates the reuse of game technology. Structured and constrained by the possibilities of hardware platforms, the game engine operates on top of game hardware and acts as a standardized software platform. The game engine consists of

several components such as the renderer that visualizes the game space, a physics engine, networking code, artificial intelligence code, a sound system, and other parts. A game's commodity form, as Bogost (2006, p.66) explains, shares the material, functional, and intellectual proprietary attributes of the core engine: “These confines both facilitate and limit discursive production, just as the rules of natural languages bound poetry and the rules of optics bound photography.” Similarly, Dovey and Kennedy (2006, p.57) see the game engine as “a technologically determining agent in the character of computer games; game engines are not infinitely adaptable or ‘content neutral.’” The game engine offers developers a proprietary development platform, which, together with a platform’s techno-legal framework, further limits the game developer's design capabilities.

Triple-A games are not only tethered to heavily regulated, uniform proprietary platforms, they are also always software-based artifacts and therefore modular in design. As Manovich (2001, p.30) explains, a game as a new media object consists of “collections of discrete samples (pixels, polygons, voxels, characters, scripts)” (cf. Denson and Jahn-Sudmann 2013, p.3). As a result, additional game content such as maps, clothing for an avatar or entire episodes can quite literally be plugged into, or built on top off a game engine. Unlike the novel or a movie, a Triple-A game's core mechanics can be significantly altered as well as extended via a digitally distributed software upgrade, patch, or content pack. That is to say, a Triple-A console game is ultimately shaped by both a computational platform, a game engine, and a governance structure operated by a platform holder; taken together, these factors structure the technical and economic properties of the Triple-A commodity form and thus have profound implications for the blockbuster game's political economy.

Formatting cultural commodities

The Triple-A game's hit-driven nature is a direct result of the increasingly capital-intensive mode of console game production and circulation. Historically, consecutive console cycles offered more complex technology and demanded bigger development budgets—another strong resemblance to the rise of the blockbuster movie. Because of their costs, overproduction of console games is not an option for game publishers, thereby necessitating a blockbuster publishing strategy, much like that of movie productions in Hollywood's post-classical era (Wasko 2003). Film scholar Michael Allen (2003, p.103) notes that movie related technological innovations, such as sound (1920s), widescreen (1950s), and digital post-production techniques (1980s) resulted in a “progressive shift toward the production of fewer, and more expensive, films using increasingly complex, and equally expensive, new technological systems.” This, which Allen (2003, p.108) associates with a “blockbuster mentality,” means that such movies “have to have an immediate and massive impact on the marketplace, earning hundreds of millions of dollars in a few weeks.” Here we see a striking parity with the Triple-A game.

Without exception, senior executives of Triple-A game publishers emphasize the importance of developing and distributing successful blockbusters as the sole path toward profitability. For instance, during his tenure as Electronic Arts’ CEO, John Riccitiello explicitly singled out “driving hits” as one of the game publisher's key strategies. Riccitiello summarizes the publisher’s approach to Triple-A publishing as

"fewer, bigger, better," meaning that a smaller slate of franchises become bigger propositions, requiring higher investments, and, potentially, better financial results (Seeking Alpha 2010).[3]

Particularly helpful in terms of theorizing the capital-intensive mode of blockbuster production is the work of the Australian sociologist Bill Ryan (1991), who argues that the process of commodification leads to the standardization and codification of cultural production and the rationalization of circulation. To counter or exempt the risks associated with cultural production, Ryan notes that managers of creative labor typically oscillate between the need for creativity, freshness, and originality versus the need for predictability, continuity, and control. As political economist Prindle (1993, p.5) contends in his study of Hollywood movie production, film studios are constantly trying to "replicate the unreplicable," a challenge that is quite similar to console game development. While consumers exhibit highly unstable taste patterns, at the same time they value "familiar plots, characters, and morals over more artistically innovative fare" (ibid., p.25). Ryan comes to a similar conclusion and adds that cultural commodities—and this goes particularly for hits—have a truncated product life cycle, therefore necessitating "recurrent production" to guarantee the constant flow of sales (1991, p.58). The goal of game publishers and film studios trying to replicate the unreplicable, or rather build on previous successes and hits, guides and structures publishing decisions, which explains the reliance on the franchising strategy.

Ryan builds on Adorno's "culture industry" thesis and conceptualizes "formatting" as a pervasive system of creative control:

> By transforming the production of originality into a process governed by company-advocated rules, formatting serves to rationalise the otherwise arbitrary and idiosyncratic play of imaginative creativity and routinely steers artists towards repetition of the particular cultural forms in which companies have invested. (p.178)

The notion of formatting helps us to understand why the Triple-A commodity form can be considered not only as highly standardized, but also formulaic: "Cultural goods produced under the formatting system reveal a marked tendency towards typicality and repetition" (p.184). This is not to say that game design is, or has become an uncreative, mindless practice. Congruent with the contradictions underlying the cultural commodity, the operational side of cultural production is relatively open, and creative managers (i.e. studio heads, producers, publisher executives) who head a project team do not continuously stand looking over the shoulders of individual developers telling them how to work their magic. Thus, the formatting strategy does not so much function on the operational level as it does on the strategic level, by setting limits as to what to develop, when, and by setting "specifications for the project team even before a single original is created" (p.171).

The Triple-A commodity form, in its seventh-gen incarnation, breaks down into two clearly discernible, complementary formatting strategies. First there is franchising; an "inter-ludic" instance of seriality (cf. Denson and Jahn-Sudmann 2013). From the earliest stages of creative conception, a Triple-A game is positioned to be part of a specific temporal publishing framework that is initiated when the first title in a (potential) franchise meets its revenue targets, and is subsequently concluded when

consumer demand and profitability drops. The franchising strategy is complemented by a second formatting strategy, that of digitally distributed content, which leverages the unique textual and technological properties of video games as software. As we will see in the analysis of the *Call of Duty* franchise, the two strategies should not be seen as a fixed set of rules, but instead constitute a dominant format that is composed of a fluid rather than strict set of production and circulation principles.

Call of Duty: A billion dollar franchise

Rather than focusing on individual blockbuster titles, as is common in game studies, I would contend that the Triple-A game should not be considered as a single unit of analysis, since it is always projected to be part of a game franchise. The *Call of Duty* franchise serves as a paradigm case to investigate the serialized anatomy of the Triple-A commodity form. More so than any other contemporary game franchise, the annual instalments of the *Call of Duty* series not only formalized and institutionalized the franchising strategy, it also upped the ante in terms of offering post-launch content by experimenting with the pricing, availability, and release-timing of so called "map packs."

Business strategists, investors, analysts, and industry executives embrace the formatting strategy of franchising as a crucial "monetization option." The key to financial success in the seventh-gen era, in the words of Activision's 2005 annual report, is to increase operating income "derived from an annualized game portfolio" (Activision 2005, p.18).[4] Arguably more so than any other executive in the console segment, Activision Blizzard CEO Robert Kotick has been particularly blunt about his company's serialization strategy that focuses on "proven franchises." This means "that [titles that] don't have the potential to be exploited every year across every platform," and which do not have "clear sequel potential that can meet [Activision's] objectives of, over time, becoming $100 million plus franchises," will be purged from the publisher's catalogue (Activision Blizzard 2009). Examples of individual installments that were previously planned for publication by Activision, such as *Gun* (Neversoft et al. 2005), *Brütal Legend* (Double Fine 2009), and *Ghost Busters: The Video Game* (Terminal Reality and Threewave Software 2009), were either shelved or their intellectual properties were sold to other publishers. Many other games published by Activision did not appear to have "sequel potential," such as the action game *Singularity* (Raven Software 2010) and the racing game *Blur* (Bizarre Creations 2010). Both games fell short of (revenue) expectations, leading to the closure of *Blur*'s development studio, while *Singularity*'s developers were mandated to work on the *Call of Duty* franchise.

The *Call of Duty*-series awaited a different fate and was from the outset positioned to become a franchise, as noted in Activision's annual report: "We will also continue to develop new intellectual properties, such as the upcoming titles *True Crime: Streets of L.A.* and *Call of Duty*, which we hope to establish as franchise properties" (2003, p.10). This "original intellectual property" became, after acquisition of development studio Infinity Ward in 2003, a "wholly owned IP" by Activision and soon turned out to demonstrate the sequel potential the publisher was looking for. Following the success of *Medal of Honor: Allied Assault* (2015 Games 2002), published by

competitor Electronic Arts, the first *Call of Duty* game followed the popular World War II theme and proved to be a genuine hit.

The *Call of Duty* series did evolve thematically over time by switching locales and historical settings. *Call of Duty 4: Modern Warfare* (Infinity Ward and Treyarch 2007) proved to be a successful break with the obligatory Normandy beach landings and the umpteenth assault on Berlin, and it sold more than 13 million copies worldwide.[5] After a brief return to the Second World War with *Call of Duty: World at War* (Treyarch 2008), the monetary value and sequel potential of the franchise was cemented once and for all by the spectacular launch of *Call of Duty: Modern Warfare 2* (Infinity Ward 2009), revenues for which topped $550 million in five days and reached the elusive goal of becoming a "billion dollar title" (Brightman 2009a, 2009b). *Modern Warfare 2* generated as much revenue as the previous five major installments combined and went on to sell an unprecedented 20 million units against an installed base, at the time, of 55 million seventh-gen consoles.[6]

The annualization strategy worked well for *Call of Duty* as each additional franchise installment signaled revenue growth compared against previous releases. The rigid, well-planned publishing tempo is indicative of the rationalized nature of the production and circulation of Triple-A games. From 2005 onwards gamers could, and probably still can, expect a November release of a *Call of Duty* sequel. In a conference call with analysts from major investment companies, Kotick succinctly summarized the political economy of franchising: "[...] I think one of the great benefits of having a portfolio with 10 multi-million unit selling franchises is that you can expect virtually every one of those properties will be exploited on an annual or close to annual basis" (Kotick 2007). Apart from annual exploitation, the publisher has become increasingly skillful in extending the Triple-A commodity via the recurrent release of downloadable content.

Branched serialization

Typically, a Triple-A game is developed, published, and marketed as a disc-based, discrete, physical good, sold at retail. But in between waiting for the inevitable sequel and in order to extend the longevity of a title, there are software modules that can be acquired either via the Xbox Live Marketplace or Playstation Store, and which add onto or tie into the core game. The development and publishing of these modules constitute what I call the "branched serialization" formatting strategy, which breaks down into three complementary sub-strategies—free DLC, user-created content (UCC), and paid-for DLC—all of which are designed to extend the primarily physically distributed disc-based copy.[7]

Since the rise of networked PCs, the distribution of additional, free material has been a familiar part of game culture. During the seventh cycle publishers leveraged free DLC by offering premiums to those consumers who bought new games in stores (instead of secondhand), thereby rewarding such "good behavior" with DLC only available to the original owner.[8] Other instances of free DLC are meant to extend the longevity of a multiplayer title, maintain customer loyalty, or serve as a tie-in with advertisements (e.g. free DLC codes on soda cans). A second category of gratis DLC concerns digitally distributed user-created content. This sub-genre has its roots

in PC game culture as well, although UCC is far less dominant compared to the golden ages of PC "modding" (cf. Postigo, 2007). Only a small number of seventh-gen Triple-A titles offer free UCC; think of *Little Big Planet* (2008), *ModNation Racers* (2010), or *Guitar Hero: World Tour* (2008). Console-based UCC is far less comprehensive in scope and scale compared to the intricate total-conversion modifications afforded by PC game publishers (Nieborg & Van der Graaf 2008).

More so than free DLC and user-created content, it is the availability of paid-for DLC that redefined the Triple-A commodity form. For the *Call of Duty* series, the seeds for the branching strategy were planted when the first installment, a PC game, was branched out a year after its release by the *Call of Duty: United Offensive* (Gray Matter Interactive 2004) expansion pack, visualized in figure 1 by the cross-hatched hexagon. The *Call of Duty* franchise's switch to the console spelled the end of user-created content and expansion packs as dominant formatting strategies, and marked the birth of a new modality of cultural production. The *Call of Duty* franchise was among the first series to popularize so-called map packs, a sub-genre of paid-for DLC particular to the genre of first-person shooters.[9] A map pack is a collection of multiplayer maps that is generally sold at a price far lower than the stand-alone game or than expansion packs. Figure 1 shows the release of map packs (indicated by the diamond shaped extensions) for *Call of Duty 2* (Infinity Ward 2005) consisting of the free "Bonus Pack," the PDLC *Skirmish Pack* (May 10), and the PDLC *Invasion Pack*, released June 29, 2006.

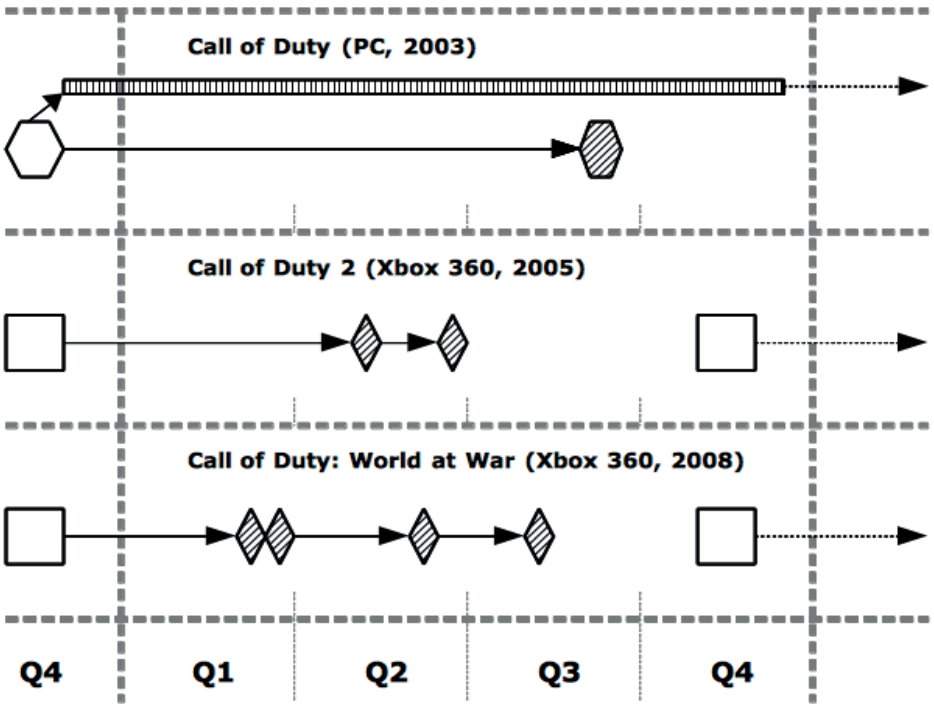

Figure 1: Call of Duty and the branched serialization formatting strategy

Now many years into the seventh cycle, the branched serialization formatting strategy appears to have been very much work-in-progress. Early in the seventh cycle the availability of paid-for DLC seems to have been an afterthought by publishers, and initial offerings had an experimental character in terms of price, size, and function. The irregular DLC releases of *Call of Duty 2* demonstrate that early in the seventh console cycle Activision Blizzard was still experimenting with the most effective mixture of packs (free versus paid), the right price (400 or 800 Microsoft Points for two maps), as well as the right release timing (two packs during the second quarter versus multiple packs spread out over different quarters). The experimental approach to PDLC publishing is confirmed by Activision Blizzard president Michael Griffith a month after the 2007 launch of *Call of Duty 4: Modern Warfare*: "Keep in mind we are still just scratching the surface in this area but we expect to see continued growth and emerging opportunities over the long run" (Seeking Alpha 2008b).

After a considerable time of experimentation, *Call of Duty: World at War* (2008) serves as a clear example of a well timed, uniformly priced mode of circulation. This is acknowledged by Griffith six months after his previous statement: "[We] have a significantly more robust program in place than last year when it comes to downloadable content for sale in the months ahead for [*Call of Duty: World at War*], building on our successful launch of the one map pack we fielded for *Call of Duty Modern Warfare* last year" (Seeking Alpha 2008a). The fifth major installment in the franchise offered four map packs, strategically launched in the first quarter of 2009 (March 5 and 19), the second quarter (June 11), and the third quarter (August 6).[10] At no point in the franchise's history did Activision decide to publish paid-for DLC after the release of the next installment in the series, arguably in order to prevent gamers from spending their money on "cheaper" DLC and to have them migrate *en masse* to a sequel. In the summer of 2009, Activision Blizzard could boast that it sold more than eight million maps packs during the seventh cycle (Seeking Alpha 2009b).

For Activision, the *Call of Duty* map packs had a number of notable monetary benefits: 1) they extended the shelf life of the stand-alone product as well as its marketing campaign as game magazines and news websites are known to dutifully report on their release; 2) packs decrease the need to trade-in a used version of the game as replayability is heightened by way of new content (the "keeping the disc in the tray" argument); and 3) the publisher is able to "hold pricing longer"—that is, rather than dropping prices as is common for older games, additional content keeps the game in demand and keeps prices close to the initial suggested retail price.[11] In addition, digitally distributing additional content means there are no sales return risks; a player cannot return a map pack to a store and get his or her money back.[12] Also, DLC in general can be used as a tool to combat piracy, as online consoles are more prone to counter-measures by platform holders (compared to offline consoles which cannot download additional material). And, last but not least, because of the networked nature of seventh-gen consoles, by digitally distributing PDLC publishers can get a better view of who their customers are, what kinds of PDLC they buy when, and sometimes even why.

The analysis of the anatomy of the *Call of Duty* franchise demonstrates that the rules of play for Triple-A games are as much governed by a game's internal ludic properties as they are structured and alternated by a distinctive and very explicit market logic. A Triple-A game is a cultural commodity first and foremost, and this has

a structuring effect on its cultural form, giving way to two distinctive formatting strategies. Following critical theory and critical political economy, the serialization strategy underlying the game franchise is a dominant strategy and should be seen as the epitome of conformity and standardization. The Triple-A commodity form is rooted in a complex and contradictory set of material conditions that are commonly perceived as natural or taken-for-granted by scholars, game journalists and gamers alike. As critical theorist Shane Günster (2004, p.238) observes: “The commodity form is nestled in all aspects of cultural experience, where it has acquired a curious sort of immunity from critical reflection.” Notwithstanding a number of valuable critical interventions by scholars in the field of game studies (Kerr 2006, Kline et al. 2003, Dyer-Witheford and De Peuter 2009, Dymek 2010), there is a high level of conformity when it comes to discussing the console game's commodity status.

This is not to say that a Triple-A game's cultural form can only be understood through economics. Rather, I would argue that it is impossible to discuss the nature of playing console games in the next-gen era without acknowledging proprietary game technology as well as the implications of the process of commodification, which shapes the form, format, delivery, and in the end the very act and nature of digital play itself. The rise of the hybrid console cycle demonstrates the resilience of a capital-intensive, for-profit modality of cultural production, mixing a twentieth-century investment logic with twenty-first century technological affordances such as digital distribution. A focus on the Triple-A game as a product, then, is an example of how cultural commodities are constantly repositioned and continuously altered during subsequent console cycles.

Conclusion

What, then, are the implications of the fact that a significant part of today’s ludic expressions take place within proprietary and corporate contexts? The dominance of franchising combined with the ubiquitous availability of DLC signals a distinctive technological as well as economic feature of the seventh generation console game, combining the logic of serialization with the additional digitally distributed material that ties directly into, and thus extends, the core artifact. There are patches, (content) packs, game modes, and various other kinds of extra components or modules to prolong the magic—that is, until the sequel comes out and the entire process of anticipation, acquisition, and extended consumption starts all over again. In this sense, the next-gen Triple-A game never truly feels like it is finished; it is marketed by game publishers and positioned by critics as an unfinished commodity. In many ways, games are uniquely suited for their unfinished commodity status, because game-based seriality is “both more far-reaching in scope and more fundamentally anchored in the media, the platforms, and the practices of digital gameplay” compared to non software-based media such as television (Denson and Jahn-Sudmann 2013, p.2).

To put digital seriality in a political economic perspective, I should note that as the seventh generation of consoles once again raised the bar in terms of production values, the process of commodification systematically created significant material inequalities, severely constraining the output (both qualitatively and quantitatively) of any Triple-A game and restricting it to a publisher-driven, capital-intensive form of

production.[13] The most troubling aspect of commodification is that any alternative mode of cultural production not congruent with this particular instance of production is frustrated, seized upon, or literally destroyed. In this sense the process of commodification is inherently self-perpetuating as it "reduces the resources, the time, and the space available to alternatives, so that commodification is perceived not as a process of power but as the natural order, common-sense, taken-for-granted reality of social life" (Mosco 2009 p.144). Similarly, the formatting strategies of franchising and branched serialization have swiftly become an accepted, natural element of contemporary game culture. Game reviewers routinely speak of the "inevitable sequel" while PDLC offerings, especially for the biggest blockbusters, have become not so much taken-for-granted, but are eagerly anticipated by consumers and many game critics as "part of the game."

However, by accepting the current status quo and by taking the current mode of Triple-A production at face value, one overlooks the cultural, political, and ideological implications of this particular economic arrangement. Next to considering what gets developed, it is equally relevant to recognize what is *not* developed:

> This path to an authentic 'clone culture' which replicates past successes can only increasingly standardize the production for and consumption by majorities, punishing innovative or minority creativity, that of small and medium enterprises, and linguistic and cultural minorities, thereby jeopardizing the overall ecology of each sector. (Bustamente 2004, pp.804-805)

Similarly, White (2009, pp.2-3) laments the "stagnation of creativity within the game industry" exactly because of the combination of a risk-averse and for-profit agenda: "In producing derivative sequels and game clones, individual market entities with the power and capital to innovate often engage in economic rent-seeking behaviour." In summary, the seventh-gen solidified a publishing strategy that launches new, preferably wholly owned, intellectual properties early in a console cycle, in order subsequently to "exploit" said franchises annually *ad infinitum* and to experiment annually, within very specific (genre) boundaries, with a select number of new intellectual properties. Within a segment of the game industry that already manages its catalogue with an iron fist, this streamlining strategy does not bode well for those looking for original productions.

Despite its innovative technological character and the undeniable pleasure it grants to tens of millions of players, the Triple-A game's unfinished commodity form, operationalized through two increasingly rigid formatting strategies, favors the continuity of formulaic themes and generic content. While it is expected of publicly traded transnational game publishers that they choose capital over creativity, and homogeneity in content over diversity, acknowledging this for-profit imperative and (unpacking the) commodity form should be part of the (scholarly) conversation on console games, not a taboo or an implicit assumption.

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Notes

1 Because the Wii is marketed to a different audience and because of its non-HD capabilities, it adheres to a different set of market characteristics and follows a slightly different publishing logic and thus falls outside the scope of this paper.

2 It should be noted that my approach neither replaces the valuable work done during the formative years of the field of game studies (e.g. Aarseth 2001, Mäyrä 2002, Copier & Raessens 2003), nor does it compete with similar work done today for that matter, but should be seen as a complementary critical point of view.

3 The subjective property of “better” is quantified by Riccitiello as critical acclaim measured on websites such as gamerankings.com and metacritic.com, which aggregate review scores from hundreds of online and offline game reviews.

4 Founded in 1979, Activision Publishing Inc. is considered to be the first independent third-party console game publisher (cf. Montfort and Bogost 2009). In 2008, the publisher merged with Blizzard Entertainment to form the holding company Activision Blizzard. Individual titles, such as the post-2008 installments of the *Call of Duty* franchise, however, are still published by Activision, which is now a subsidiary.

5 The 14 million mark was almost reached in August 2009 (Seeking Alpha 2009b).

6 A console’s installed base reflects the number of hardware units sold. These sales figures were announced by Activision CFO Thomas Tippl at 2010’s E3 summit (Strauss 2010).

7 The notion of “branching” signifies the dependency of extended material on the core game. Just as a tree branch is always attached to a tree, additional game

material can only be used together with the core game (or game technology). As such, the branching mode of seriality can be positioned between the "intra-ludic" and "inter-ludic" categories of seriality, as it is a category that manifests itself both within a game as well as between games (cf. Denson and Jahn-Sudmann 2013).

[8] New games come with a unique code that can be used only once to acquire a specific piece of downloadable content.

[9] One could argue that the sub-strategy of map packs has been explored by Electronic Arts' first party development studio DICE. Apart from an expansion pack, the PC-based first-person shooter *Battlefield 2* (DICE 2005) offered two so-called "booster packs"—*Battlefield 2: Euro Force* (DICE 2006) and *Battlefield 2: Armored Fury* (DICE 2006)—consisting of additional weapons, classes, and maps. As such, the booster pack format, in terms of release timing, pricing, mode of distribution (digital only), and contents is strikingly similar to *Call of Duty*'s console-based paid-for map packs.

[10] In contrast to the Playstation 3 and Xbox 360, PC gamers received the three map packs free of charge.

[11] This business rationale is explained by Griffith (Seeking Alpha 2009a): "Beyond direct accretive revenue generation, this extends our shelf life, helping to insulate us from the used game market and in turn allowing us to hold pricing longer."

[12] This is codified in the Xbox Live Terms of Use: "All items purchased or rented from Xbox LIVE Marketplace, using the Web or your Xbox 360 console, are non-refundable. This includes subscriptions and all games, videos, and other digital goods. All sales are final" (Xbox.com 2010).

[13] Note, my argument is purposely limited to the political economy of blockbuster games and therefore excludes digital-only titles solely distributed via Xbox Live Arcade and Playstation Network, many of which are distributed by smaller, independent studios.

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Finishing the Fight, One Step at a Time: Seriality in Bungie's *Halo*

Jens Bonk

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Finishing the Fight, One Step at a Time: Seriality in Bungie's *Halo*

JENS BONK

Introduction

The computer game series *Halo* has become one of the largest and most profitable transmedia franchises in the world, reaching lifetime sales of more than $3 billion in 2013 (*Halo Waypoint*). The narratives within the *Halo* universe unfold across several computer games, as well as in the pages of comic books and novels, in short films (including advertising shorts), and in alternate reality games (ARGs). On top of these corporate products that form the core 'canon,' fan communities have built intricately connected, additional narratives (e.g. Rooster Teeth's *Red vs. Blue*), which are based on the fiction and/or technology provided by the *Halo* games.

Within this sprawling medial network, a variety of serial structures – both linear and non-linear – can be discerned. Focusing particularly on the original series produced by American video game developer Bungie, this paper seeks to explore the different modes of seriality that *Halo* expresses, elicits, and engages with in its various contexts of production, consumption, and textual as well as ludic interfacing. It thus traces *Halo*'s narrative across what Denson and Jahn-Sudmann have called the "intra-ludic, inter-ludic and para-ludic" boundaries that define serial forms within, between, and beyond the individual installments of digital games and game series (2013). Denson and Jahn-Sudmann's approach lends itself to the analysis of the complex fiction of *Halo* as a whole, but also of its constituent parts and their interrelations, and it is particularly the latter which this paper seeks to illuminate.

As with many modern transmedia franchises, *Halo*'s narrative universe is at once splintered and unified, each installment standing on its own while also connecting to a larger fictional history. Consequently, it represents the culmination of the "transmedia intertextuality" first described by Marsha Kinder (1993) and developed prominently by Henry Jenkins in several volumes and articles (e.g. 2003, 2011). Beginning with the big picture of *Halo* as a transmedia universe, this paper will analyze the relationships between the different layers of seriality that make up *Halo* as a singular, yet disjointed, narrative. While para-ludic and inter-ludic elements of *Halo*'s seriality as a narrative universe are clearly delineated, intra-ludic seriality within the various *Halo* computer games is less visible and more subtle. Thus, in an effort to give a more detailed explanation of the role intra-ludic seriality plays in *Halo* as a whole, a large part of this paper will consist of a close reading of *Halo 3*'s first chapter. A central concept for this analysis will be the notion of "serial one-upmanship" or "outbidding" (cf. Jahn-Sudmann and Kelleter 2012 and Kücklich 2006 by extension), which is at the core of *Halo 3*'s intra-ludic seriality. While *Halo 3* is divided into clearly marked chapters, this paper will argue that its intra-ludic seriality extends further and is shaped by elements of the gameplay itself.

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Elements of a Game and Computer Game Aesthetics

In order to grasp this level of intra-ludic seriality—where serial structures of repetition and variation, continuation and intensification are articulated within individual games and in the process of gameplay itself—I would like briefly to outline a framework for close analysis that will allow us to discern the emergence of a sort of low-level seriality that is less readily apparent than, though arguably foundational for, the higher-level serial structures of inter-ludic and para-ludic formations in the overarching context of a transmedia franchise. We need a framework, in other words, that will allow us to see seriality emerging "from the texts themselves," and in players' interpretive interactions with them, at a level not altogether unlike that of readers' interpretive encounters with literary texts. This section therefore introduces some terminology and perspectives designed to help us engage with games at this level, before returning in the next section to the *Halo* franchise's broader transmedial seriality.

Drawing from a wide variety of definitions of systems in general, Aki Järvinen (2007) argues that games—if seen as systems—have different states, or game states, that are determined by the inputs provided by the player(s) and the rules of the game (pp.49-52).[1] The current state is conveyed to the player through an output, if necessary, that can then be acted upon with new input. Järvinen categorizes the parts of these systems as behavioral, compound, and systemic elements. This framework comprises the game system, the player(s), and the connecting (compounding) layers in between.

The elements of a game, as described by Järvinen, are (2007, p.55):

- systemic elements
  - components
  - environment
- behavioral elements
  - players
  - contexts
- compound elements
  - ruleset
  - game mechanics
  - theme
  - interface
  - information

Components are the objects controlled by the player (*components-of-self*), other players (*components-of-others*), or the game system (*components-of-system*) (Järvinen 2007, p. 63ff). These components exist within the geometry that creates the *environment*, which they can usually traverse and/or interact with (p. 66ff). Outside of the game itself, players interact with the game through *compound elements*, interpreting it against the background of their cultural and individual contexts (p. 55). While the *game mechanics* comprise all possible ways of player interaction with the systemic elements (e.g. shooting, walking, running, using objects)

(p. 73), the *ruleset* contains all rules governing these elements and describing the state changes according to player input through the game mechanics (p. 69ff.). The *interface* is the connection between the player and the game mechanics (e.g. gamepads) (p. 81ff.), while *information* is textual, visual, or other output displayed for the player (e.g. the "heads-up display" including health bar and ammunition counter) (p. 74). Finally, the *theme* includes many narrative/meaning-bearing aspects of a game (e.g. the visual design of the environment or components) and works as a metaphor for the ruleset (p. 77ff.).

In conjunction with Järvinen's terminology, Julian Kücklich's "Literary Theory and Digital Games" (2006) offers a particularly helpful approach to the aesthetic dimensions of computer games. Kücklich argues that the three core areas around which literary theory is formed—poetics, hermeneutics, and aesthetics—can also be applied to computer games (p. 107); significantly, the hermeneutic aspects in particular can be seen to connect players' low-level engagements with games to the high-level serializations typical of transmedia franchises like *Halo*. Kücklich writes, "it is now almost universally recognized that 'making sense' is a creative process that is necessarily influenced by the reader and the context in which the reading takes place" (Kücklich 2006, p. 105). Arguably, the player of a computer game has much more direct control over the influence she exerts on the text, but the interaction remains similar to that of reading in that, as Kücklich rightly claims, "hermeneutic interaction is embedded in the process of playing itself" (p. 104). A player has to constantly "make sense" of the game in order to make further progress in it. Kücklich argues that this process is necessary for the player to overcome obstacles in the game. Once these obstacles are overcome through interpreting and understanding the game's rules and the mechanics that interact with those rules, the player is again in control of the game, requiring that another obstacle be inserted in order for the process to begin again (p. 109)—hence establishing, we might add, a serial hermeneutic progression at the very heart of gameplay.

This basic seriality is established as a central, if only implicit, dimension of Kücklich's computer game aesthetics in the recourse that he takes to Janet Murray (1997), who identified three main "pleasures" that computer games can elicit: interactivity, immersion, and identification. Interactivity allows players to take "meaningful action" with visible consequences, which Murray describes as a "satisfying power" (qtd. in Kücklich 2006, p.126). Immersion and identification of the player with his or her components-of-self (in Järvinen's term) are possible because the player interacts with the fictional world through those components. Thus, Kücklich goes on to say that the aesthetics of computer games is necessarily an aesthetics of control; the player controls and is controlled by the game. This means that "the pleasure of [a] digital game can be said to derive from equilibrium between the player's control over the game and the game's control over the player" (p. 108). Following that claim, Kücklich argues that pleasure is derived from overcoming obstacles (which inhibit the player's full control of the game) and thereby reaching the control equilibrium for at least some time. This is where difficulty and player skill come in, as the game will become boring if the player never loses at least some control (p. 109).[2] Thus, while the focus of Kücklich's approach is not on seriality per se, the serial quality of this "aesthetics of control" is clear, as it centers on overcoming increasingly difficult obstacles. Emphasizing its serial nature, this process can be described as a low-level form of "outbidding" or serial "one-upmanship," which Jahn-Sudmann and Kelleter have

examined in contemporary television (2012); this inter- or intraserial outbidding can take many shapes (e.g. a bigger budget, more graphic violence, or higher stakes for the characters) and allows TV producers to sell an old concept as something new (p. 207). As we have seen, however, the logic of outbidding in interactive digital games is distinguished by its being rooted directly in gameplay itself, at the level of intra-ludic seriality, which thus might serve as the basic foundation for more elaborate narrative serializations at the inter- and para-ludic levels of a transmedia franchise.

Transmedia Foundations

Let us return, then, to the *Halo* franchise and to the various levels of seriality that it articulates together. The foundations for the first *Halo* game were laid early in Bungie's history with the first-person action title *Pathways into Darkness* (1993) and the *Marathon* trilogy of games (1994-6), all of which were produced for the Apple Macintosh as the primary platform. While these games were clearly inspired by the early work of id Software (i.e. *Doom* and *Wolfenstein 3D*), Bungie added a more involved story and experimented with components-of-system that integrated the story into the game itself (e.g. through in-game computer terminals that would offer new plot details to the player, but were often hidden or out of sight). While many of the early first-person shooters offered little in terms of story, Bungie created an entire universe with these four titles, tying *Pathways* into the *Marathon* world, even though it was not explicitly labeled as part of the series. In the following years Bungie remained a major Macintosh developer, announcing the first *Halo* title at Macworld Expo in 1999 (Lopez 1999). But Microsoft acquired Bungie shortly thereafter, and *Halo* was instead featured as a central launch title for Microsoft's foray into the gaming console market, the Xbox. Bungie's prior history is nevertheless strongly reflected in the *Halo* series, which features many elements found in the *Marathon* trilogy (e.g. the terminals in *Halo 3*). Today, Microsoft is in full control of the *Halo* intellectual properties; Bungie was not even involved in the production of *Halo 4*.[3] But Bungie's influence continues because it was they who, from the beginning, laid the foundations to turn *Halo* into a broad narrative framework or universe.

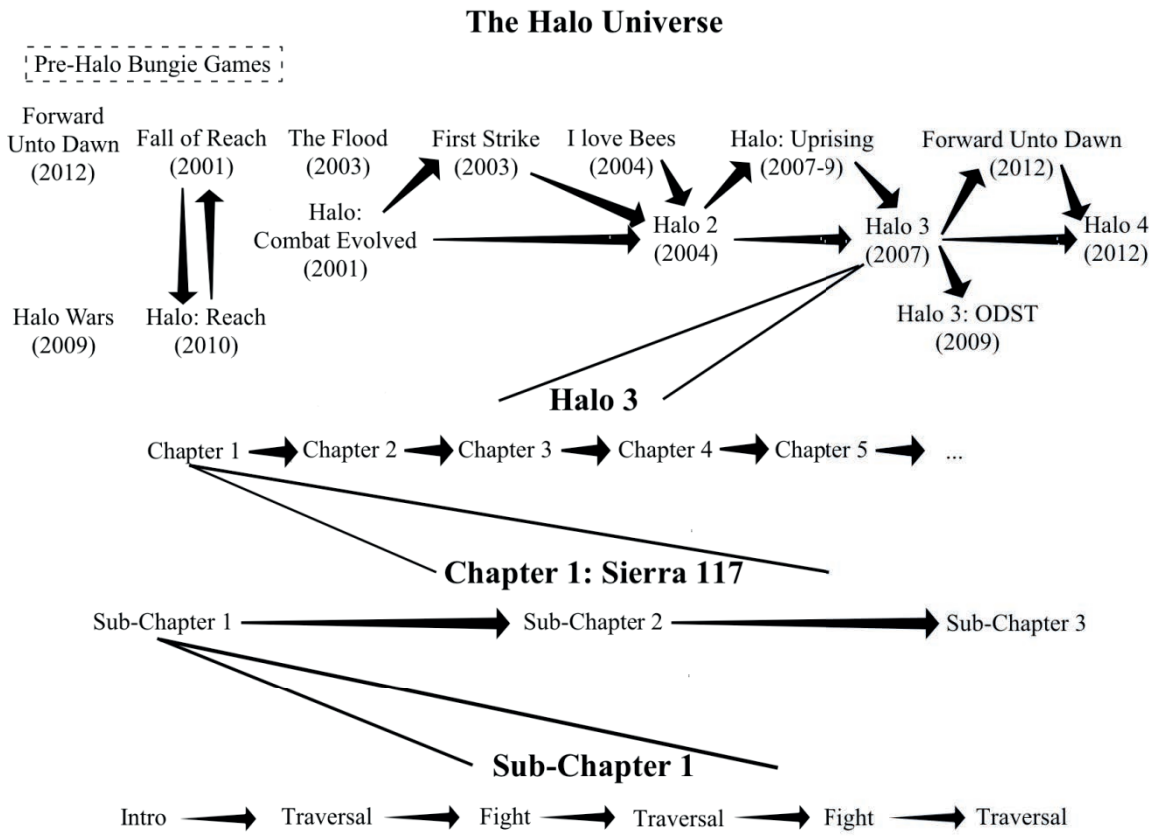

Figure 1: Para-ludic, inter-ludic, and intra-ludic levels of seriality in the Halo series. The horizontal axis represents the diegetic chronology of each level; arrows represent direct narrative relationships.

While the *Halo* series always has been a major marketing device for the promotion of Microsoft's new consoles, it can also be seen as a major force behind the popularization of first-person shooters on consoles in general. The first entry in the series, *Halo: Combat Evolved* (2001),[4] sports a subtitle that already shows what Bungie aimed to accomplish. The more conservatively named *Halo 2* (2004) was also made for the first Xbox console, while *Halo 3* (2007) was a major promotional tool for its successor, the Xbox 360. These three games were followed by several spin-offs, two of which remained in the first-person shooter genre and were developed by Bungie (*Halo 3: ODST* and *Halo: Reach*), while *Halo Wars* is a real-time strategy title made by Ensemble Studios. On top of that, the series features transmedia storytelling extensively through twelve novels,[5] a short story collection, eight comic book series and graphic novels,[6] three alternate reality games (mainly used for promotional purposes), two board games, as well as seven animated short films, a live-action web series, and countless commercials.[7] The novels in particular played an important role in the *Halo* fiction early on. *Halo: The Fall of Reach* was published just weeks before the release of the first *Halo* game, which shows that *Halo* was conceived as a transmedia series from the beginning. Taking place before *Combat Evolved*, its story was later picked up by the spin-off game *Halo: Reach*, and it plays a significant role in the overarching narrative of the entire *Halo* series and the development of its main protagonist (see Figure 1).

Thus, the storyworld of *Halo* is actually a prime example of transmedia storytelling (cf. Jenkins 2003, 2011). The various installments, instantiated in a variety of media, gradually fill the gaps in the history of *Halo*'s universe and refer back to earlier or later works depicting the same events. Only the main game series is essential for following the plot, though. Being familiar with the main trilogy allows players to play, read, or watch other entries in whatever order and timeframe they want, adding a non-linear element to the *Halo* series (cf. Figure 1). The story branches out in different directions and involves many optional installments in different media. This does indeed create a more complex and rich fictional universe and facilitates the serial consumption that is typical of large, modern entertainment franchises (cf. Hagedorn 1995 and Jenkins 2003).

As there are relatively few direct relationships between the inter- and para-ludic parts of the *Halo* universe—few relationships, that is, that mark a particular progression or sequence of consumption as necessary or non-contingent—the overall series remains non-linear in many respects. While the main inter-ludic series (from *Combat Evolved* to *Halo 4*) is strongly tied together by its main characters and a linear story, many different para-ludic parts of the *Halo* series bridge the gaps between the main titles. Importantly, these are optional stories, but even if they are not necessary in order to follow the core series, they still have a specific place in its strictly linear unfolding (cf. Figure 1). Ranging from novels, comic books, and films to ARGs and commercials, these elements of the series represent the broad spectrum of media that is part of the *Halo* series. Since even these integrated entries of the *Halo* series are not essential for understanding the core series or other inter- or para-ludic spin-offs, the overall story can be read, played, or watched in many different configurations. On a para- and inter-ludic level, *Halo* allows for consumption without consideration of chronology or other temporal limitations. Most games, novels, comics etc. are instantly available through digital technology, bundled together (e.g. in the upcoming *Master Chief Collection*) or freely shared online (e.g. ARGs and advertisements). Thus, *Halo* is an example of "synchronized" media, which Denson and Jahn-Sudmann describe in terms of "historically diverse media contents exist[ing] in a state of synchronicity, permanence, and random and repeatable accessibility" (2013). Moreover, its structure is also representative of "convergence culture," which Jenkins defines as the "flow of content across multiple media platforms, cooperation between multiple media industries, and the migratory behavior of media audiences [ ]" (2006a, p. 2). *Halo* is thus a particularly poignant example of current popular seriality and has been on the forefront of these developments for several years.[8]

Halo 3: A Case Study in Intra-Ludic Serialization

In order to see how these higher-level serial structures are rooted in gameplay itself, I will now take a closer look at *Halo 3*, which will serve as a case study in intra-ludic serialization processes. *Halo 3* marks both a beginning and a continuation within the *Halo* storyworld, standing on its own while also being tightly integrated into the *Halo* series overall. This liminal state is typical of media that is "synchronized" in Denson and Jahn-Sudmann's sense (2013): it is accessible, for example, without specific prior knowledge, but at the same time serves as the third act of a trilogy. Its function

in the overall *Halo* story depends on when, in what order, and how the games (and novels, comic books etc.) are accessed.

At its core, *Halo 3* is a linear chain of interactive, semi-interactive, and non-interactive events. It is impossible to sway from the intended path and still make progress in the campaign. Overall, the structure of the game consists of four layers: The outer layer includes the broad theme (i.e. upholding justice, honor, and Western morals against all odds[9]), the plot, and a history in which the main chapters are wrapped. Each chapter then consists of several sub-chapters, which, in turn, consist of several events in the form of cut-scenes or gameplay events. The sub-chapters usually have a common theme and often introduce new, rare components (e.g. enemies or items) that will become common later on. Some sub-chapters may only consist of a single driving sequence (e.g. the very last playable sub-chapter of the game), or involve no driving at all (e.g. most sub-chapters in the beginning). In general, most of the sub-chapters in the game are dominated by on-foot combat, which is why *Halo 3* can properly be called a first-person shooter, despite the inclusion of driving sequences that would not be part of a traditional first-person shooter. The sub-chapters are usually not self-contained from a narrative perspective, as they rely heavily on story elements in the other sub-chapters and lack an independent narrative arc. Moreover, their endings do not even necessarily coincide with a cut-scene or other forms of narration. However, the breaks between sub-chapters are still clearly noticeable as they are marked by a screen indicating that a new autosave point is being created.[10] These interruptions are very brief, and the player remains active during the process (e.g. able to walk around, fire a weapon etc.), but no enemies are present at this time. As these breaks are usually found directly after an intense fight event, they also offer relief and satisfaction, a brief respite before the next obstacle or challenge is introduced. For its part, as Kücklich makes clear, the new obstacle is necessary and must soon follow the break in the game's action, so that the player will stay engaged with the game (cf. Kücklich 2006). This, then, is the serialized functionality of *Halo 3*'s chapters, where one sub-chapter already teases or anticipates the action of the next.

Halo 3, Chapter 1, Sub-Chapter 1: A Close Reading

Halo 3 begins with an opening cinematic that bridges the gap from *Halo 2*. Master Chief has just escaped a spaceship when he crashes into a lush forest in Eastern Africa where he is found by a platoon of Marines accompanied by Sergeant Major Johnson (a human soldier who has been with Master Chief from *Halo: Combat Evolved* onwards) and the Arbiter (a former enemy turned ally). This opening of the game already puts the player right in the middle of the *Halo* transmedia narrative. The events directly preceding this scene take place in the graphic novel *Halo: Uprising*, which is the direct continuation of *Halo 2*, but *Halo 3*'s intro works just as well right after its predecessor (i.e. without having read the graphic novel). The player is almost immediately thrust into Master Chief's perspective, and the start of the first chapter, "Sierra 117," follows after the very brief interruption of a loading screen.

The environment of the first sub-chapter is a canyon in a jungle-like forest. The player starts out with a basic weapon[11] as a component-of-self and is surrounded by several characters as components-of-system (some nameless Marines, along with Johnson and the Arbiter). After the introductory cinematic event, the next few minutes

are spent in an empty part of the canyon, where no enemies are present. Here, the player may familiarize herself with the interface and game mechanics to a certain degree, but the game offers no goals and only provides tutorial-like information if the player fails to advance. At the end of the previous event (the introductory cinematic), Johnson warns Master Chief and the Marines of an enemy presence in the canyon. This cliffhanger creates tension, especially given the amount of visual obstruction that is part of the environment (trees, bushes, rocks etc.), behind which an enemy might lurk. This event is quite long, compared to other "traversal events" later in the chapter. When it begins, the player spawns next to a piece of debris in a crater. As this part of the environment was visible in the opening cinematic, it serves as an anchor to the earlier narrative event and connects it to the first chapter of the game. The group of Marines gets going, along with the Arbiter and Johnson, as they lead the way for the player, waiting at pre-determined points in the environment, which triggers dialogue urging the player to move forward. This happens throughout the chapter, allowing the player to choose the pace of the progress and to act as the main active agent in the group. The first obstacle the group reaches is a large log that blocks the path in the small canyon. The press of the "A" button catapults the player character several meters into the air, while the non-player characters (NPCs) grunt and moan as they slowly crawl across the log. This event foregrounds both the interface and the background of the player character and alludes in this way to the history of the character (i.e. his super-soldier origin) as well as the evolving interface and game mechanics of the *Halo* series. While there are some differences, the interface and the game mechanics of all first-person shooters within the *Halo* series are very similar. Each new sequel adds some mechanics or rules, but the basic system remains the same. This purely ludic seriality is typical of many computer game franchises and creates a cohesive experience across all sequels that can scarcely be realized in other media. While there exists ludic coherence, the first chapter of *Halo 3* can hardly be called an "introduction" from a narrative or ludic point of view—there is neither a recapitulation of the first two *Halo* installments, let alone the related para-ludic stories, nor a tutorial introducing the interface, ruleset, or game mechanics. Instead, there are little pointers, such as the Chief's jump or the Arbiter's presence, which offer reminders, but no explanations.

During the traversal event in the canyon, the group also jumps or climbs down a cliff along the way. These cliffs appear often in such traversal sequences, obstructing the path back; and since there are no enemies present they are usually used for automatic saving and loading. As such, the cliffs ensure that a) the player does not return to an empty area where nothing happens (as there are no more scripts to trigger) or where the player might get lost, and b) the newly loaded part of the chapter cannot be left. While the reasons for the inclusion of these cliffs are thus two-fold, the effect is clearly the creation of a linear seriality. The previous events and sub-chapters are rendered inaccessible, there is only one path that the player can possibly take, and it leads ineluctably to the next event. Thus, the temporal and spatial dimensions of the narrative are inextricably linked. Only if the player character keeps moving in the correct direction does the narrative advance.

The first objective[12] in the sub-chapter is to reach a nearby river, where the group is supposed to be picked up by a Pelican aircraft. It is implied that this river is not far off and that the evacuation will not take long. Of course, the objective will change over the course of the chapter, as the situation quickly becomes much more complex.

During the next several minutes, the player advances through a winding section of the canyon and the only enemy activities are the audible shouts and roars of the Brutes, which one of the Marines comments on fearfully, saying that they "sounded close, too close" (*Halo 3,* chapter 1.1). Moreover, there are several other noises that cannot be easily identified. Along with the jungle-themed environment with its many plants, trees and rocks, these audio cues foreshadow the future battles and are emphasized by the slowly building, ominous synthesizer music. On top of that, the humans soon receive a radio message warning them of incoming enemy forces, before the connection breaks up. Finally, not having encountered any enemies yet, the group has to split up when Covenant drop ships, so-called "Phantoms," fly over the area. The Sergeant Major takes some Marines and climbs up a large cliff (something the player cannot do, as there is no game mechanic that would allow for climbing), while the player character, along with the Arbiter and the rest of the Marines, have to continue through the canyon. Thus, there is no actual—but only a seeming—branching path or fork in the road here, so that the environment remains directly linked to the linear temporal dimension of *Halo 3* (see Figure 2).

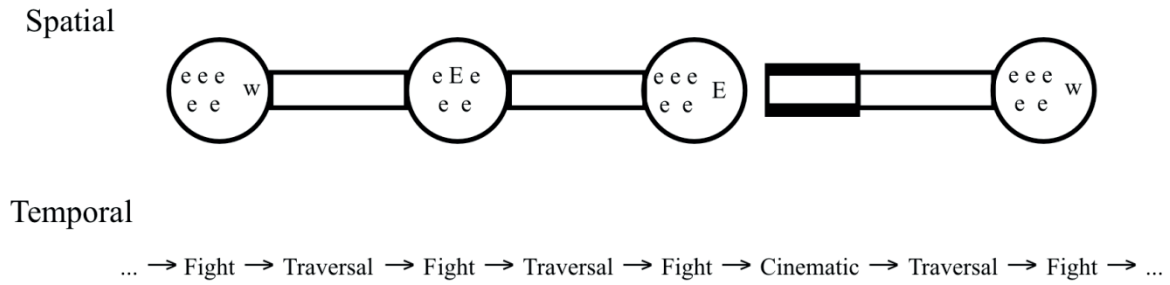

Figure 2: Abstracted depiction of the prototypical structure of events in Halo 3. The letter "e/E" represents enemies (common and uncommon, respectively) and "w" a new weapon or item.

After this, the canyon widens a bit and an enemy search party becomes visible. The player character's group is situated on higher ground. All the while, the music has slowly begun incorporating more and more drumbeats and has risen in tempo and volume, in accordance with the tension rising before the first enemy encounter. As soon as the player crosses a certain boundary (i.e. a script is triggered), the enemies attack. The player controls the pace of the game here. She can choose to stay put and observe the enemies, or charge ahead directly without delay. This interruption of the game is not strictly enforced then, but controlled by the player. This is typical of *Halo 3*'s intra-ludic seriality, and it allows for individual "jumping off" points at which the player may exit the game to resume at a later date. Unlike a DVD box set of an ongoing TV series, with its regular interruptions every 45 to 60 minutes, the event structure of *Halo 3* is much more fine-grained. Only if the player ends the game session during one of the events is the game actually interrupted by the player. The layered intra-ludic structure of events, sub-chapters, and chapters provides interruptions that also act as cliffhangers (e.g. here the player already sees the first enemies in the game, but is not in a fight yet). On the one hand, this structure encourages the player to play on and lengthen the session[13]; on the other hand, it provides a clear break and creates tension until the next play session.

After the player triggers the invisible script, the first fight event begins. The enemy forces are weak compared to later fights; there are only one Brute and a few Grunts. The latter also drop the first new weapon of the game, the Plasma Pistol, which can be used to deactivate the Brutes' shields quickly. The weapon drop therefore also connects this event with the next fight, where such a tactic might be utilized. After all the enemies are dead, the game saves a checkpoint, which confirms that all threats in this area have been dealt with. The fight event ends and a short traversal event begins. But before the group gets going, the Arbiter can be observed talking to the dead Brute. This is a poignant example of narrative and gameplay intertwining, as the game is not stopped and a player hurrying onwards may well miss the dialogue. As the dialogue refers to the political situation within the Covenant, it shows that the fighting is not hanging in a narrative vacuum, only motivated by immediate threats; rather, it connects this one event with the overall fiction of the *Halo* universe.

Moving forward into the widening canyon, the player can see a small pool of water with a Phantom hovering above it. An NPC manning the mounted gun in the Phantom's loading bay opens fire, which marks the beginning of the second fight event. The drop ship quickly leaves again, not allowing time for a real fight, but leaving some infantry on the ground. Gradually, the encounters with these large aircraft/spaceships become longer over the course of the first chapter, each appearance teasing the next, more involved one. This development is a good example of the "outbidding" mechanics that are typical of the intra-ludic seriality in *Halo 3*.

In both fight events up to this point, the player's group occupied higher ground (and therefore looked down onto the enemies), thus allowing for easier orientation and a better awareness of enemy positions and movement. While the advantage during the first fight is enormous, the player is stripped of some degree of control in the second encounter. Thus, the difficulty of the game slowly increases with each fight event, ramping up ludic suspense as narrative suspense also rises. This concerted build-up of tension through the fight events, and through the events interrupting them, creates an arc. Just as a season of a TV show, for example, might culminate in a season finale, "Sierra 117" also brings many ludic and narrative ends (e.g. the fights against the Phantom) together in the last two events of the chapter, only to end with a cliffhanger.

After the player has disposed of the small enemy group dropped by the Phantom, a Brute becomes visible along the shoreline. The next fight event serves as a pointer in the environment, leading the player in the right direction. Again, the Brute is accompanied by a few Grunts; the only thing that differs from the previous event is the lack of any elevation advantage on the side of the player. This could mean stagnation in the event chain, but instead the game introduces a new feature (new, indeed, to the *Halo* series as a whole): "equipment." As soon as the player character moves near the enemy group, a script is triggered that makes the Brute drop a Bubble Shield. This device creates an energy field big enough to fit two characters inside and shields the interior from any weapons fire for a limited amount of time. Thus, the event provides a new obstacle, keeping with Kücklich's demand for new and more difficult obstacles than those previously overcome, outbidding the previous events (see above). This fight also introduces enemy reinforcements, as one Marine exclaims: "More are coming!" (*Halo 3*, chapter 1.1), and three more Grunts come out

of a cave. After all the enemies in the area are dead, the player is led to a short tunnel to the next area. During this traversal event, a short piece of dialogue between a Marine and the Arbiter can be heard (if the player is close enough), which again focuses on the interior politics and culture of the Covenant but is not an immediate continuation of the earlier dialogue. It thus functions similarly to many para-ludic parts of the *Halo* series: it provides a more complex narrative through the combination of various *optional* pieces. This kind of intra-ludic seriality, which already anticipates the para-ludic seriality budding within and around the franchise, is particularly suited for computer games, as they allow for a range of different playing styles: many players will never even hear the dialogue in question.

The tunnel, which again includes a sheer cliff to prevent backtracking and another checkpoint save, leads the group (which may include fewer Marines by now, depending on the player's performance)[14] to a Covenant camp in a swamp/forest area. Around the lower level of the camp, several Grunts are sleeping, introducing a stealth mechanic to the game. Even this early on in the game, the constant outbidding of foregoing events becomes apparent. All elements of the game are part of this process, all involved in a synchronized effort to increase tension, to keep player enjoyment or interest high, and to allow the player to reach a state of flow. Thus, the background music, for example, adds a choir, again rising in tension alongside the gameplay, but still remaining vaguely menacing and quiet. It provides a fitting backdrop against which the gameplay and narrative can unfold, and creating an even more immersive experience.

Once again, the game allows the player to take her time and offers an even higher vantage point from which to view the camp and plan a strategy. At this point, another equipment type is (re)introduced as the Arbiter uses his cloaking device. This piece of equipment is only briefly shown here (as it was in *Halo 2*) and will be used by Brutes in later chapters, before it finally becomes available to the player, though with a limited capacity. The device is thus a good example of a ludic and narrative thread that is woven through several chapters; it creates an underlying arc that increases consistency within the game by building the later introduction of the usable equipment upon the foundations laid by its appearances as a non-actionable item in earlier chapters.

Obviously, the player may attack the camp outright, as well. This means that the Grunts will wake up and join the ensuing fight, which, depending on the difficulty setting, may make it much harder to survive (especially for the NPCs). The fight is much larger in scale than the earlier events and also involves a literal up-hill battle for the first time. Furthermore, there are enemy reinforcements that join the battle midway through. While thus taking up many elements from the earlier events, this combat sequence is already much closer to the battles in later chapters, also introducing a new weapon with a moderate homing function, making the Grunts much more of a threat. The fight event leads to the end of sub-chapter one, with some down time at the camp, allowing the player to pick up ammunition and switch weapons at will. The Pelicans that were supposed to pick up the group are radioing in that they are approaching, even though Bravo team (another search team, not the group led by Johnson) went missing, which is a cliffhanger that leads directly to the first event of sub-chapter two. The music takes a more hopeful turn, following the

promise of rescue, and the sub-chapter ends with a checkpoint save as the player group enters a tight canyon to advance through the next traversal event.

To conclude, the first sub-chapter of *Halo 3* is, strictly speaking, a chain of events (which I have categorized as either "fight," "traversal," or "cinematic" events). The events interrupt each other constantly, never allowing one type to dominate for a longer stretch of the game or even an entire sub-chapter. Additionally, narrative and ludic events are often intertwined, directly triggering each other and thus bringing story and gameplay together. All of the following sub-chapters are structured very similarly. As I have discussed above, this structure makes the chapters very coherent and consistent with regard to both the story that is being told and the actions the player takes and skills she acquires. Taking away one of these two aspects of the game would not only lessen the impact, but it would actually undermine the structure of the chapter. The excitement of the Marines in the final cinematic of the first chapter, for example, comes as a response to the huge final fight event that they and Master Chief have just survived. It is thus part of the cathartic response to overcoming this obstacle and, at the same time, preparation for the appearance of the next threat. Following Kücklich (2006), this is only possible because the chapter's structure is built around player progression in terms of skill and knowledge, including an outbidding process akin to a crescendo in music (which the actual in-game music in fact exhibits). Every obstacle is slightly different and introduces something new to the game, which, in turn, is then already common in the following event. Taking away this constant outbidding would diminish the aesthetic impact that this form of seriality is capable of developing, impairing player progression and finally the ludic and narrative appeal. Seriality is thus essential to the first chapter of *Halo 3*, and it ties the chapter together, even if, or precisely because, it involves references outside the chapter or even beyond the game itself. In the end, it is *Halo 3*'s carefully introduced intra-ludic seriality that creates not only a complex narrative (see Mittell 2006 and Hagedorn 1995) but also complex gameplay and then, finally, ties all loose ends of the chapter together—only to reveal a new opening for the next chapter to begin.

Conclusion

In this paper, I have shown that *Halo 3* is not just part of a larger series, but that it is also serialized in itself. As a consequence, the game's narrative and ludic elements are closely connected and interrelated. They respond to, interrupt, and overlap each other and cannot therefore exist in isolation from one another. *Halo 3* relies heavily on seriality to build tension and to motivate the player to move forward, thus corroborating Kücklich's approach to the aesthetics of computer games, which implicitly postulates the foundations of a serialized intra-ludic process.

Of course, seriality within *Halo 3* relies on its linearity. As my analysis has shown, *Halo 3* does not only collapse the traditionally distinct levels of narrative temporality into one (cf. Juul 2001 and Denson and Jahn-Sudmann 2013); its environment is also inextricably intertwined with the conflation of the time of *histoire*, *discours*, and actual consumption.[15] This collapse of temporality and spatiality creates a strictly linear seriality combining gameplay and narrative events to create a unified whole. The only way to break apart the collapsed levels of temporality and the environment, therefore, is to stay in one place. Then, while "story time," "plot time," and the time of

reception (cf. Denson and Jahn-Sudmann 2013) remain collapsed and continue, the spatial dimension ceases to change. Arguably, however, the narrative comes to a stand-still as well. The only way to advance the story in *Halo 3* is to advance spatially.[16]

Any study of computer games has to acknowledge that there are many variables inherent to the medium. This paper has approached its subject as an average player is likely to do: not skipping narrative scenes, progressing quickly without using advanced tactics and without cheating. While this may be conducive to analyzing certain aspects of a computer game, it is important to keep in mind the difficulties and contingencies that an interactive medium introduces. Such a medium allows for a very strictly controlled, linear form of intra-ludic seriality on one end of a continuum, but it also allows for a completely open, blank-slate type of freedom on the other. Of course, most games fall somewhere in between, but the tension between the two extremes is part of every computer game. In the end, it is this flexibility that makes computer games such a unique medium. Every time one plays through a game, a different story is brought into existence. Some of these stories may be only slightly different, but others may just as well take place in different universes.

My analysis has shown that tension in *Halo 3* is achieved through constant outbidding and new combinations of known elements from previous events. It is precisely because of these features, I contend, that *Halo 3* works so well as a computer game. "Cinematic" gaming is becoming more and more of a major avenue for large game developers and publishers when it comes to big-budget computer games. I would argue that *Halo 3,* and the whole *Halo* series by extension, pioneered this style of game design and that well integrated seriality is an integral part of Bungie's (and now 343's) approach. Even now that 343 Industries is working on *Halo 5: Guardians*, it will remain a central aspect of the *Halo* games. In cooperation with Ridley Scott's Scott Free Productions, 343 are creating another film project that is supposed to bridge the gap between *Halo 4* and *Halo 5: Guardians* (Collura 2014). Moreover, 343 is also working on a live-action TV series set in the *Halo* universe, which is supposed to premiere on Showtime in 2015 (Spangler 2014).

Thus, *Halo* as a transmedia universe will continue to grow in the manner I have outlined above. Obviously, the corporate ownership of the series has become a fitting example for the industrialization of serial cultural production that Hagedorn (1995, p. 28) and others have described. The next core game trilogy in the *Halo* universe is being developed right now, with many other products (such as the film projects mentioned above) promoting the continuation of the series. The only end for the *Halo* story seems to lie in the waning of its profitability. Otherwise, it might be told in ever-new episodes, indefinitely. As I have argued, however, the industrialized seriality of *Halo* as a big-budget transmedia franchise is based squarely in the low-level intra-ludic serialization of narrative and gameplay events. The continued success of the franchise thus depends, we may surmise, upon the strength of this foundation.

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Notes

1 In this part of his dissertation, Järvinen discusses games in general and uses many examples from sports or board games, as well as computer games. The broad applicability of the model is one of its major strengths.

2 Kücklich compares this to reader-response theory, which, he argues, also entails a struggle between reader and text. This struggle is not about control but about meaning, though. Arguably, this is a remarkable similarity between two kinds of cultural texts that appear to be very different on the surface.

3 In fact, Bungie split from Microsoft in 2007 and is now an independent developer again.

4 All three *Halo* titles were played in their German versions for this paper. The versions are identical to the original English version, except for the translated dialogue, and offer English subtitles. Piggyback Interactive's *Halo 3: The Official Guide* was used for reference. It reprints the environment of *Halo 3* complete with enemy and item placement.

5 *The Fall of Reach* (2001), *First Strike* (2003), and the Forerunner trilogy by Greg Bear are of particular note. *First Strike* bridges the gap between *Halo: Combat Evolved* and *Halo 2*, while the Forerunner trilogy takes place thousands of years prior to the events in *Halo* (see Figure 1).

6 Among the artists and authors of these comic books, several are particularly noteworthy: Brian Michael Bendis, Jean Giraud (also known as Moebius), Peter David, and Fred Van Lente. While a novel bridged the story gap between the first two Halos, the limited comic book series *Halo: Uprising* (2007) connects *Halo 2* and *Halo 3*.

7 As odd as it may seem to mention advertising here, many of the *Halo* commercials have dealt with characters and events that were not covered in any other part of the *Halo* story. The "Believe" campaign for *Halo 3*, for example, featured several very short live-action films involving veterans of the war depicted in the games. Shot in a documentary-like style, these ads show the admiration Master Chief garnered, implying, in the end, that he was killed during the events of *Halo 3* and single-handedly saved humanity and the galaxy.

8 Missing from this short overview of the transmedia foundations of *Halo* are the many contributions by players and fans of the series. In spite of the technical limitations, there are many examples of machinima using the *Halo* games, for example. The most popular series, *Red vs. Blue*, lampoons tropes regularly found in multiplayer games, as well as the military science fiction genre. It has

become hugely popular and successful, spanning over 240 episodes and accumulating millions of views on YouTube (Rooster Teeth 2008). The vast transmedia universe outlined above is just one essential part to inviting many different forms of participation (cf. Jenkins 2006b). Obviously, another, if not the key element, has been the hugely popular multiplayer component of each of the *Halo* games, which created a dedicated community of players (especially with the introduction of online play and matchmaking in *Halo 2).* However, I will not be able to deal with the fan contributions to *Halo's* para-ludic context or the multiplayer component further here, as it is beyond the scope of the present paper.

[9] Outside of the computer games, this broad theme becomes much more complicated. While the games usually feature clear distinctions between good and evil, many of the other stories create a more nuanced scale of greys (e.g. the human government is totalitarian and the Spartans are recruited and genetically altered as children).

[10] In *Halo* parlance, the point in the game that triggers the auto-saving mechanic is called a checkpoint.

[11] This weapon is the iconic standard assault rifle, the "MA5C Individual Combat Weapon System," which has been part of the series since *Halo: Combat Evolved* and is often featured prominently in promotional materials.

[12] Objectives are displayed in the pause menu, as well on the heads-up-display as a pop-up, when they change or a new one is issued. These pieces of information are supposed to remind the player of the bigger picture and help the player to reorientate herself when rejoining the game later.

[13] Especially in the early history of computer games, coin-operated arcade machines relied on similar mechanics to create more revenue.

[14] This is also the reason why some players may not see/hear all narrative content of the game. The Arbiter cannot die, but if none of the Marines are left, their dialogue is not triggered for obvious reasons.

[15] Of course, the cut-scenes between different ludic events are usually an exception.

[16] The exceptions to this rule are the instances of incidental dialogue triggered by player inaction. These reactions to player inaction are common in many games (often called "idle animations") and usually express a trait of the player character (e.g. Sonic the Hedgehog tapping his foot). In *Halo 3*, the non-player characters usually display this behavior and sometimes even urge the player character to move on. Thus, the story of *Halo 3* only continues if the player continues to move ahead in the intended direction within the environment.

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"Did you shoot the girl in the street?" – On the Digital Seriality of *The Walking Dead*

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“Did you shoot the girl in the street?” – On the Digital Seriality of *The Walking Dead*

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Introduction

In the third installment of the point-and-click adventure game series *The Walking Dead,* gamers are interrupted in their attempts to lead the playable character and protagonist Lee Everett out of a street filled with zombies by the disturbing, bone-chilling screams of a young woman, described as “a girl” in the in-game text. As the cutscene continues, zombies surround, attack, and bite the woman in the neck; this is tantamount to infection and certain death in the narrative universe of *The Walking Dead*.[1] The gamer now has to make a timed decision: *either* shoot “the girl” to release her from her ghastly fate of being eaten alive, which would also result in attracting the zombies’ attention and possibly lead to a game-over, *or* cause Lee to walk away and escape the zombie-infested street, but then be forced to endure the continuing screams for the remainder of the scene.[2] In terms of the game’s narrative, this decision is relatively inconsequential (because Lee will eventually leave the street and the female character will die either way). But in terms of the immediate gameplay situation, the heat-of-the-moment decision involves gamers in a tense moment that not only increases their immersion in the interactive storyworld but in fact places them at a crucial juncture in that world’s overall transmedial serial unfolding.

In this paper I analyze the game series *The Walking Dead* as a case study in the specific production and reception practices that games and game cultures foster in the digital environs of what has been described as convergence culture (Jenkins 2006) or analyzed in terms of digital storytelling (Alexander 2011), immersive narratives (Rose 2012), and spreadable media (Jenkins, Ford, and Green 2013). By focusing on the example of the cross-media franchise *The Walking Dead*, my contribution seeks to illuminate both the commonalities and differences between digital and non-digital forms of seriality, as outlined by Denson and Jahn-Sudmann (2013).[3]

Pointing us towards the serialization of action and narration in the game and the larger franchise, the example of “the girl in the street” is just one among many similar scenes in the series. On multiple occasions in each installment of the game, gamers are given a timed duration within which to choose between several different options. These options concern possible actions or dialogue, many of which involve a dimension of moral dilemma, such as deciding which characters to rescue in life-threatening situations or whether to be honest or lie to other characters.

The game foregrounds the mechanic of decision-making, opening each installment with a black screen featuring the words: “This game series adapts to the choices you make. The story is tailored by how you play.” This rhetoric of tailor-made game experience, or narrative of choice and consequence, is further enabled by the serial

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production and release of the game, which allows the game's producers to adapt subsequent installments on the basis of players' experience and feedback. While these modes of production and release seem reminiscent of serial texts in other media forms,[4] the *Walking Dead* game series and its gameplay mechanic of decision-making and variable consequence enables very specific practices of reception, which I argue are central to the game's media-specific form of digital seriality.

To explore these specific practices and strategies of digital seriality, in the first section I will focus on the "inter-ludic seriality" (Denson and Jahn-Sudmann 2013, p.11, pp. 13-15) of the game's release schedule, as well as the game's position within the cross-media franchise of *The Walking Dead*. As I will show, the specificity of digital games is not only evident in the cross-medial marketing, production, and reception of the game series but also in the strategies of transmedia storytelling employed. Thus, in an analysis of the "para-ludic seriality" that connects gameplay with larger contexts of serialized reception (Denson and Jahn-Sudmann 2013, p.11, pp. 16-21), I will look at how the game series provides gamers with an alternative take on the theme of parenthood—a theme which occupies a central position in all extensions of the franchise—thus involving players not only in an intermedial process of hermeneutic activity but also in a serialized process of community.

In the following section, I turn to cultural forms and practices of community—or what Denson and Jahn-Sudmann call "collective serialization"—in an analysis of players' descriptions and discussions of gaming experiences in online forums, gameplay walk-throughs, and interactions in social media. This analysis explores how the game actively encourages certain types of engagement by asking gamers to recall significant moments and to remember the decisions they made. I call these instances of "intra-ludic seriality" (Denson and Jahn-Sudmann 2013) *meta-moments*, because their appeal lies in a mode of self-reflexive reception that highlights both an awareness of the game's mechanics as an "operational aesthetic" (Mittell 2006) as well as the gamer's position within the game.[5]

Finally, before embarking on these analyses, let the reader beware: this paper is, unavoidably, brimful of spoilers for the game series.

"This is more like a TV show than a video game, I love it! :D" – The Game Series as Part of a Cross-Media Franchise[6]

The Walking Dead comic series was created in 2003 by Robert Kirkman, Tony Moore, and Chris Adlard; as of now (July 2014), 129 comic issues have been published. Starting in 2010, the cable network AMC developed a TV series based on the comic series; the fifth season is scheduled to air in fall 2014. Both TV and comic series brand themselves as "stories of survival horror" and focus on the social interactions among communities of humans formed to survive the hostile surroundings after a zombie apocalypse. Extending the franchise into gaming, the California-based company Telltale Games has developed a commercially successful video game series in association with Robert Kirkman's company Skybound Entertainment; since April 2012, they have released installments for iOS, Mac OS X, Microsoft Windows, PlayStation 3, and Xbox 360.[7] The game is released first in monthly or bi-monthly installments similar to the publication rhythms of comic books

or television, and then again in a retrospective collected edition resembling trade paperbacks or DVD boxes. As one of Telltale’s story consultants points out, this release rhythm promotes the sustained engagement of gamers: “You get these multiple bites of the apple and you sustain the conversation about your game over an entire year, not just over the release window of a $60 game” (Edge Online 2013). Clearly, the statement reveals the commercial interests that, here as elsewhere, serve as central motors of serialization (cf. Kelleter 2012b). Significantly, this mode of production also allows for parallel, overlapping processes of production and reception, such that gamers’ responses are able to influence the ongoing development of the game while developers, in turn, are able to fine-tune their bids for gamers’ continued attention and commitment.

The game series highlights its position within the cross-media franchise of *The Walking Dead* in its references to these release rhythms, in the packaging of installments, and in its borrowings from the aesthetics of other media forms. Thus, the game’s visuals allude to the artwork of the comic books and draw heavily on what has been described as a motion comic or graphic novel aesthetic (Carlson Draper and Carlson 2009, McBride 2008). The game’s visual surfaces are clearly influenced by the drawing styles of comic artists Tony Moore and Chris Adlard, yet the color graphics of the video game contrast noticeably with the images of the *Walking Dead* comics, which, in the style of independent or alternative comics, are presented exclusively in black-and-white. The game can thereby cater to desires for a colored version of the comic books, as expressed by readers on several occasions in “Letterhacks,” the comic books’ letter column. Seen as a transmedial response to fans’ feedback in the letter column, the game series exemplifies the types of feedback loops that serial processes of production and reception generally tend to generate, and that in this paper interest me with respect to the specific digital environments of game culture and collectivity.

Regarding the structure of the game series, Telltale labeled the first five installments—which are played from the point of view of Lee Everett—as “Season One,” while the current set of episodes—featuring Clementine as a playable character—are referred to as “Season Two.” Each installment is identified as an “Episode,” and it is divided not into individual levels but “Chapters.” The game further alludes to the structuring devices of TV series, in that each episode is framed by a “Previously on ” clip and concluded with a black screen indicating “To be continued ” as well as a “Next time on ” teaser, all of which denote individual installments as part of a larger, serial and cumulative narrative, as well as evoking a close connection between game, comic and TV series. This connection is further intensified by the release of accompanying paratexts, such as “Playing Dead,” a series of videos released on Telltale’s YouTube channel that, following in the mold of AMC’s aftershow talkshow *Talking Dead*, feature interviews with writers and designers of the game.

Besides referencing comics and TV series in these formal-structural and aesthetic manners, the game series also employs various strategies of intertextual referencing, for example inviting comparisons between protagonists in their various iterations across the franchise (e.g. between game and TV or comics), highlighting differences between established characters’ outward appearances in the various media, or offering alternative takes on important themes explored by the franchise. To account

for these references, allusions, and comparisons – along with and as part of the larger context in which the game is marketed and played alongside the comics and show – I will draw on the concept of transmedia storytelling as described by Jenkins for *The Matrix* franchise (Jenkins 2003a, 2007) and by Evans for the industrial practices of television (Evans 2011).

As the first episode of the game begins, Lee Everett is introduced as a point-of-entry into the narrative and the character (avatar) to be navigated by gamers. As an African American character, the choice of Lee as protagonist seems to respond directly to viewers' and readers' criticisms of the early deaths and low narrative impact of characters of color in early installments of the comics and TV series (Devaga 2012, Pajiba 2012). Lee is not on the "right" side of the law when the zombie apocalypse hits, in sharp contrast to the comics' and TV series' protagonist, police officer Rick Grimes. Instead, Lee is a convicted felon on his way to prison. The comparison is further evoked in the course of the game, as gamers find out that Lee, once a university professor, was convicted for murdering his wife and her lover. Rick's unfaithful spouse Lori, who sparked heated discussions among audiences of the TV series and comics, is probably the most disliked character in the franchise; however, Rick forgave her infidelity and tried to save their relationship, much to the displeasure of many fans.

While these cross-media references are rather subtle in form, the first episodes of the game also feature Lee meeting two of the most beloved characters of the TV series, Hershel and Glenn. One of the game's most poignant transmedia pleasures is provided in this context: Hershel, a character that audiences of the TV show and comics know and are likely to trust because of his positive, fatherly portrayal in these familiar narratives, is placed in a mentor position and gives gamers advice on how to play the game. Similarly, Glenn appears in episode two, and the game firmly establishes him as an ally and confidante and not as antagonist to Lee/the gamer.

When confronted with the first of several "Save character A or B"-type scenarios in episode one, gamers face what has turned out to be one of the closest, least straightforward decisions in the game series, with gamers equally divided between the two given options: either to save Hershel's son, Shawn, and possibly stay on Hershel's farm, or to save the child Duck, and continue to travel with him and his family. Interestingly, the death of Hershel's son and the zombie attack on the farm contradict the narratives of the TV and comic series, so that the events depicted in the various media cannot obviously coexist in one and the same narrative universe. However, Glenn's announcement that he will leave the group and head to Atlanta to find his friends at the end of episode two effects a sort of "retcon" that enables the temporality of the game series to be seen as preceding that of TV or comic series.

Regardless of what the gamer decides, Lee is unable to save Shawn, and he has to leave the farm anyway—much to the disappointment of many gamers and fans of the franchise, who have taken to discussion boards and social media to express their desire to remain on and explore Hershel's farm, a location they have long been familiar with from both the comics and the second season of the TV series. This speaks to some of the basic desires animating ludic engagements with transmedia franchises—desires which Jason Mittell has described for the franchises of *Lost* and *Portal* in terms of "the lengths that fans will go to in the name of exploring the

transmedia storyworlds of a beloved franchise, extending the time spent engaging with texts with forensic detail and ludic imagination" (Mittell 2012, p. 11).

Yet in the *Walking Dead* video game, Telltale does not provide gamers with one-to-one adaptations of the TV/comic storyworlds.[8] Instead, while the game indeed references other parts of the franchise, it adds a distinct exploration of established themes, as I will illustrate presently with regard to the thematic cluster of parenting/parenthood/childhood.

In the *Walking Dead* franchise, the theme of parenting is often explored via the narrative topos of a struggle between helpless, "innocent" embodiments of childhood and capable yet morally questionable "children as killers." The game's rendering of the theme of parenthood explores new aspects of its implication within the franchise, at the same time continuing to provide "the melodramatic payoff fans expect from The Walking Dead in whatever medium" (Jenkins 2013, p. 279). The central question that parent figures raise in these narratives is whether they should try to protect and shelter children or teach them to survive on their own in an apocalyptic world—an undertaking fraught with morally ambiguous consequences. In the game series, this set of questions—What does it mean to be a parent or child in these surroundings? What does parenting entail now?—is introduced when Lee finds Clementine, a young girl whose parents have unfortunately left for a trip on exactly the weekend that the apocalypse hits. Lee quickly becomes a guardian and a sort of father figure for the girl. It is noteworthy, though, that neither Lee nor Clementine refer to their relationship as a father-daughter relationship, and for large parts of the game Clementine is driven by her motivation to find and reunite with her parents. During the course of the first season, the character Clementine and concerns over her well-being continue to shift towards the narrative center of the game. At the time of its initial release, gamers responded very strongly to her character: "But Clementine is not as much the responsibility of Lee Everett as she is the player's. Because in the end, it is our decision. [ ] It's all about Clem!" (Farca 2014, p. 444).

Throughout the five episodes of the first season, other characters repeatedly approach Lee to talk about Clementine, offering parenting advice, advising caution, or praising Lee and/or the gamer for the impact their decisions have for Clementine. New characters immediately inquire about their relationship and the status that Lee has with respect to Clementine. If gamers select those dialogue options that claim Clementine as Lee's daughter, an in-game text informs gamers that these new characters will remember this answer and mistrust Lee as a result of it. The inherent assumption seems to be that as a man of color, Lee could not be father to a child like Clementine, who is often read as either white or Asian-American.[9] By thus "punishing" the player's choice, the game evaluates surrogate fatherhood (especially in connection to race) as intrinsically less legitimate than biological fatherhood, as is evident in a dialogue with a character named Vernon in episode four:

> Vernon: "I know you think you're doing what's best for her. And if you were her real father we wouldn't be having this conversation. But you're not. And staying with you is not what's best for her."

Throughout the first season of the game, white male characters who are older than Lee continuously tell him (and/or the player, who may very well be a female) what to

do with Clementine; this comes in the form of very specific, very firm advice or commands, and sometimes these characters even threaten to take her away from him. Female characters, who are often younger and not always white, express only vague warnings or say that they hope Lee knows what he is doing.[10] The older white men, who stand for pre-apocalypse patriarchal hierarchies and privileges, present themselves as rivals to Lee's status of surrogate father, as they claim to know better how to provide for Clementine. The stranger who abducts Clementine in episode five turns out not to be a cruel mastermind but a traumatized father who has lost his family and only wants Clementine in order to be a father again: "I'm not some cannibal, Lee. Some killer out in the woods. Some v villain. I'm just a dad. I coach little league."[11]

It is after a tragic scene involving the death of a child that Chuck, a newcomer to the group, warns Lee that Clementine might not survive in this new world if Lee does not change his parenting approach. After the player chooses what they feel is an appropriate level of anger to express, the game continues in a point-and-click sequence in which Lee follows Chuck's advice to give Clementine "a plan, a haircut, and a gun." Cutting Clementine's hair represents a much more significant moment in the game series than teaching her to shoot, unlike similar situations in the TV and comic series. In the latter narratives, the question of whether to teach children how to use weapons is ultimately what the topos of "childhood innocence versus child killer" boils down to.

Chuck warns Lee to cut Clementine's hair "before a walker [ ] take[s] care of that." The explanation that Lee repeats to Clementine in another cutscene is that the haircut is "so you can't get grabbed so easily." Lee omits the reference to walkers or zombies in his statement, and he thereby broadens the scope of threats ostensibly protected against by a (short, more androgynous) haircut to include the possibility of sexual assault or sexualized violence against Clementine. Such an implication is further supported by the game's foregoing narrative: Earlier, in episode two, gamers encountered Jolene, a minor character who threatened Lee and another minor character named Danny when she walked in on them raiding her camp. The hysterical Jolene appears to be beyond all reason, severely traumatized following her young daughter's abduction, murder, and possible sexual assault, indicated in her exclamation: "You're not men you're monsters. All men are monsters. Take what they want "

Neither Chuck nor Lee explicitly acknowledges the gendered implications of the haircut, but Clementine is quick to point these out in a cutscene following the point-and-click sequence.

> Clementine: "I'm going to look like a boy."
>
> Lee: "But think how much safer you'll be."
>
> Clementine: "I'd rather be dead."
>
> Lee: "Shush now."

While Clementine's statement could be dismissed (along the lines of Lee's response) as childish, immature talk, it also firmly establishes her gender identity as female

despite the boyish, androgynous appearance that is further emphasized in the character design of season two. Unlike Carl, the child character of the *Walking Dead* comics and TV series, who very strongly insists on his masculinity and, in close connection with it, his ability to defend himself and to protect others, Clementine's femininity is little explored yet never questioned.

As the threat posed to Lee's fatherhood by the possible rivalry and interference from older males (and entrenched masculinities) illustrates, Clementine is presented in the first season as a character with little agency of her own. In the gameplay, she often follows Lee around while the gamer navigates him through the surroundings. Overall, Clementine seems to be the goal of the narrative, in the sense that she is an object to be protected by her surrogate father/the gamer very much along the line of what Anita Sarkeesian has described as the trope of a "Damsel in Distress" (Sarkeesian 2013). However, this conception of Clementine and her position within the game's narrative is completely undermined with the shift from Lee to Clementine as protagonist and playable character in season two. Gamers continue to encounter authoritative men such as Carver or Carlos, but these characters now directly negotiate with Clementine on a more equal footing.

Statistics of the Dead and Collective Serialization

Each episode of the game series ends with a listing of all the choices you made in the game and how they relate to the percentages of other gamers (e.g. "Did you shoot the girl in the street?" "You and 40% of players shot her."). To provide these statistics, Telltale monitors gamers' decisions on a large scale, again allowing for an overlap between processes of production and reception.

In this section I will look at how the awareness of these statistics informs practices of collective serialization and contributes to creating pleasure in what I call the "meta-moments" of self-reflexive reception.

1. Killing a severely injured dog (Season 2, Episode 1: *All That Remains*; 84% of all players killed the dog, 16% did not kill it)
2. Not shooting Jolene, an aggravated, mentally unstable woman whose camp you and minor character Danny searched for supplies (Season 1, Episode 2: *Starved For Help*; 87% of all players waited until Danny shot her, 13% shot her themselves)
3. Attempting to save Christa from bandits attacking the camp (Season 2, Episode 1*: All That Remains*; 86.4% of all players tried to save her, 13.6% did not)

Table 1: The Three Easiest Decisions

Table 1 lists the "easiest" decisions that gamers have been faced with in the game series so far,[12] those decisions with the largest margins between individual options –

for instance, the decision to kill a whimpering, severely injured dog and put it out of its misery instead of leaving it behind. Another easy decision for gamers was the "Save Doug or Carley" scenario of the first episode (not listed in the table). The narrative had introduced Carley as a possible love interest for Lee, a plot development that many gamers were eager to see unfold. According to Telltale co-founder Kevin Bruner, these easy decisions were not viewed as ideal by the game's developers, who would instead prefer even splits: "you want people to struggle with these decisions and not feel like there's a right or wrong" (Klepek 2012).

1. Telling Bonnie – a character known from the spin-off *400 Days* but who has betrayed our core group of characters to villain Carver – about the group's escape plans (Season 2, Episode 3: *In Harm's Way*; 50.3% of all players told Bonnie, 49.7% did not)
2. Which character to save from attacking zombies: The child Duck or Hershel's son Shawn (Season 1, Episode 1*: A New Day*; 50% of players saved Duck, 47% saved Shawn, 3% saved neither)
3. Who did you side with in an argument (Season 1, Episode 1: *A New Day*; 52% of all players sided with Larry, 48% sided with Kenny)

Table 2: The Three Toughest Decisions

This second table lists the top three of the game series' "toughest" decisions so far, those decisions that had gamers evenly split between different options of dialogue or action. Interestingly, most "Save A or B" scenarios are less obvious for gamers to decide on. Most gamers also struggled with the question of which other characters to trust in the narrative.

At the core of the game series' attraction, it would seem, lies the theme of survival. Because of the affordances of digital games, the narrative can explore the familiar "What would you do?" motif that all types of zombie narratives (and obscure associations such as the Zombie Research Society) intrinsically raise—a motif that, not incidentally, corresponds with neoliberal ideals of self-reliance, self-defense, and independence from social and political institutions.[13] If this theme of survival is what initially made the game attractive for gamers, as well as for cross-media audiences waiting to explore this theme in ways they could not in other types of media, then it is not surprising that a major complaint against the game series concerns what Adrian Froschauer has described as "the illusion of choice the game constructs" (2014). This notion of an essentially illusory freedom of choice refers to the low narrative impact that players' decisions have for the linear progression of the narrative as a whole.

In his article "Clementine Will Remember All of That," Froschauer comes to the conclusion that "[t]he decisions you make in *The Walking Dead* don't change *what* happens, they change *how* it happens. Your actions determine what kind of person Lee is, how he reacts to certain situations, and how the other characters see him" (2014). The "how" of action, as determined by an individual gamer, can also be understood as introducing variations into what remains essentially the same story,

variations on themes that are then related by gamers to the gaming community for the collective pleasure of finding and discussing similarities and/or differences in others' gaming experiences. It is in the appreciation of variation that specific practices of community-building and what Denson and Jahn-Sudmann (2013) call "collective serialization" emerge in discussion boards, on social media, and in walk-through pages.[14]

The type of variation at stake here functions in a double register: it is at once the outcome or expression of gamers' individuality, but at the same time significant for serial practices of community. Detailed walk-throughs of the game almost seem to follow conventions of diary-keeping or life-writing instead of maintaining the distanced tone one might expect from an operational guidebook. Rather than merely providing step-by-step solutions to puzzles, the writers of these texts give detailed accounts of their sympathies or antipathies for certain characters, carefully explaining how these in turn affect their decision-making. As an example of how this process of community-building works via acts of narrating one's own gaming experiences, which are then set in relation to others' similar or varying experiences, consider the discourse surrounding how gamers approach Clementine as a playable character.

On the "Walking Dead Wikia," a user by the name of Lukesbooty asked other gamers how they played their Clementine: "Do you play her strong and sassy, cold and unforgiving, or kind and sympathetic? Which do you think is best for her and which is most like her? (Also, you did watch Carver's death for you, or for Clem?)." Similar questions and discussions can be found on all the major discussion boards and social media.

Here is a selection of the answers that gamers gave:

> *NiksBrotha*: "In the episode I decided to trust Bonnie and tell her, she reminded me of Ben, she was just as naive and needed guidance. I took the blame for the walkie talkie and holy fucking shit it boiled my blood when I tried to help Kenny and Troy smacked me. At that moment I decided Carver is fucking dead the next chance I get. [ ] I played as the "good clem" I believe and made the better choices."
>
> *Th3B1gCh33se* : "I never trusted Bonnie with the information about Luke. But I think from now on I can trust her."
>
> *ricearoni*: "I tried to play it as Clementine. [ ] She made the best possible choice in that situation. It'll just kinda make her look monstrous to other characters probably."
>
> *Jelboo*: "And besides, my Clementine [ ] has become such a mature, cold-hearted girl, she'll do anything."
>
> *GB&MF*: "I played my Clementine as a disturbed little girl who is trying to regain her innocence back after Omid died. For example, I went back to prevent her from getting physically abused, [ ] I know I made the right decisions, because Clementine is trying to become a normal little girl again which is what Lee and her parents would want to become proud of her [ ] Also I don't want Clementine to become a monster like Carver or Carl."

Nick007008009: “P.S. I think how i play her is what is best for her.”

These different approaches illustrate a point that Kristine Jørgensen has made for the complex relationship that exists between gamers and playable characters: “it can neither be seen simply as identification nor empathy” (2010, p. 319). The self-descriptions offered by these gamers go to show that gamers may simultaneously occupy a variety of positions with regard to a playable character—especially if that character is a child—and that these positions co-exist in complex forms of interconnection: players alternately identify as Clementine (saying, essentially, I did this: “I took the blame for the walkie talkie,” “I never trusted Bonnie”); or they may position themselves as gamers playing a character (I had my Clementine do this because this is what I wanted to do: “I played as the ‘good clem’,” “I played my Clementine as a disturbed little girl“); or they may see themselves as a sort of parental or protective instance, watching over a child (I had Clementine do this because it is best for her: “Clementine is trying to become a normal little girl again which is what Lee and her parents would want to become proud of her”). These affective and relational variations, we might say, serve at once to individualize the player’s experience and to collectivize it, to render it “comparable” (i.e. significantly similar and different from others’) and thus capable of insertion into the larger discourses of a community.

In his analysis of the first season, Gerald Farca focuses on the emotions the series is capable of producing in the gaming experience. He argues that gamers are affected on emotional levels by the choices they make, especially if these choices are retrospectively reflected or commented upon in “adjusted dialogue”: “the game employs adjusted dialogue that, in the aftermath of the choice, scrutinizes and questions the player’s course of action. Obviously, the emotion triggered by this sort of directed player response is one of strong discomfort, leaving the player behind devastated and reflective” (2014, p. 447). But whereas Farca sees such retrospective reflections on the previous gameplay as necessarily triggering discomfort and uneasiness with the ethical implications of decisions, players’ variable positionality with respect to characters enables a wider range of responses. More fundamentally, because players can either identify with the playable character and his or her moral dilemmas or regard the avatar in a more objective (which is not to say dispassionate) capacity—*and because the player can occupy these various positions simultaneously*—the ethical/affective dimension is much less straightforward than Farca imagines. At root, there is a complexity in these situations that calls upon us to read these moments as self-reflexive “meta-moments” in which the game not only comments on our choices and their ethical significance for the inhabitants of the diegetic world, but in which the game actually comments on its own mechanics.

In these moments, the game places gamers in a position to reflect upon, appreciate, and enjoy the game’s mechanics and its storytelling in a mode of reception that Jason Mittell has described as “the operational aesthetic” for narratively complex TV series (2006). Drawing on Neil Harris’s work on the audiences of P.T. Barnum and their enjoyment of the mechanics of Barnum’s shows in a reflexive, aware manner, Mittell describes the operational aesthetic as a sort of “narrative special effect” in contemporary TV series: These “moments push the operational aesthetic to the

foreground, calling attention to the constructed nature of the narration and asking us to marvel at how the writers pulled it off" (2006, p. 58). *The Walking Dead* game series exemplifies a similar mode of reception as part of gameplay; as implemented in the game series, however, this mode is tuned to the media-specific differences of digital games from television series. The operational aesthetic becomes visible in those moments of "adjusted dialogue" that either reflect on gamers' individual choices or provide them with dialogue that, besides making sense within the storyworld, can also be taken to refer to the general experience of playing the game. An example of this kind of meta-talk can be found at the very beginning of the first episode of the first season: A police officer drives Lee to the prison in which he is to serve his sentence. In various dialogue options, gamers can find out about the previous events in Lee's life, thereby getting to know their playable character while also becoming acquainted with the game's navigation. When the officer says "You will have to learn to stop worrying about things you can't control," besides the obvious implications this has for Lee's situation, it also can be read as an instruction to gamers to concern themselves with the time limits regulating their freedom to choose between various options, and to react nimbly in quick-time events, but not to worry about the numerous, lengthy cutscenes that the game series employs. Similarly, when in the second season's second episode the charismatic character Walter gives Clementine the advice that in this world she (and by extension the gamer) doesn't "have" to do anything, this also reminds gamers that the storyworld of the game is different from the "real world" outside of the game, and in it they are free to make their own choices as to how the narrative should progress.

The strongest meta-moment of the first season occurs during the final dialogue with the "stranger." The scene consists of cutscene elements during which the stranger recalls several of the past choices the player has made, insinuating that they were bad choices. The gamer then gets to select dialogue options for Lee to respond and defend his decisions. For instance—and now I am falling into the complex rhetoric of narrating my gaming experience as described earlier—because I, like 77% of all gamers, chose to save Carley instead of Doug in hopes of seeing a possible romantic sub-plot develop, the stranger sarcastically remarked: "You let a boy get yanked out a window and into the night so you could protect a pretty girl with a gun." The meta-element of this scene continues in the possible options for answering the stranger. I can either have Lee reply "It was impossible to save them both," because of course the game's design does not allow for saving two characters, or I can say "I wouldn't do that again," expressing my frustration at the game's refusal to deliver the desired romance plot – and also acknowledging the possibility of rewind or replay as a practice that would enable me to change my previous decision. This incentive of replay accounts for another aspect of what Denson and Jahn-Sudmann (2013) refer to as the "intra-ludic serialization" of the narrative: a gamer may find the pleasure of variations not only in the online collective of other gamers but in her or his own (repeated) gameplay.

A specific type of intra-ludic seriality that is connected to meta-moments and the retrospective remembering of past choices they entail has to do with the reminders of previous gaming decisions that are visible in the game's own surfaces—e.g. in the onscreen appearances of characters' bodies. Similar to the mutilated body images of war films, the *Walking Dead* franchise shows the bodies of its post-apocalyptic survivors as bandaged, bruised, scarred, amputated, and otherwise physically injured

or impaired bodies. Being injured and learning to cope with injury are central themes of the franchise's survival narratives in all of its media formats. However, while the comics and the TV series also explore processes of narrative remembering as inscribed in characters' bodies, the game series is able to negotiate physical injury as an interactive mode of remembrance.

Similar to protagonist Rick Grimes, who wakes up in comic issue 28 (*The Best Defense* story arc) to find his hand missing, gamers in episode five of season one are faced with the decision to cut off Lee's infected hand and possibly save him from a zombie bite. Depending on various choices, Lee will either have to perform the surgery by himself or have another character amputate the lower arm for him. If gamers choose not to cut off the arm, Lee will continue along the same narrative trajectory in the game, but with his body intact; he will, however, pass out several times due to the quick spreading of the infection. Because this decision changes the surfaces of the game for the rest of the episode, the impact is made visible and remembered on the game's surface.

Other instances involve the red sweatshirt that one might or might not decide to give Clementine in the second episode of season one, or the scar that she receives if she tries to interfere with villain Carver's torture of one of her fellow survivors.

The intra-ludic serial change of the game's surfaces as a meta-moment that remembers the gamer's past decisions functions as a moment of memory, such as Henry Jenkins has described with regard to the narrative architecture of games: these moments are "micronarratives within games as spaces that shape narratively memorable or emotionally meaningful experiences" (Jenkins 2003b). In these moments, gamers step outside of the immersive narrative to appreciate the mechanics of the game, but they also remember the decisions made and the narrative outcome of these decisions. This might—but need not necessarily—culminate in the feeling of personal responsibility and guilt described by Farca (2014), yet it also has the effect of highlighting one's choices in an imaginary sea of options. Meta-moments, intra-ludic serial changes of surfaces, inter-ludic continuations and transmedial comparisons, online discussions and the gaming statistics that take gamers beyond the ludic and narrative universes: all of these factors conspire to create an awareness of one's own experience as a single possibility among a range of possible variations, an awareness that functions simultaneously as an affirmation of individuality and of para-ludic collectivity.

In the game's aggregated playing statistics as well as in meta-moments, practices of individuality and collectivity are enabled through the game's operational aesthetic as well as gamers' serial appreciation of variation as a narrative outcome of the choices made. And, as my investigation above of gamers' responses to the child character Clementine illustrates, all of this is channeled through the complex relationship of playable character and gamer in serial texts, in which multiple, shifting positions of identification, empathy, responsibility, and versatility can be simultaneously occupied (and will continue to grow more complex, in this example, as Clementine "grows up" in the narrative and might be characterized less as a child and more as female teenager).

"Keep that hair short"—Or How to Conclude a Discussion that Has Just Begun

In the last conversation between Lee and Clementine, just before the male character's death, gamers can select among dialogue options for Lee's last words of advice to Clementine. Not surprisingly, most gamers decided to end their relationship on a lighter note and advised the girl to keep her hair short—a statement that spiraled in the reception and promotion of the second season and has since become a mantra of the gaming community. Taken as a sort of a meta- or even meta-meta-moment for our critical reflection on the game series, Lee's advice about keeping it short—which refers not just to the girl's hair but also responds somewhat perfunctorily to a sprawling constellation that includes gendered identities, parent/child relations, player/avatar configurations, transmedia references, and the negotiation of fan communities—contains what might be seen as a fitting piece of advice for wrapping up my consideration of digital seriality in *The Walking Dead* as well: for as we have seen, the formal, aesthetic, affective, and social ramifications of serialization in the game series' production, reception, and gameplay continue to multiply, with no apparent end in sight; this, it would seem, is the natural tendency of serial forms, which have little interest in keeping things short, but if left to their own devices will go on and on and on indefinitely. Alas, however, series too must offer some moments of respite, lest they overwhelm their audiences—they must offer at least the illusion that one might contain their multileveled proliferations, might make a clean break, and cut things short. It is, of course, by means of this illusion that the segmentation of series into seasons, episodes, chapters, and installments is effected, but the purpose of such incisions is to enable the series' continuation in yet another segment. And so it is, then, with our observation of serial forms: as these forms continue to proliferate and grow in complexity we are forced to find a stopping point, but its precise location is rather arbitrary, as a conclusion serves merely as a prelude to a continuation, an entry-point into a further exploration, and the basis for further discussion and perhaps even the establishment of a scholarly sort of para-ludic community.

Let us end, then, on this meta-moment and cut it short, realizing full well that both the media we are analyzing and our discourse of analysis are designed expressly "to be continued." We have seen, in the investigation of the *Walking Dead* game series, that the various levels of ludic seriality in game entries to cross-media franchises are connected in complex manners with the serialized collectives of gamers invested in them. In this context, the discussion of self-reflexive meta-moments is subject to a self-reflexive perspective on itself, so that in the end the discussions of digital serial texts, their para-ludic serial implications, and their potential for processes and practices of collective serialization must be seen not as detached observations, but as invitations to join an ongoing conversation – a thoroughly serialized conversation that is indicative of our present inability to clearly distinguish between discussions in and about digital media. Good luck, then, keeping it short

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Notes

1 Unlike zombie bites to external limbs, whose immediate amputation can prevent death, as several gruesome scenes repeated in the various media forms of the franchise illustrate.

2 The game series typically employs four types of scenes or modes of gameplay: 1) point-and-click scenes in which the gamer can navigate Lee (season one) or Clementine (season two); 2) timed choice-of-dialogue scenes in which gamers are typically given up to four options of what to have the playable character say to other characters, often resulting in 3) corresponding reactions in cutscenes; and 4) quick-time-events which often entail killing attacking zombies but may also provide gamers with two options of action (i.e. "Save A or B" scenarios).

3 In the following paper, I am interested in digital seriality as an aesthetic-formal but also a cultural practice of collective serialization within game cultures as outlined by Denson and Jahn-Sudmann (2013, p. 8). For my case study of the *Walking Dead* game series, I follow their distinction between the "inter-ludic seriality" of development, publication, and marketing rhythms, the "intra-ludic seriality" of narrative or design developments within games, and the "para-ludic

seriality" of cross-media or transmedia spreads of games (2013, pp. 10-16). My research and the conceptions of seriality presented here are indebted to the work developed and discussed within the interdisciplinary research unit "Popular Seriality – Aesthetics and Practice" (www.popularseriality.de/en/). I especially thank Bettina Soller, Andreas Jahn-Sudmann, and Shane Denson for their productive feedback, corrections, and support of my research on the game series and earlier versions of this paper.

4 For a conceptualization of serial texts as "moving targets" whose production and reception significantly overlap and manifest themselves in texts themselves, see the work of the aforementioned research unit "Popular Seriality – Aesthetics and Practice" (see, in particular, the contributions to Kelleter 2012a).

5 In his work on TV series, Mittell demonstrates the usefulness of the "operational aesthetic" for the analysis of processes of storytelling. Due to the media specificities of television, he is not concerned with technical implications of the "operational aesthetic" which are relevant for the gaming experience as I will explore later.

6 Quote taken from a YouTube comment that the user "The Lazy Hustler" posted on May 14, 2014.

7 Telltale Games' series is not the only extension of the franchise into gaming. At the time of writing, the extensive fan-run "The Walking Dead Wiki" lists up to seven different game extensions of the *Walking Dead* franchise. Among them are the first-person shooter *The Walking Dead: Survival Instinct*, two different Facebook "Social Games," the online *The Walking Dead: Dead Reckoning*, the mobile game *The Walking Dead: Assault* (iOS, Android), and most prominently the *Walking Dead* Video Game that this paper focuses on.

8 The game is set in the same general fictional world of rural Georgia after the zombie apocalypse, but the group of survivors never travels to the Atlanta of comic or TV series, instead visiting the cities of Macon and Crawford.

9 The tension between biological fatherhood, race, and surrogate fatherhood is further explored in episodes two and three of season two, when Rebecca, a pregnant woman of color in Clementine's group of survivors, is worried what the white villain Carver would do to her if he found out that the baby is not his but the African American Alvin's child.

10 The game series includes very few characters who are mothers, such as the traumatized Jolene and the cannibal mother of the St. John brothers. It does feature several pregnant women (Christa, Anna, Rebecca). None of the female characters ever threatens to take Clementine away from Lee. They caution Lee to do what is right for Clem, but they never directly question his "authority" as father figure to Clementine.

11 Again, the game provides gamers with a pleasure based in para-ludic seriality or transmedia storytelling. The stranger lost his son during a hunting accident, which then results in his family breaking apart and dying. In issue 9 of the comics

(*Miles Behind Us* story arc) and in the second season of the TV series, Rick's son Carl is shot and rescued by the veterinarian Hershel. By building the traumatized, nameless "Stranger" up as an antagonist to Lee, the game allows for the transmedia pleasure of speculating whether Rick would have behaved similar to the stranger if his son had died.

12 In the context of female characters on the TV series *Lost*, Frank Kelleter similarly argues about the militarization of female bodies (forthcoming 2014).

13 As of June 15, 2014, the game series consists of five episodes in season one, the spin-off 400 Days, and three episodes of season two. The next installment of season two is to be released in July 2014.

14 For this paper I have analyzed the following online discussion boards that either focus solely on the game series or focus on the entire franchise but provide subsections for discussions of the game series: Telltale Games Community > The Walking Dead http://www.telltalegames.com/community/categories/walkingdead, Reddit: THEWALKINGDEADGAME http://www.reddit.com/r/TheWalkingDeadGame/, IGN: The Walking Dead http://www.ign.com/boards/forums/the-walking-dead.25214/, The Walking Dead Wiki > Video Game Discussion Board http://walkingdead.wikia.com/wiki/Board:Video_Game_Discussion, The Walking Dead Forums > The Games http://thewalkingdeadforums.net/forum/3570176/, Walking Dead Forums > The Walking Dead Games http://www.walkingdeadforums.com/forum/f63/, Roamers and Lurkers – The Walking Dead Community > Walking Dead Games Discussions http://www.roamersandlurkers.com/forum/43-the-walking-dead-games/, Steam Community > The Walking Dead http://steamcommunity.com/app/207610/discussions/. I have also included tweets from Telltale Games' twitter account (https://twitter.com/telltalegames) or that feature the hashtag #IamClementine, which Telltale used to promote the second season, (https://twitter.com/hashtag/IamClementine?src=hash). Other sources are the comments made on Telltale's YouTube Channel (https://www.youtube.com/user/TelltaleGames), as well as the Facebook page "The Walking Dead: The Game" (https://www.facebook.com/TheWalkingDeadGame, which at the time of writing has 1,060,744 likes).

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Seriality's Ludic Promise: Film Serials and the Pre-History of Digital Gaming

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Seriality's Ludic Promise: Film Serials and the Pre-History of Digital Gaming

SCOTT HIGGINS

In “Digital Seriality: On the Serial Aesthetics and Practice of Digital Games,” Shane Denson and Andreas Jahn-Sudmann call 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” (Denson and Jahn-Sudmann 2013, p. 21). They hope to catalyze research into the serial nature of digital gaming by drawing attention to affinities between seriality and play: “Play itself, we must recall, is an essentially serial activity, characterized by ritualistic practices of repetition and variation” (Denson and Jahn-Sudmann 2013, p. 8). This essay heeds Denson and Jahn-Sudmann’s call, albeit in reverse. If the concept of play can illuminate serial qualities of digital games, then perhaps earlier, analog serial forms should be regarded in terms of their ludic potentials. Where the storied debate over “ludological” and “narratological” approaches to digital gaming signalled the desire to distinguish games from previous media, my aim here is to return to the history of a narrative form equipped with ludic awareness and cast it as part of a continuum to which digital gaming may also belong. In particular, concepts derived from the study of video games can significantly broaden our understanding of sound serials, youth-oriented films produced in Hollywood from the 1930s to the mid 1950s. In turn, this can give us a new vantage on continuities between old and new serial forms, and shed light on digital gaming’s pre-history.

The sound serial was a marginal but resilient production trend in studio-era Hollywood. Mid-size and small studios like Columbia, Universal, Republic, and tiny houses like Mascot, Regal, and Principle Pictures produced over 200 twelve to fifteen-part chapter plays between 1930 and 1956. Each episode ran between 15 and 20 minutes (first episodes were longer), and they were shown in conjunction with cheap “B” features. Cliffhanger endings, which left heroes facing seemingly inescapable perils, helped exhibitors regularize attendance at these cut-rate programs by encouraging curious viewers to return. During the 1940s the three largest producers each released about four serials a year, enough to supply independent neighborhood and rural theaters with an episode a week (Moak 1940). Serials were aimed at children who populated Saturday matinees, but adults, who might sneak in to early shows or see serials attached to a program on Friday night, followed them as well (see Barefoot 2011).

The relevance of a film genre that ceased production fifty years ago to digital gaming may at first blush seem slim. Certainly, there does not appear to be any direct connection between the two forms, beyond their predilection for sci-fi, and the coincidence that both have produced painfully inadequate superhero franchise adaptations. The sound serial’s relationship to gaming is one of pre-history; it presents an early example of ludic storytelling, or the practice of constructing visual narratives to facilitate play. Serial studios refined a formula for the quick and efficient

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production of situational stories that support modular action sequences based on physical problem solving. Long-range serial narratives meander incomprehensibly, but their main purpose is to provide a set of premises and a world within which each episode stages weekly chases, fights, and perils. In generating these plots, serial screenwriters tapped into the much older tradition of situational dramaturgy, which originated in 19th century melodramatic theater. In this mode, story creators conceived their task as assembling readymade pieces, of recombining proven elements rather than crafting original wholes. Melodramatic "situations" provided serials with pre-formed, immediately legible, dramatic units that they could stitch together into different chapters (see Brewster and Jacobs 1997). The serial's catalogue of situations revolves around the taking and liberation of hostages, races against time, and physical confrontation of hero and villain. Elsewhere, I've argued that situations continue to thrive in contemporary forms of cinema like the action film because they set vivid and familiar stakes, and tend to culminate in spectacle (see Higgins 2008). There is some evidence to suggest that such situations crop up in digital gaming as well. In 1999, for example, gamedev.net posted a synopsis of Georges Polti's text *The 36 Dramatic Situations*, an 1895 manual for melodramatists, to help "fire the imagination of the writer" (Lawrence 1999). Perhaps the sound serial's greatest innovation and legacy was the adaptation of situational dramaturgy to the culture of child's play.

Some scholars have studied the institutional, if not formal and aesthetic, connections between serials and child culture. Rafael Vela, for instance, links the sound serial to the rhetoric of the early 20th century Playground Movement, which, under the sway of G. Stanley Hall's popular "Recapitulation Theory," aimed to channel urban juvenile energies into safe spaces (Vela 2000). Hall helped replace an ideology of childhood restraint by claiming that children pass through natural stages of primitive barbarism, and that vigorous play should direct the juvenile nerve-force (Cross 2008). In his largely contextual study of serials, Vela demonstrates that, between 1927 and 1934, producers successfully wooed reformers with a commercialized version of recapitulation theory, built bridges with youth organizations like the Boy Scouts of America, and, in his words, "turned theater space into a combination of clubhouse and department store" (Vela 2000: 261). Intermediality and merchandising abetted this rhetorical campaign, embedding serials in juvenile culture. Viewers followed their heroes from comic books and radio adventures to the neighborhood cinema, while the sale of *Flash Gordon*, *Lone Ranger* and other toys reinforced imagined communities. Serials were part of a para-ludic network that incorporated other media texts and character-themed toys (on the concept of para-ludism, see Denson and Jahn-Sudmann 2013, p. 11).

The Serial as Game: Space, Rules, World

The importance of play to the sound serial is more than a matter of context. Sound serials deploy textual and aesthetic strategies for transforming story into ludic potential. Specifically, I argue that we think of the sound serial as not (only) a kind of storytelling, but as a kind of fictional framework or world designed to constitute and enable play. Concepts from digital game theory like Henry Jenkins's idea of "narrative architecture" and Jesper Juul's observation that rules and fiction are

separable give us a way of prying serial worlds apart from the stories they contain. Meanwhile, Jennifer Barker and Lisa Purse's interventions in the phenomenology of action films offer a bridge between the cinema seat and the playground. Synthesizing these approaches helps stake out the sound serial's intersection with play and, in so doing, its place in a history of ludic seriality.

In his foundational inquiry, Huizinga proposes that play is non-practical, circumscribed, self-aware, and pleasurable: "a voluntary activity or occupation executed within certain fixed limits of time and place according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and consciousness that it is 'different' from 'ordinary life'" (Huizinga 1950, p. 28). Associated with risk, danger, and rapid movement, play occurs on a "playground [ ] isolated, hedged round, hallowed, within which special rules obtain," and gives rise to "play communities" (Huizinga 1950, p. 11, 12, 36, 38, 40). In Huizinga's terms, we might ask how serials define tensions, fix limits, and designate play space, that is, how they encourage ludic engagement. This engagement is necessarily distinct from that in digital gaming in which story world and playground can be coterminous. Jenkins and Juul provide two apposite, if distinct, conceptual frameworks for thinking through possible connections between the serial matinee and the place and time of play. Jenkins suggests that games can embody stories in spaces explored by players, what he calls narrative architecture. Juul conceives of fiction as an optional adjunct to a game's rules of play. Both ideas distinguish fiction from the linear experience of narrative.

Jenkins suggests that we examine role-playing computer games "less as stories than as spaces ripe with narrative possibility" (Jenkins 2004, p. 119). For Jenkins, "game designers don't simply tell stories; they design worlds and sculpt spaces" (Jenkins 2004, p. 121). The concept of narrative architecture relates games, stories, and spaces in multiple ways. Spaces might evoke stories with which we are already familiar. Videogames based on movies, for instance, work by "translating events in the film into environments within the game," giving "concrete shape to our memories and imaginings of the storyworld, creating an immersive environment we can wander through and interact with" (Jenkins 2004, p. 122). Other times, a game designer might build "spatial stories," which are highly episodic, "privilege spatial exploration over plot development," and "are held together by broadly defined goals and conflicts pushed forward by the character's movement across the map" (Jenkins 2004, pp. 123-24). Moving through space might reveal a pre-arranged narrative, or designers might set rules for items and actors within a space so that narratives appear to emerge from the player's interaction with them (Jenkins 2004).

The concept of narrative architecture sheds light on the sound serial's on-going cinematic world. In an era when feature films disappeared from the neighborhood theater within a week, the twelve-to-fifteen-chapter format guaranteed an extended stay, a chance for viewers to revisit characters, spaces, challenges, and spectacles over a three-month period. Sound serials used this time to build procedural worlds with physically demarcated obstacles and goals. Like Jenkins's "spatial stories," sound serials generate engaging maps and recycle ritualized settings in which characters and viewers can anticipate and discover narrative situations. Serials rarely reward attention to the grand story; instead they proceed moment-by-moment, drawing one spatially delimited challenge at a time like levels in a computer game.

The countless infernal machines that trap and apparently obliterate heroes in the final moments of each chapter literalize the notion of narrative architecture. Cliffhangers are "problem spaces" in narratologist Richard Gerrig's sense; they are participatory structures in which viewers search for information that will allow one to achieve a goal (Gerrig 1993, p. 82). Serial screenwriting teams began their work by laying out the devices and snares that would climax each chapter, a method that privileged design as a component of storytelling. Rope bridges, fiery pits, buzz saws, crushing rooms, flooding shafts, and sacrificial altars are physical traps with clear procedural boundaries: story potential is embedded within concrete space. The best cliffhangers achieved such visual and spatial clarity that viewers might feel something like the game player's sense of agency, tracing out potential outcomes, or playing through the puzzle in the intervening week. Thinking of serial storytelling as the practice of designing and combining vivid architectures helps us reconceive spectatorship as the experience and exploration of space, a more obviously ludic process than the following of a causal narrative chain.

Cliffhangers illustrate another play-like quality of serials: the disjunction between story and formula. When heroes fall into inescapable deathtraps at chapter's end, the traps work, giving viewers operational satisfaction at the price of the hero's apparent death. To take a routine example, when the villains of *The Great Alaskan Mystery* (Taylor and Collins 1944) cut through cables on a suspension bridge in the path of hero Jim Hudson's (Milburn Stone) truck at the climax of chapter 5, viewers are treated to a tense sequence that alternates between the thieves sawing away at the bridge and the hero steadily approaching his doom. The final shot is a spectacular, if recycled, crash in which an apparently full-scale bridge collapses and the truck plummets down the canyon. Convention requires, however, that heroes endure, and the story must reverse itself to accommodate. At the start of chapter 6, we learn that Hudson leapt from his truck moments before it reached the bridge. This uninspired solution, or take out, was common to lesser cliffhangers, and *The Great Alaskan Mystery* uses it several times. True to form, the filmmakers offer no explanation of why Hudson suddenly decided to jump from his cab. His friends' efforts to warn him fail, and he does not appear to discover the trap. He leaps simply because the game requires it. The rule of survival entails arbitrary fiction.

Juul draws a useful distinction between fiction and rule. He notes: "Games have their roots in rules and play time, and this allows them to define their worlds much more loosely and less coherently than we would accept in most other cultural forms" (Juul 2005, p. 162). For Juul, fiction is an optional component of gaming that tends to be created in a "tentative and flickering way: the hero dies and is respawned moments later; [ ] the player dies and loads a *save game* in order to continue just before he or she died [ ]" (Juul 2005, p. 6). Narrative is more fundamental to the sound serial than to the videogame as Juul describes it, but they both bend story to ensure that play will continue. Film conventions differ from game rules in that they tend to be optional rather than constitutive. Because it is profoundly formulaic, however, the sound serial narrows this gap. The hero's survival across a cliffhanger amounts to an extrinsic prerequisite, and like a game's rules, it enables viewers to accept, or at least overlook, reversals in the story. Our engagement appears rooted in something other than causal logic and internal consistency: something similar to the pleasure of play.

Chapter climaxes deliver regular breaks in the serial world's coherence, and it is here that seriality functions as a ludic transformer of story. No viewer expects that the hero's death (sometimes depicted more explicitly than in *The Great Alaskan Mystery*) is final. Sound serials are notoriously deceptive, and anyone who has witnessed more than a single episode knows this. Take outs usually involve the introduction of a previously suppressed piece of information, and at the next chapter's start we witness heroes dodging falling elevators, or escaping from exploding, collapsing, and burning rooms. At their baldest, serials are outright cheats, restaging events from the previous week in less-catastrophic terms. In chapter 9 of Republic's *Undersea Kingdom* (Eason and Kane 1936), for example, hero Crash Corrigan (Ray Corrigan), strapped to the front of a battle tank, is smashed into a gate, complete with a plume of debris and horrified expressions from onlookers. In chapter 10, the tank passes unobstructed through an open door. Unlike Jim Hudson's timely leap, Crash Corrigan's escape depends on simple, irreconcilable contradiction, a complete disjunction between narrative architecture and story. Sometimes no explanation within the world allows a character to respawn, but for the serial to advance to the next challenge, the next level, it must be so. In this, serials follow a play-like logic, but equally important, the cliffhanger discontinuity opens onto play (cf. Denson 2014).

Thinking about time can help us capture this dynamic. In their interruptions, revisions, and reversals, cliffhangers entail a distinctive temporal articulation akin to digital gaming's collapse of story and plot time (see Denson and Jahn-Sudmann 2013, p. 6). Serial perils are intensively linear: burning fuses, fraying ropes, ticking time bombs, and speeding trucks follow a narrow and visibly inevitable path. As suspense structures, they focus viewer attention on swiftly depleting story time. By interrupting this flow of events, plot intervenes, freezing the story for a week. The plot's mastery, however, is momentary, because with the episode's conclusion serial narration relinquishes its power over the viewer's attentional pulse. Having built the problem space and shown it in action, cliffhangers eject spectators for a week leaving them with the irreconcilable tension between operational clarity and continuation of the story. Instead of closure, serial chapters proffer a set of parameters, roles, and stakes: architecture and puzzle. Moreover, in solving the previous week's peril, serial narration models playful revision. Like a backyard session of cops and robbers in which a player's capture or demise can be reversed in the name of keeping the game going, serial storytelling treats narrative as a flexible framework for delivering challenge and sensation. For engaged viewers, the period between peril and escape exists as an elongated present, an a-temporal problem space in which to play out alternative eventualities, with the knowledge that the actual solution will itself undo and rewrite time. Cliffhangers introduce ludic ruptures, converting linear story into open scenarios, and training viewers in their creative navigation. In this sense, "to be continued" evokes game time, an invitation to dwell within a highly structured situation and fill it with rounds of play (see Denson 2014 for a parallel discussion of discontinuity in silent serials). If sound serials in this way anticipate digital gaming's temporal collapse, they nonetheless require regulated access to the story. Synchronicity, the digital's other temporal signature, would short-circuit the enforced break between episodes and ameliorate the play space. In this sense, serials straddle digital and analog time, bridging pre and post digital forms.

Juul's distinction bears on the sound serial in a more general way as well. Casting story as separable from the rules suggests why fictional worlds can travel between

cinema and playground. Videogames, Juul argues, cue players to construct fictions around the rules. Items like game boxes and manuals facilitate "projection of the game world." The title *Space Invaders* (Taito 1978), he explains, "is by itself sufficient to describe a science fiction with battling spaceships" (Juul 2005, p. 135). This process is abundantly clear in early home videogames with severely limited graphics. The instruction booklet for Imagic's 1982 Atari 2600 game cartridge *Demon Attack,* for instance, features a picture of silver space lizards zooming around with rockets strapped to their backs and a brief description worthy of a serial recap:

> Marooned on the ice planet Krybor, you watch legions of eerie creatures scream overhead. They hover ominously. They give you no quarter. Attack and destroy them – or be destroyed! Armed with your Laser Cannon, you confront the ultimate challenge: Survive!

The game itself, a scaled-down imitation of the arcade hit *Galaxian* (Namco 1979), is a representationally impoverished shoot-em-up in which the "ice planet Krybor" appears as a blue bar at the bottom of the screen. Players familiar with *Space Invaders* and *Galaxian* can immediately enjoy *Demon Attack* without reference to its fictional world, just as children can play tag without pretending they are cops or robbers. The manual's evocative graphic and sketchy dramatic situation encourage players to project a full-scale demonic onslaught onto the screen's field of flickering pixels, to imagine the fight for survival while engaging in a simple game constructed around a few well-defined rules and affordances. Serials resemble textually rich, multipurpose game manuals: they furnish worlds to be projected onto the playground. If, as Juul suggests, minimal cues can launch a game's world, serials are cornucopias of fictional possibilities. Adventure stories, radio dramas, and comics surely furnished projectable worlds as well, but only the sound serial combined cinematic storytelling and long-term engagement. In this way too, cliffhanger interruption opens onto a ludic arena. Beyond waiting a week to buy a ticket, viewers are primed to continue active and conscious engagement with the serial world by fitting it to standing rule sets of schoolyard games.

Playground Practice and Playing Movies

Denson and Jahn-Sudmann emphasize that because play is a social-cultural practice with its own material history, we should be wary of reducing its study to textual analysis (Denson and Jahn-Sudmann 2013). Unfortunately we have few accounts of how the target audience engaged with serials in the studio era, though reform-oriented literature of the late 1920s and early 1930s provides a tantalizing glimpse. Film's impact on children's play emerged as a point of concern in sociological discourse shortly before the advent of sound serials. In her pioneering work *Children and Movies*, published in 1929, Alice Miller Mitchell describes the phenomenon of "playing movies": "The movie has become a new back yard for the after-school-hours child [ ]. Not only is it a better and a more interesting playground to the child, but it makes more attractive to him his own playland, for when he returns from the movie to his 'back-yard' he has new ideas of what to play and how to play it. He and his little companions congregate and begin to re-enact the film they have seen" (Mitchell 1929, pp. 75-76). In Mitchell's estimation, motion pictures were both a replacement for the traditional play space, and a force for reconfiguring that space.

Public concern over Hollywood's influence in the early 1930s prompted a flurry of sociological activity on the issue of film and play. The most famous of these efforts are the Payne Fund Studies on Motion Pictures and Youth, conducted between 1929 and 1932. The twelve publications that resulted largely concern feature films, but Herbert Blumer's *Movies and Conduct* touches on serials as well. Blumer, a University of Chicago sociology professor, contends "the most casual survey of the form and content of childhood play reveals motion pictures as a very important source" and specifies that "common to all groups of children regardless of social status is the fascination of combat and mystery themes" which appear in "most of the patterns of play taken from the movies" (Blumer 1933, p. 13, 21). The sound serial's formula of regular combat embedded in an overarching mystery would seem tailored to children's preferences, perhaps because they occupy story and play's shared territory of contest and the puzzle (see Murray 2004).

Not surprisingly, Blumer's attention to the serial centers on their cliffhanger endings:

> Instead of leading the excited feelings of the child to a state of quiescence of satisfaction, the serial ends at the point where they are keyed up to the highest pitch. The result is to put the youthful spectator under the spell of suspense, sometimes of frenzy or panic, which persists for a week, only to be renewed at the next installment [ ]. Some of the less ultimate effects on the mind are obvious, such as the preoccupation of the child with the precarious situation in which his favorites have been left at the end of an installment; his anxiety over their safety; his curiosity and reflection as to how they will escape; his excited conversation during the week with his companions on how the escape will occur – in short the difficulty he has of freeing his mind from the thoughts of the picture. (Blumer 1933, p. 121)

Blumer, who uses the term "emotional possession" to describe viewer response, observes that during a serial matinee "one gets undisguised expressions of intense emotions, requiring no refined instruments for their detection" (Blumer 1933, p. 117). Because they deny closure, he believes that cliffhangers amplify and extend "collective excitement" (Blumer 1933, p. 117). If cinema walls separated the space of story from that of play, the serial's "spell of suspense" persisted across borders, or so Blumer feared.

The evidence in *Movies and Conduct* consists primarily of personal recollections of young serial goers, and, though imbricated in a biased study, they remain our best access to the cultural practice of serial play. One subject, identified as "male, 20, white, college sophomore" recalls:

> Perhaps the earliest type of motion picture I can remember is the serial [ ]. All the children of the district used to attend and then followed one glorious week during which each scene of the episode was enacted in our backyards. We had grand times playing "lion men" and Tarzans. During the showing of the picture itself we used to be worked up to a terrific high state of emotion, yelling at the hero when danger was near, hissing at the villain, and heaving sighs of relief when the danger was past. The serial was nearly the sole object for going to the movies for me and most of the children in the good old days when I was seven or eight years old. (Blumer 1933, p. 120)[1]

Another boy recalls his friends fashioning blow darts from needles in imitation of the Hooded Terror from *The House of Hate* (George Seitz 1918), and another remembers playing "natives of Africa" in an overgrown prairie, using "wash-boiler tops for shields, and sticks for spears," based on a serial he followed one summer (Blumer 1933, p. 19, 26).

Blumer's testimonials give weight to our speculation, based on textual characteristics, that serials engendered play. The nature of the interaction between serial game and player/viewer must remain notional. Surely serials set broad terms for play. As one of Blumer's subjects recalled, backyard games would change with the neighborhood marquee: "Our play was always influenced by the current type of serial we were inhaling. If it had to do with cowboys and Indians we played cowboy and Indian, if it had to do with cops and robbers then we played cop and robber" (Blumer 1996, p. 177). "Cowboy and Indian" and "cop and robber" imply very general worlds, which players might fit around almost any physical contest. Serials make use of these broad categories, but also provide an array of specific concrete playable roles and scenarios. In following familiar characters and types through weekly chases, fights, and entrapments, viewers could quickly gain fluency in the world's procedures and anticipate its permutations. Formulaic repetition, a production necessity, probably helped serials merge with the routines of child's play. But unlike a digital game in which player interaction is essential, structured, and observable, matinee audiences first watched and then played.

Mastering Space: Phenomenology and Serial Play

The resources of film phenomenology offer one way of approaching the ludic activity that serials may have prompted. Phenomenology considers film viewing a physically engaged, embodied activity, and so helps conceptualize the overlap between serials and physical play. Vivian Sobchack, one of the approach's founders, argues that "film experience is meaningful [ ] *because of our bodies*," and that the spectator "fills in the gap in its sensual grasp of the figural world onscreen [ ] to reciprocally (albeit not sufficiently) 'flesh it out' into literal physicalized sense" (Sobchack 2004, p. 60, 82). Film viewing, on this model, is a kind of active, bodily interchange. Theorists claim that all films elicit embodied engagement, but action genres provide the most compelling examples. In the case of sound serials, we might consider how their physically defined problems and solutions involve viewers in a corporeal understanding of their worlds, further narrowing the distance between watching and play.

Jennifer Barker describes the viewer's relationship to action films as one of "muscular empathy" (Barker 2009, p. 74). At its most affective, Barker observes:

> the empathy between the film's and viewer's bodies goes so deeply that we can feel the film's body, live vicariously through it, and experience its movements to such an extent that we ourselves become momentarily as graceful or powerful as the film's body, and we leave the theater feeling invigorated or exhausted, though we ourselves have hardly moved a muscle. (Barker 2009, p. 83)

The most incessantly physical of all studio-era genres, sound serials involve the viewer in following, anticipating, contemplating, and perhaps imitating action. Similarities between the on-screen exploits and backyard play likely intensified muscular empathy for young spectators. Characters navigate the serial world by running, climbing, tumbling, and fighting, all familiar sensations that were within reach just outside the theater.

Fights, chases, and physical entrapment, form the sound serial's spine. These actions provide a kinetic experience of character and space that piggybacks on established folk games like tag, base games, and hide and seek. This is brilliantly demonstrated in William Witney and John English's *Daredevils of the Red Circle,* released by Republic in 1939. The three Daredevils play for a living. They are professional stuntmen, each with a specialty that aligns character and body. Tiny (Herman Brix) packs a wallop, Gene (Charles Quigley) climbs and dives with ease, and Bert (David Sharpe) effortlessly launches himself into space and at his enemies. The serial collapses the distance between stunting and storytelling; action constitutes character. These are fully physical roles, parallel to game characters defined by the movements and actions afforded them.

Daredevils' chases and fights draw from the reservoir of "the golden age of unstructured play," that historian Howard Chudacoff locates in the early 20th century. Chudacoff notes that before the 1950s, children "adapted formal games and created new ones, incorporating the built environment and the objects they found there" (Chudacoff 2007, p. 131). Empty lots, sidewalks, and construction sites were more appealing than supervised parks and playgrounds, and "urban structures were an essential and challenging component of hide and chase games" (Chudacoff 2007, pp. 131-34). *Daredevils*' industrial landscape is compatible with the recreation space of many 1930s urban youth, and with the world of physical play more generally. In pursuit of justice, the heroes scale, swing, and leap among catwalks, steel towers, and refinery tanks. Caverns of piping and multi-level cement blocks form an all-purpose playground and obstacle course. Characters and viewers occupy analogous ludic architectures.

The serial's connection to the playground is clearest in the repeated chases through factories, chemical plants, and the like. A standard scene has the henchmen getting the Daredevils' attention (usually by dropping things on them) and then running away, initiating a wide-ranging game of tag. In chapter 6, the evil Professor Seldon (Stanley Price) combines tag with hide and seek to gain an advantage. He hides from the heroes after dropping a metal chest on them and lures them into a trap. Creativity comes from mixing games together in an industrialized playground. But it is through action itself, the physical exertions within dynamic space, that serials invite the "passionate investment" in movement identified by Barker. In chapter 2, for instance, Bert climbs across machinery, vaults over railings, and swings himself up to a catwalk to catch a henchman who opted to take the sensible, but slower, route via the staircase. In a single shot, Bert's command of space contrasts the henchman's confinement to convention: an embodied lesson in cutting an unanticipated path, converting obstacles into implements for traversing space. The moment resembles a player's elegant navigation through a game level, it treats story as an occasion for demonstrating spatial proficiency. Serial action is a primer in problem solving on the corporeal level.

One of the serial world's enduring charms is that enemies are conquered and obstacles surmounted via the resources of physical play. Lisa Purse identifies a similar attraction in one of the serial's descendants, the contemporary Hollywood action film. Drawing on phenomenology, she connects the popularity of action to our desire to transcend material restrictions in a "physicalised narrative of becoming" (Purse 2011, p. 45). Each action movie we see, according to Purse, returns us to an on-going fantasy of physical mastery:

> Action bodies, with their capacity to escape physical constraints [ ] offer fantasies of empowerment that allow us to rehearse our own dreamed-of escapes, our own becoming-masterful, in a fantasy context, allow us to 'feel' this mastery for ourselves through our sensorial connection with the body of the hero. [ ] Where action narratives come and go, end and begin again, the fantasy of overcoming [ ] can exist in perpetuity [ ] always present in action cinema's fictional universe, waiting to be accessed and experienced once more. (Purse 2011, p. 45, 48)

This characterization, which might refer to a digital game, suits the serial well. Audiences, child and adult, return each week to rehearse scenarios of empowerment and escape, scenarios which have as much to do with bodily experience and spatial navigation as with following a story.

Sound serial producers understood this fantasy and made it explicit in the many releases that featured juvenile characters who joined the ranks of adult adventurers, but Purse and Barker help us capture something more fundamental: the sound serial's continual modeling of and invitation to embodied play. By emphasizing the physical aspects of film spectatorship, phenomenology makes visible the union between watching and participating. The serial world, compatible with the spaces and practices of children's play, could be "fleshed out" with ludic sensations and projected back onto the schoolyard.

Prehistory, or just History

Speculating about the nature of play, theorist Brian Sutton-Smith observes: "the primary motive of players is the stylized performance of existential themes that mimic or mock the uncertainties and risks of survival and, in so doing, engage [ ] in exciting forms of arousal." He continues that play might be viewed "as a lifelong simulation of the key neonatal characteristics of unrealistic optimism, egocentricity, and reactivity, all of which are guarantors of persistence in the face of adversity" (Sutton-Smith 2001, p. 231). Without fully endorsing Sutton-Smith's a-cultural frame, we can nonetheless recognize that the sound serial's foundation, like that of a game of tag or *Super Mario Bros*., rests on persistence in the face of unremitting difficulties. Serials are virtual domains for confronting and mastering uncertainty—domains experienced corporeally in the cinema and explored as fictional components of gameplay. Like digital games, they address our desire to inhabit fictions and run imaginary gauntlets. My claim is not that sound serials *are* games, but that they shadow and assist play. In their design of narrative space, their repetitive cycling through a narrow situational lexis, and their obsession with physical process, they may also prefigure the fully ludic architectures of digital games.

This sketch of the sound serials' consonance with the playground might tempt us to cast them as proto-digital, or analog precursors to the digital age: the magic lantern shows of computer gaming's cinema. It is more appropriate, though, to think of both as embedded in a larger and continuing history of seriality. By its nature, seriality rides against containment and coherence, and this is advantageous to play. When measured against standards of studio-era feature films, sound serials are painfully redundant, incoherent, and narratively inadequate. The very qualities that seem an affront to Hollywood classicism (discontinuity, un-psychologized characters, bare-bones motivations) support the possibilities of narrative architecture, the regular return to a perpetual world of pursuits fights, and escapes (for classical Hollywood cinema see Bordwell, Staiger, Thompson 1985).

Sound serials strike me as an important but not singular point on a spectrum that encompasses digital games. Other forms of serial media also occupy the nexus of narrative and play. In a past issue of *Eludamos*, for instance, Jason Mittell brought game studies and television studies together to address "a mode of ludic storytelling that transcends the false dichotomy between game and narrative" (Mittell 2006, p. 5). It is hard to imagine a kind of story more different from the sound serials than the complex, expansionist transmedial world of *Lost* (ABC, 2004-2010), which Mittell uses as a case study. Producers employed *Lost*'s labyrinthine mythology to launch transmedia extensions including ARGs where participants could solve puzzles and explore the story world. Sound serials, by contrast, are supremely knowable and cyclical; what you see is what you get, again and again. Where *Lost* is populated with emotionally rich and developing characters, serials offer one-note types who behave predictably from start to finish. What the two share, though, is the unfolding of a sometimes incoherent story through repeated spaces with continuing characters and in vividly situational episodes. Both stage regular, ludic breaks in their stories through which curious viewers could take up the world, on the playground or in the ARG. These continuities should embolden those of us studying pre-digital media forms to take the lessons of ludology seriously, and to recognize the ludic potential of episodic narrative. Huizinga points out, "in nearly all higher forms of play the elements of repetition and alternation [ ] are like the warp and woof of a fabric" (Huizinga 1950, p.10). Seriality makes stories playable.

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Notes

[1] The author's use of the plural "Tarzans" recalls Denson and Mayer's distinction between serial characters and serial figures. For them, Tarzan is a serial figure, moving across media and forms, rather than a singular character contained within a series. In this case, the serial figure's freedom from narrative continuity, its generalization as an icon, coincides with its appropriation to play (see Denson and Mayer 2012, and Mayer 2014).

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Types and Bytes. Ludic Seriality and Digital Typography

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Types and Bytes. Ludic Seriality and Digital Typography

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Ever since the invention of movable letters and the introduction of the typewriter, technical writing tools have been considered as a means of serialization and standardization, characterized by a linear way of ordering things and thoughts. More importantly, as a cultural technique they fostered and furthered a sharp distinction between print and image. While the advent of the comic book in the industrial age was already instrumental in blurring the line between textual and visual practices, digital games now restructure this terrain to expand it further through their own specific potential. Where comic panels are used to illustrate linear progressions that proceed chronologically, digital games can also be used to diagram complex systems of relations in ways that allow for multiple points of entry or exit, and multiple directions for exploration. This essay aims to demonstrate that the cultural technique of typing is crucial in this process. It not only allows for serial intervention (as a way of navigation), it can also transform letters into objects deprived of their literary function (as a way of representation). Thus ludic seriality provides us with the means to reflect on the conditions and capacities of digital typography. As a media practice, playing with types not only relies on the logics of digital manipulation and flexibility, it also makes them formally visible.

Type Rider (2013), a game that both implements the theme of writing's transformation and, by means of its own specific medial properties, is part of its progression, serves as an example. In the following three sections, I will investigate this game as a critical space for rethinking assumptions around writing techniques as well as the historical frameworks through which they have been consistently addressed and evaluated. The first section focuses on the medial quality of writing and textuality as a formal system, the second discusses the dimension of the image as an iconic extension of the textual format, and the third brings together both lines of thought to debate the operational efficiency of digital games as a way of constituting new forms of ludic literacy.

Typography: Writing and Re-Writing

As an adventure and puzzle game, *Type Rider* discovers the history of typography to be a complex configuration. By moving along the historical lines of letters and lettering, the game not only depicts their inherent techniques and aesthetics, but also renders them as evolutionary processes of mediated communication and information. This is made evident already in the tutorial. As a guide to *Type Rider*, this introductory level invites the gamer to orientate him- or herself in the gameplay. More importantly, it also serves to demonstrate the game's potential for media reflection. While exploring *Type Rider*'s gameworld via the tutorial, the gamer moves two dots along a path depicting the origins of writing as a process of becoming media.

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Introducing text as an abstract medium, the game offers a ludic walk from cave drawings to cuneiform writings, from Egyptian hieroglyphs to Chinese symbolism, and from Greek to Latin alphabets. By doing so, it points to a significant development in the history of media: the process of fixing symbols on different materials ends the immediacy of communication. As a result, the formative progression of writing reveals two medial accomplishments: the abstracting distance from the given and the transport of the perceived into a repeatable, serialized symbolic system. Moreover, as is conveyed by the tutorial, these routes are implemented in the gameplay itself: the more the symbols are refined, the more options of operating and moving open up to the gamer.

This growing complexity is investigated progressively by playing the game, by exploring its level structure and by experiencing its dynamics. *Type Rider*'s first level marks the entrance into the Gutenberg era. Mechanization, the decisive moment of this phase, is met by the gamer throughout the level in the form of the revolving printing press, which has to be crossed by the movable dots.

Figure 1: Type Rider: Gutenberg Era

Once this scenery is left, a new challenge waits ahead: the dots get caught between the lines of a book organizing their path like bars. Hence the innovation of the printing press as an "agent of change" (Eisenstein 1979) is made visible: movable type, with its precision of form and its ability to produce and reproduce texts accurately, intensifies the drive toward mechanical repeatability. Further, this kind of conception is deeply affected by the ways in which configurations of technology, media text, and context take shape in specific arrangements and are controlled by particular apparatuses. By moving alongside various textual artefacts, the gamer realizes the extensive reorganization of knowledge's forms as it is made accessible in books and calendars, flyers and posters, newspapers and magazines. Additionally, by passing through the levels, the various dispositifs of knowledge production—such as archives, libraries, or offices—become increasingly visible. Furthermore, technologies that specifically structure and thereby vary typography are presented as movable

figures within the game: the printing press, the linotype machine, the mechanical typewriter, and the desktop computer.

However, it is not only the technical means of text production that alters how we perceive it. With the development of industrial forms and means of "graphism," i.e. telegraphy, photography, phonography, and cinematography, writing loses its monopoly on transfer and storage. Surrounded by other media, writing does not remain the same but changes its manifestations: it finds new forms and appearances. This is made visible in a level that leads the dots alongside the development of cinema.

Figure 2: Type Rider: Cinematography

Here, the dots pass before and jump on neon signs and announcements of features on movie theatre facades. Cinematographic perception corresponds to an important process of stimulation: letters and texts become mobile and movable.[1] As the level demonstrates, these dynamics facilitate aesthetic developments like rolling end titles as well as the typographic design of title sequences and animated lettering.[2] Utilizing a remarkable variety of aesthetic configurations, the cinema introduces and mediates alternate ways of managing information, in terms of both narration and viewing.

In the digital age, text and numbers, sounds and pictures all become software, hence writing as well as typing become seemingly immaterial practices. Thus a new phase in the depiction of writing and lettering, along with their attendant problems and possibilities, is instituted. The written form, coded digitally, is now data which must be made sensually perceivable to be discernable, useable, and applicable as text. Responding to these transformations, *Type Rider* highlights the introduction of the *Graphical User Interface* (GUI). In contrast to command-line control, the computer is now operated by graphic symbols: such an interface is not based on lines but on icons. Bit by bit and byte by byte, digital letters begin to emancipate themselves from the final destination of the hard copy. Offering a mise-en-abyme situation of a game within the game, *Type Rider*'s last level reveals this context.

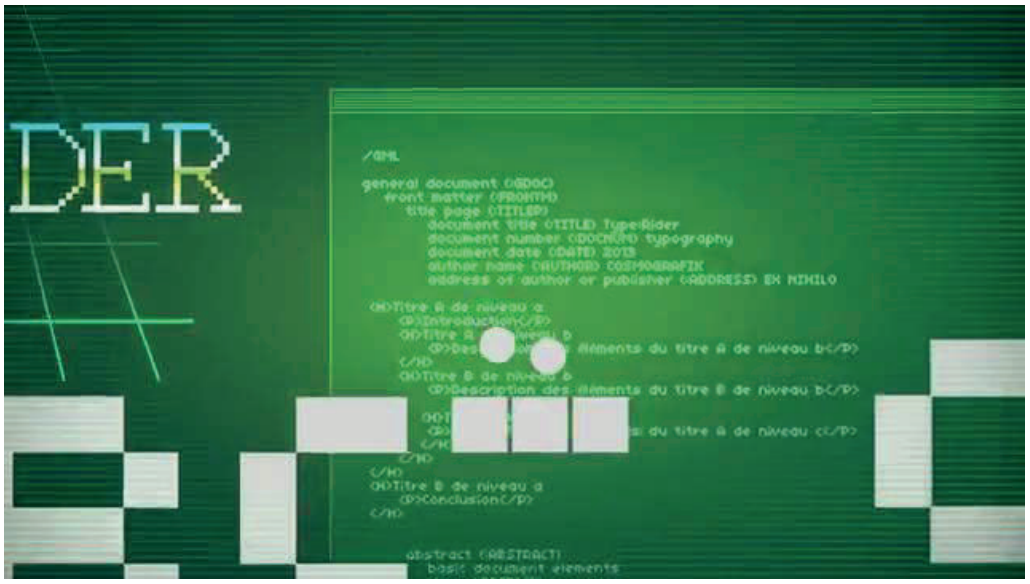

Figure 3: Type Rider: Digitalization

Here, the dots move across a game-like scenery whose bars are reminiscent of *Pong* (1972) and whose boxes allude to *Tetris* (1989), calling upon a screen culture that starts to flourish beyond established routines of lettering. The bars and boxes insinuate the square pixels of the first bitmap fonts whose rough increments are overcome by vector graphics. With the development of desktop publishing, the dependence on type foundries ends. This involves a fundamental shift from standardized to customized font design: each user can now be a designer.

The perception of text and communication about writing does not remain unaffected by the broader availability of the means of textual production. On the contrary, it sets off a cultural-technical change and, as an effect, a medially induced modification of knowledge: “An effect of digitalizing text’s design, especially its dematerialization, is, therefore, a change in thinking about writing” (Zons 2013, p. 142, *my translation*). Accordingly, it is not only the visual alteration of digital text that influences aesthetic shifts and variation, but also the medium’s changing effect on our skills in reading and writing. “Media,” according to Friedrich Kittler’s (1999, p. xxxix) famous phrase, “determine our situation.” The increased accessibility of a variety of fonts leads to an increased contingency of writing and, thereby, to a different mode of reading. Considering the proliferation of textual forms and varieties, their increased mobility and alterability, the reading skills that were suited to (and trained for) the print era are fundamentally challenged. In his text *Lesen Lernen* (i.e. Learning to Read), Niklas Luhmann (2008, p. 13, *my translation*) wonders about the conditions of new reading skills and suggests: “It could be that now, in the face of the computer’s new possibilities, we will have to return more and more to our writing skills.” This affects not only the basic opportunities for interaction, but also the interdependence of the forms of textual reception and production: in order to learn to read differently, we must know what it means to write differently. This different kind of writing is no longer oriented towards limited spaces and fixed structures of font, as it was in print culture. According to Vilém Flusser (2005, p. 63, *my translation*), the relation between creativity and processuality is deeply affected:

> Writing on paper means having to limit one's creativity. [ ] Writing into the electromagnetic field means that the creative text will form lines as well, but these lines will no longer be fixed. They have become "soft," graphic, manipulable. [ ] Text no longer serves as the result of a creative process, like it did on paper, but is itself this process. It is a processing of information into new information.

The most significant feature of new writing is its ability to mobilize the text.[3] Changes and variations are no longer exceptions but the rule. This becomes clear in the text's variability and flexibility, the increased possibilities to intervene and influence its appearance, and the results of extending and expanding formerly stable boundaries. Digital text-processing is no longer bound to a firm final condition: What is written can always be re-written.[4]

While analogue printing established the means for fixing the text as a discernible form and thereby standardizing it, digital modes of creation and expression now produce a flexible system of variation and alteration. Addressing the logics and mechanics of the industrial era, Jean Baudrillard (2001, p. 140) points to its defining feature, the series: "The industrial revolution gave rise to a whole new generation of signs and objects. [ ] This is the phenomenon of the series; in other words, there is the very possibility of two or of *n* identical objects." The technological rationality of industrial production fuelled serialization processes. It enabled standardization and replication, thereby motivating serial production and perception. In the digital age, these earlier modes of production have conceded dominance to the digital code: "As the order of the counterfeit was seized by serial production (viz., how art succumbed entirely to a kind of 'machinality'), so the order of production is in the process of being undermined by operational simulation" (Baudrillard 2001, p. 142). Digital operation allows for infinite alteration. Letters and signs cease to be fixed forms. Instead, they can be created like a drawing, implying the digital text's semiotic significance as an icon. In this way, digital media, and especially digital games, not only make text more agile, but also more iconic. Thus, if the digital game *Type Rider* plays with mobile typography, it will necessarily have to allude to flexible iconography. As a serial practice, then, ludic seriality is informed not only by changed modes of textual production, but also by visual aesthetics shaping what we see and how we play.

Iconography: Adapting and Converging

Text is more than a medium of language's production of meaning. The game *Type Rider* reveals this continuously by depicting textual symbols as aesthetic forms in their own right, rather than as functional parts of a coherent text. The characters by which the gamer navigates through the game's world already allude to this fact. The gamer has to guide two dots through a given level from start to finish. But what do these two dots stand for? Do they signify a colon, a division sign, a punctuation mark, a means of calculation? Or do they just represent abstract figures within the game? The dots' abstraction points to the arbitrary and associative usage of symbols and, in this way, give way to a series of possible interpretations.

Just like the dots, the letters' appearance vacillates between textual and iconic elements. This becomes apparent in the way *Type Rider* renders them as mobile characters: they tilt and twist, and turn upside down. On and on, they keep leaving

the line which they are supposed to follow. Thus, on the one hand, the letters appear as agile, separable parts and are thereby removed from their former function in text. On the other hand, the dots always slide upon and beneath them, and in doing so, play with them in a way that does not fix their position but makes it flexible. As a consequence, the letters become elements in an obstacle course: the dots climb their slant walls, roll off of them, jump a serif, and find their way out of a typographical punch. On an on, the letters resist falling into line, as they must do to generate a word and thus meaning.

Figure 4: Type Rider: Letters and Dots

By pointing to the concept of the "in-between"—those blanks and vacant spaces that are usually not recognized as such in the text structure—*Type Rider* renders them much more visible than the letters' string of meaning could. Consequently, the game presents writing as a procedure that goes beyond the serialized system of a fixed grammatical arrangement.

Addressing systems of signification eluding the confines of alphabetical literacy, Sybille Kraemer and Horst Bredekamp (2013, p. 24) claim:

> The "textualization" of culture has reached its limits. By transgressing those boundaries, the concept of culture assumes new contours. Culture is no longer a matter of monolithic immobility congealed in works, documents or monuments, but liquefies into our everyday practices with objects, symbols, instruments and machines. The right of exclusivity, which language used to claim for itself (with regard to representing culture), is no longer unchallenged. It is in the (inter)play with language, images, writing, and machines—in the reciprocity between the symbolic and the technical, between discourse and the iconic—that cultures emerge and reproduce.

This interrelation of text and icon, this interplay of words and images within everyday fluid practices, becomes even more complex when transferred from the solidity and

fixity of typeface to the dynamic mobility of digital gaming. The moving icon's temporality is crucial here. It leads to a perception of visual text not as complete, but as something that has to be completed. While the fixed typeface represents a terminated order, the moving icon's elaboration conveys digital writing as a floating process. Accordingly, there is a shift from text to texting and from product to process.

Still, it would be too simple to reduce the game's imagery to its mobile visual potential. Digital games not only enable the observation of a process but also serve as agents for action. "The meaning of iconography as a constituting characteristic for video games," writes Thomas Hensel (2012, p. 220, *my translation*), must be considered "as an active, acting mode of operation." This dimension of agency, the possibility to act in and with the digital image, places the video game in an operative and performative context. Games permit the player to regulate what he or she sees, and when. They enable an active mode of controlling serial images to create a sequence:

> In film and television, the point of view was set in motion, but it was the director who controlled the movement. Now, computer animation can function like film in this respect, for it too can present a sequence of predetermined camera shots. However, the sequence can also be placed under the viewer's control, as it is in animated computer games. (Bolter/Grusin 2000, p. 29)

Video games mobilize an active viewer, engaging him or her to participate in the process of making visual meaning out of serial pieces. Thus, digital games conform to, but also enlarge and intensify already established modes of serial practices, such as co-operation and re-creation:

> It is quite likely that this is the most important outcome of media serial products: 'mediatization' of the audience, establishing co-operation and the interdependency between producer (or 'creator') and audience (or 'recreator'). Series is not a production followed by reception, but a co-operative process of creation and recreation. (Oltean 1993, p. 12)

With respect to digital games, ludic elements allow for a specific kind of generative creativity. Ludic seriality not only makes the gamer productive and active. More importantly, ludic modes depend on activity as a necessary prerequisite. Hence, action is the determinant factor of the game's mediality. Alexander Galloway (2006, p. 2) emphasizes:

> Without action, games remain only in the pages of an abstract rule book. Without the active participation of players and machines, video games exist only as static computer code. Video games come into being when the machine is powered up and the software is executed; they exist when enacted.

Contrary to the pre-staged and thus finished action of the cinematic image, the player of video games is able to advance the plot by his actions. Moreover, contrary to the viewer's fixed position in the classical cinematic dispositif, the gamer must constantly perform physical movements – from the tiny motor performance of pushing keys and buttons to the broader physical engagement demanded by more complex motion-control mechanisms such as in exergames.[5] All these actions become perceivable through images which themselves are specifically configured in relation to those movements:

> Motoric execution is, according to the software's stipulations, translated into a specific audiovision. As a consequence, motoric execution is not solely perceived as a physical act in the here and now by the agent; it moreover manifests itself [ ] as a situatively abstract image object or a situatively abstract image perspective. (Venus 2012, p. 117, *my translation*)

Digital games demonstrate a significant transformation from types to bytes. While mechanic seriality relied on the factor of exact repeatability, digital seriality brings into play the concept of flexible modulation. Stretching from linear succession to multi-directed expansion, ludic modes of serialization enable the linkage of tactile, controlling movements to a visually mediated image perspective.

According to Vilém Flusser (1992), the conversion of knowledge forms and modes of perception is to be considered along the lines of the changes in the linearity of text towards nonlinearly structured codes and manners of communication. His treatise *Krise der Linearität* (i.e. *The Crisis of Linearity*) opens with the following hypothesis: "We went from icon to text. It became predominant, reached a crisis, was broken, and now we find ourselves beyond text in a new iconization, which we have to practice first" (Flusser 1992, pp. 4-5, *my translation*). This new iconization, induced and driven by the digital restructuring of the image, does not simply dismantle linear code as a predominant habit of perceiving and knowing. It also indicates that the aptitude to think might not solely be re-organized, but genuinely formed anew. Flusser (1992, p. 34, *my translation*) argues

> that the transition from one-dimensional to zero-dimensional not only implicates new categories of perception (for example, a calculus of probability instead of causal explanation, or calculation of proportion instead of logic), but new categories and values in general.

Accordingly, one should wonder which new categories begin to arise within the field of digital gaming and how they can be illuminated as non-linear rhetorical and visual strategies. This includes not only the changed constitution of text and image, but, additionally, the transformation of medial constellations as well as their implications for new categories of media historiography. The following section will focus on these phenomena.

Playability: Activating and Mobilizing

The game worlds addressed by *Type Rider* transcend the notion of a closed text. This becomes apparent in the game's interactive and transmedia experience, which is available in three different formats: as a video game, a social game, and an interactive installation.[6] Each of these dimensions transports specific medial qualities, interacting in a way that renders one dimension referential to the other. Hence this intermedial conglomerate indicates a progression which no longer emanates from discrete entities, but arises from processes.

The video game *Type Rider* itself is more than a singular game in the sense of a fixed, closed configuration; it can be installed on both the PC and on mobile platforms such as smartphones or tablets. Accordingly, there are various ways of controlling and gaming to be experienced. On the PC the two dots are controlled by typing on

the PC keyboard and observed on a stationary screen; navigation on mobile platforms demands other skills like balancing, tilting, and commanding by touch and gesture. In the first case, the gamer becomes aware of changing modes of type, that is, the performative execution of acting-by-typing. Being converted from instruments of textual production to agents within the world of the game, the PC's alphanumeric keys are deprived of their original purpose. Thus the keyboard's logic is converted from that of a *typewriter* to that of a *Type Rider*. On mobile platforms, by contrast, the gamer is sensitized to more artistic movements that bring to mind the virtuosity of a painter's brush or the manner of handwriting rather than typewriting. Offering multiple ways of perceiving and controlling text and content, tablets and smartphones demonstrate a variety of possible practices: they can be used as a game board, a space for inscription, or a screen to draw upon.

The social game version of *Type Rider* opens up yet another route for the reflexive potential of intermedia processes. Having been specially designed for Facebook, it allows users to create their own levels and share them with others.

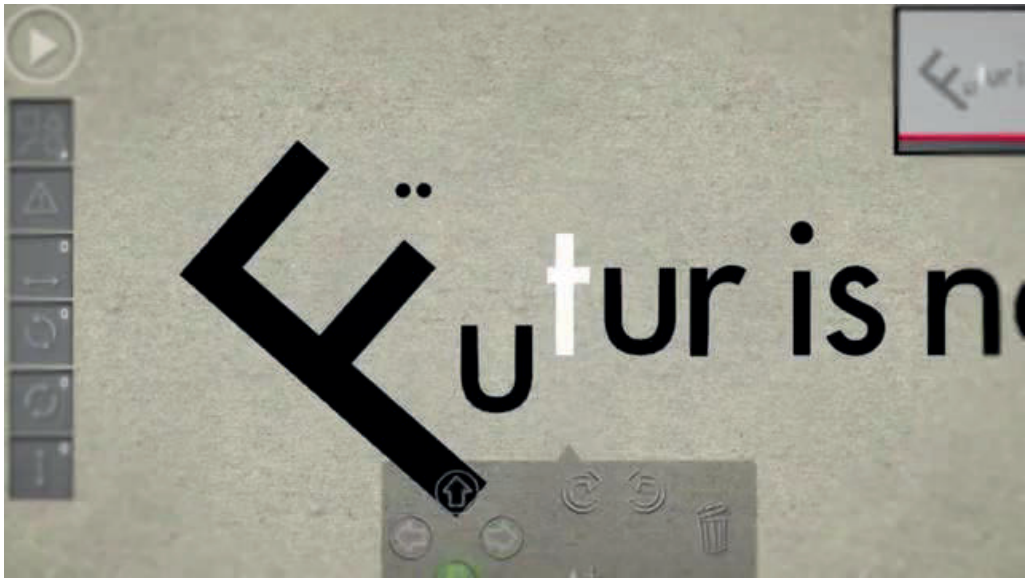

Figure 5: Type Rider: Facebook Creation Kit

Within the system, the orientation and difficulty of each level can be determined individually by means of various design and layout components. Beginning with a basic set-up, which defines a starting point and a finish, challenges and obstacles can be added as game design elements. The positioning and direction of letters can be set up, and their size, mobility, and rotation can be changed. Moreover, the creative process of level-design is bound to a specific system of motivation: the user progresses in his or her training and is certified according to his or her improvements (for example, the user can be promoted from "stonemason" to "copyist"). Finally, these individually created parts of the game can be shared with others who can respond the levels' structure and dynamic. In this way, *Type Rider*'s level design is more than a creative task: as a social game it accentuates feedback and interaction, and by doing so, it not only facilitates experimental development of gaming

environments but also generates a broader understanding of dynamic processes of creation and cooperation.

The third format, the interactive installation of *Type Rider*, initiates a transfer of the game's rules to exhibition spaces. The installation is arranged as a movable artwork which levitates the points as projected elements in space. Moreover, the game's letters can be changed by the viewers-users themselves and thus be repeatedly rearranged and realigned. Using video projection and shape recognition, this version of *Type Rider* leaves the screen to be experienced in public spaces. Hence, it reflects our perception of everyday life as being overlaid by ludic modes which exceed the stationary medium and thereby interact with reality. On the one hand, this process promotes a sensitization to text's removal from its material substrate (since the installation addresses the virtualization of both writing tools and texts); on the other hand, it alludes to forms and systems of *augmented reality* (since it presents a real-world environment supplemented by projected information, thereby enhancing the perception of reality).

As a transmedia project continuously converting and extending its universe, *Type Rider* focuses on the media development of writing and its historically adaptable positions and procedures. Moreover, it prompts users to rethink the constitution and transfer of knowledge in its dominant forms and systems. *Type Rider* can thus exemplify a medial reflection exploring the consequences of a transformation of both cultural techniques and media historiography. This ensuing potential for changed and changing understandings of history has been addressed by Kerschbaumer and Winnerling (2014, p.14, *my translation*): "Video games dealing with historical content [ ] are mechanisms of dynamic production of more or less coherent processes of representation of the past." Additionally, however, video games not only deal with representations, but with the very production and modulation of historic knowledge itself. If the digital game *Type Rider* deals with the history of writing, it renders it in a specifically ludic manner: it does not simply write this history, but it writes itself into what it generates and transfers as a knowledge of writing. In this respect, it allows for a shift in perspective that focuses on its own mediality and can thus be made productive for the examination of the historicization of media culture. Lev Manovich (2001, p.161, *my translation*) underlines: "Computerizing culture not only affects the logic of currently produced cultural objects, but rather our understanding of art and media of the past." Consequently, categories that newly arise from digitalization should be applied to concepts of media history. As an example, Manovich (2001, p. 162, *my translation*) mentions the category of the interface and suggests that we develop a "new reading of media history as a history of interface-design," that we "think of the interface, a term originating from engineers' laboratories, as a broad cultural category." Defining the interface as an intersection of man and machine implying technical as well as conceptual demands, Manovich concentrates on Internet culture and the question of its function as facilitator. In this context, the interface is understood as a central cultural category that cannot be reduced to a mechanical hub. It must rather be apprehended as a configuration that implements technological modi operandi as cultural techniques. For Manovich, the web browser serves as an example for a passage through which technical information and artistic production are transferred and transported:

> As a window of a Web browser comes to replace cinema and television screen, a wall in art gallery, a library and a book, all at once, the new situation manifests itself: all culture, past and present, is being filtered through a computer, with its particular human-computer interface (Manovich 2001, p.163, *my translation*).

The concept of the window addresses a far-reaching change, concerning not only the passage of content, but also raising questions about its representation and perception. Jay David Bolter and Richard Grusin's concept of remediation concentrates on processes in which former and current medial logics are intertwined. According to this concept, digital culture's central characteristic consists of a tendency to hyper-mediatize:

> Where immediacy suggests a unified visual space, contemporary hypermediacy offers a heterogenous space, in which representation is conceived of not as a window on to the world, but rather as 'windowed' itself – with windows that open to other representations or other media. (Bolter and Grusin 2000, p. 243)

Anne Friedberg (2000, p. 243), whose history of the window as a cultural interface traces a development from multiplication to virtualization, points in a similar direction:

> The window's metaphoric boundary is no longer the singular frame of perspective—as beholders of multiple screen "windows," we now see the world in spatially and temporally fractured frames, through "virtual windows" that rely more on the multiple and simultaneous than on the singular and sequential.

Decisive for the interface as a cultural category, however, is a component that goes beyond the aesthetic tendency of virtualization and fusion: the dimension of intervention and control. Alexander R. Galloway (2012, p. vii) underlines: "Interfaces are not simply objects or boundary points. They are autonomous zones of activity. Interfaces are not things, but rather processes that effect a result of whatever kind."[7]

While in the past, the printing press served as a potent interface with the culture of knowledge regulating access, modes of perception, and forms of thought, digital games now generate new aspects of activity and exchange. A final look at *Type Rider* shall demonstrate this. Clearly the game's most significant quality is the transition from invariant knowledge forms to flexible knowledge constellations. Intra-ludically, this becomes evident in the gameplay's seriality: the process of acquisition takes place more than once, leaving the basic constellation unchanged, while gaming itself is open for variation and deviation. As a result, gaming does not concentrate on securing static knowledge repeatedly, but rather on exploring that which can be known variably. In so far, we are dealing with an experimental quest: something must be tested repeatedly in order to reach the next level of expertise. This correlates with a specific possibility—that of sharpening the gaze for dismissed opportunities of progression. Moreover, this consciousness is not solely developed inside the game's world, but expands to the phenomenon of "serial interfacing" (Denson and Jahn-Sudmann 2013, p. 11). That which is being explored and investigated is transferred to other media contexts and is made visible as knowledge of the game. Take, for example, various YouTube-videos presenting a productive processing of *Type Rider*'s facilities. In contrast to walkthrough videos, these clips transcend the game's original scenery to establish an independent form of design. For example, there is a digitally animated film in which self-made lettering moves across screenshots of the

game *Type Rider* and other pictures[8]; or a clip which presents an arrangement of paper-folding techniques while addressing *Type Rider*'s levels, playing with the relation of literacy and spatiality.[9] By combining user generated content with gaming aesthetics, these clips oscillate between artistic direction and visual gimmick, between abstract short film and medially reflexive comment.

On the one hand, these practices indicate how gamers become agents surpassing the game. On the other hand, crucial to the question of media and its historicization, it becomes evident that we are at the beginning of a transformative process that is able to change not only our present modes and forms of knowledge, but also our understanding of their origins. Ludic seriality enables the acquisition of knowledge as a flexible process. It allows for an experimental epistemology which displays and unfolds knowledge levels and maps the connectedness and entanglements between them. In this respect, digital games can be understood as catalysts for historicizing knowledge formations:

> At this profoundly transitional moment in media development, the working agenda for historians can quite productively make use of those earlier transition moments when related forms of instability threw into question media ontologies and, with them, issues of epistemology, perception, and memory. (Uricchio 2001, p.70, *my translation*)

Thus, digital games are more than archives and systems, more than apparatuses and applications. They are laboratories in which we have to move and prove ourselves.

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Notes

1 On the relation of letters and kinesis in the moving image see Scheffer and Stenzer 2009 and Arns et al. 2004.

2 The game uses the artist Saul Bass's work as an example, but it also presents the influential lettering design of *Metropolis* (Fritz Lang 1927).

3 For an extended discussion of this aspect see Bolter 2001.

4 On this development's impact on text in digital games see Garrelts 2013.

5 Ian Bogost (2005, p. 1) defines exergames as “games that combine play and exercise,” including digital technology that tracks body movement and physical reaction. For a discussion on the relation of exergaming and kinaesthetic mimicry see also Behrenshausen 2007.

6 A presentation of these formats is available at: http://typerider.arte.tv.

7 On the cultural history of the interface see also Johnson 1997 and Hookway 2014.

8 https://www.youtube.com/watch?v=qkRuK8Dt_G4.

9 https://www.youtube.com/watch?v=xcSe3Z5KdZA.

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Digital Seriality as Structure and Process

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Digital Seriality as Structure and Process

DOMINIK MAEDER AND DANIELA WENTZ

Introduction: Digital Seriality as Structure and Process

The web is foremost a form: an idealized structure of decentralized and delinearized connections between sets of data, stored on an open multitude of physical devices dispersed around the entirety of the globe. Despite its (in principle) distributed and networked technical nature, the web is accessed through a relatively small number of websites and services such as Google, Facebook, Twitter, Yahoo!, Wordpress, and their respective affiliates. These companies centralize and monetize access to, and the flow of, web data. For an overwhelming majority of private and business Internet users, these companies' various services are crucial to the everyday experience of the web. Bypassing all these services—for instance in an effort to escape government surveillance—is still theoretically possible; however, it requires an advanced level of technological understanding and awareness. The web as an ordinary and everyday medium (or set of media) thus becomes effective, operational, and convenient only through the interfaces of a few predominant search engines and social networking, video sharing, and (micro)blogging websites—the web's "citadels" (Warnke 2012).

In other words, while it is technically a complex, decentralized, and non-linear networked structure, the web becomes phenomenal, i.e. visible and open to navigational user practices, only in so far as it is made accessible by a small number of web interfaces operated by an even smaller number of companies and corporations (cf. Warnke 2012, pp.132-134). Since these interfaces format most of the world's experience of the web, it is imperative that we pay close attention to their formal properties. With regard to a theory of interfaces, such as that developed by Lev Manovich (2001), we will argue that web interfaces in principle, and contemporary examples of video sharing websites such as YouTube in particular, can be described as operative forms of *seriality* rather than as webs or networks. More precisely, we will show that YouTube's interface performs, enables, and fosters operations of serialization, operations which occur neither inside nor outside of images, but in the in-between space of the interface. These forms of digital seriality can be located, for instance, in the publishing strategies of video-game based walkthrough videos, so-called *Let's Plays*, which closely resemble and emulate serial television programming. While these procedures of weaving complex (narrative) nets through serialization in television have received a great deal of scholarly attention over the course of the past decade (cf. Mittell 2006, Nannicelli 2009, Piepiorka 2012), seriality as a key feature of web-based forms has largely been neglected and left undertheorized. Manovich's disregard of television in its entirety, and of seriality as a spatial-temporal procedure in particular, serves here as a case in point.

Compared to the concentrated, regulated, spatially based seriality of Youtube's interface, the platform's infrastructure at the same time enables a form of seriality that can be described in completely opposite terms. The platform is also one of the most

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important locations where what one might call “viral seriality” takes place or has its origins. Videos are called viral when they gain a very high degree of popularity, often on a global scale, through extensive and rapid online viewing and sharing, mostly in the form of user-based distribution via video-sharing websites and social media.

Virality is based on speed and decentralization—a spatial distribution in time—which, more or less opposed to the regulated seriality of Youtube as a platform, has to be described as a process that is out-of-control: Videos spread via networked distribution in ways that can neither be foreseen nor determined, much less controlled (cf. Burgess 2007).

Viral videos can be described not only as fodder for today’s media and network culture, but might—and will in this paper—be approached also as revealing the basic traits of the media ecology of which they are an essential part (cf. Parikka 2005, Goriunova 2013, Sampson 2012). As such, viral videos have to be understood not as discrete entities or as mere messages or content. Rather, they are complex, autopoietic processes which, together with memes of all sorts, and also malicious software like viruses and worms, lie at the heart of the vividness and maintenance of network culture as such. Olga Goriunova describes memes very aptly as “techno-aesthetic processes of becoming,” as “a behavior, or rather a system of human-technological performances. A meme grows out of a variety of websites, agents and ecologies, meshing to build networks promoting its emergence” (Goriunova 2013, our translation). While, as Limor Shifman writes, “memes and digital culture seem like a match made in heaven,” it is interesting—especially in the context of this special issue on digital seriality—that all the aforementioned phenomena are based on serial processuality, on coupling, doubling, replication, repetition, imitation, and more or less independent distribution (Shifman 2014; for the virus cf. Parikka 2005, 2007). Memes, as we aim to show, are paradigmatic examples for digital seriality across multiple dimensions, not only with respect to their sprawling distribution processes.

Our aim, in the following, is not to describe the entirety of networks in terms of seriality, yet we do argue that serial operations and procedures play a distinct and significant role in the workings of Internet memes and digital interfaces generally.

The Seriality of Interfaces

Within the space of a mere decade, YouTube has become synonymous with watching videos online; indeed, the platform plays such a crucial role in people’s access to visual material on the web that its interface may already have become a naturalized form of organizing and displaying web videos.

Much scholarly attention (both affirmative and critical) has been given to YouTube as a platform that empowers its users, and that arguably marks a larger medial and cultural shift in production cultures with users increasingly becoming producers themselves (cf. Bruns 2008). Likewise, research on the aesthetics of specific YouTube genres such as vlogs, machinima, Let’s Plays, mashups, and many others is well on its way (cf. Snickars and Vonderau 2009, Lovink and Niederer 2008, Lowood 2011). Far less academic work has been devoted to the interface forms through which social networking sites and video or image sharing platforms enable,

actuate, and govern actual navigational practices. Rather than being mere containers for the distribution of content or neutral placeholders for user-driven practices of "prosuming," interfaces have to be conceived as the basal forms through which practices of sharing, "produsing," and mashing up are put into effect, shaped, and regulated. It is precisely this scholarly "neglect of the substantial role a site's interface plays in manoeuvring individual users and communities" (van Dijck 2009, p. 45) which we aim at starting to overcome in this section.

In his seminal work on *The Language of New Media*, Lev Manovich (2001) provides an account of new media that focuses on the aesthetic forms of digital media and makes a strong case for the importance of visual interfaces. In this context, he aims at outlining the affiliations of new with "old" media by analyzing the ways media as diverse as print, cinema, and computers represent and construct space and time in making databases accessible and enabling narratives. Strangely enough, new media's immediate predecessor, television, plays only a minor role (if at all) in his analyses. Drawing upon television's strong affiliation with modes and forms of seriality, we may eliminate this blind sport and emend Manovich's analysis of database and narrative, which he asserts to be "natural enemies" (2001, p. 225).

Manovich's strong claim regarding the natural enmity of database and narrative—which is a claim about the relation between the structure of gathered data and the navigational practices by which it is accessed—derives from what he describes as a semiotic reversal: While the syntagmatic, i.e. the linear cause-and-effect dimension of signs, is presented *in praesentia* in the material sequence of spoken phonemes, written graphemes, or the moving images of film, the paradigmatic, i.e. the non-linear differential dimension of signs, remains *in absentia*, available only through virtual comparisons between potential phonemes and graphemes or images. In computer-based media, on the other hand, these paradigmatic and syntagmatic functions of signification are transposed, according to Manovich (p. 230): here, the paradigmatic dimension of signs, the inventory of potential elements of signification, is displayed on the screen and thus present, while syntagmatic sequences, linear combinations of signs, remain subject to the navigational practices of individual users and are thus relegated to the realm of the virtual. "Database (the paradigm) is given material existence, while narrative (the syntagm) is dematerialized. Paradigm is privileged, syntagm is downplayed. Paradigm is real; syntagm virtual" (p. 231).

This conception of paradigmatic database and syntagmatic narrative has, of course, been challenged (cf. Hayles 2012, pp. 175-198), and even Manovich himself arguably fails to consistently hold up his strong claim about the antagonism of narrative and database. In his discussion of the loop as a basic means for constructing "database narratives" (Manovich 2001, p. 319), Manovich presents the loop as a technique that produces difference through repetition in filmmaking as well as software coding, leading Manovich to the conclusion that computer programming, like filmmaking, belongs to the same realm of industrial seriality that has been characteristic of modernity all along: "So if we strip the computer from its usual interface and follow the execution of a typical computer program, the computer will reveal itself to be another version of Ford's factory [...]. A computer program progresses from start to finish by executing a *series* of loops" (p. 317, *emphasis added*).

Drawing upon this marginal notion of seriality, Stephanie Boluk argues that seriality is the missing link in Manovich's discussion of database and narrative. As seriality works both spatially (e.g. a series of paintings on a wall of a gallery) and temporally (e.g. a series of events over time), it operates on both sides of the distinction between paradigm and syntagm and may thus be located on the levels of database and narrative alike: "Digital media and specifically, a database aesthetic, subsumes these multiple, perhaps even contradictory uses of seriality under its regime of production" (Boluk 2009). Seriality may then be analyzed not only as a function of computer code, but as an aesthetic feature of the organizational forms in which databases are presented and, therefore, as an intrinsic feature of web interfaces.

This neglect of seriality in Manovich's discussion coincides with a media-historical blind-spot: jumping directly from the cinema of the early twentieth to the digital media of the late twentieth century, Manovich quite stunningly skips the defining medium of the twentieth century altogether: television. This is all the more surprising when taking into account television's technological status as a point of transition between "old" media, i.e. the storage-based, chemical-optical media of photography and film, and transmission-based, fully electronical "new" media. Anticipating the clickable operational images of computer screens and the selection device of the mouse, television's images can already be qualified as switchable images, as images which enable operations of selection embedded in a supplementary device, the remote control (cf. Engell 2004, 2013). In turn, TV viewers' navigational practices have also relied heavily upon (printed) lists and tables of television schedules, which are nowadays integrated into fully digital guides and menus on the TV screen itself. Most significantly, however, both on the levels of programming and of aesthetic forms, television has adopted a mode of monitoring the multitude and heterogeneity of televised worlds (Cavell 1982), a mode that enables collecting and assembling images of different times, places, and media while at the same time converting these images into narrative forms. The epistemological and aesthetic procedure which television brings into play—and the key term which Manovich's discussion of old and new media is missing—is, of course, seriality.

By employing lists, tables, drop-down-menus, and so forth, web interfaces do indeed strongly favor paradigmatic forms of representation, yet rarely—if ever—do we encounter "pure" paradigms. Google's search bar, for instance, refrains from any paradigmatic visualization at all, the reason being that if Google aims at making the entirety of the web searchable, any visualization would require an immense amount of processing and necessarily lead to an excess of visibility. Search results appear in the form of a list, which again does not encompass the entirety of link results in a random fashion, but sorts them according to the company's algorithm (PageRank), which promises to display the most relevant results[1] at the top of the list and limits the number of results displayed on one page to a predefined number of just ten.

Search results, however, do not constitute narratives in a conventional sense: their order is not one of causality and sequence, but of selectivity. The relation between the first list entry and the second one does not correspond to the linear sequence of a scholarly book, for example, which would usually start with an introductory overview in its first chapter and then elaborate on one specific aspect of the topic at hand in its second chapter, arranging these things according to comprehensibility, the supposedly sequential logic of the research process, or the intrinsic rationalities of

the research object itself. In any case, the first chapter of a book somehow prepares the reader for reading the second one. Obviously, this does not hold true for search results, whose order is based on similitude, which is brought into a structured and selectable top-down sequence by Google's algorithm. PageRank calculates a document's relevancy by evaluating its degree of interconnectedness, thereby modeling a random user's likelihood of stumbling upon a website (cf. Page, Brin, Motwani, and Winograd 1999). This automated link-topological procedure (cf. Röhle 2010, pp. 121-128) conceives the web as an aggregation of possible sequential paths, which may be mathematically converged, evaluated, and brought into a sequential order—the search list.

The list (like tables, registers, clouds, and so forth) thus cannot be conceived as a representation of purely paradigmatic dimensions of signification, which could be located on the level of a new media ontology (cf. Manovich 2001). Rather, lists and other distributed forms of presentation are the primary tools through which paradigms are constructed, but they only become effective when we regard and use them as such. Yet lists additionally enable, in contrast to spatial forms such as tag clouds, a unidirectional, summary form of reading, thereby allowing for a seamless screen flow as users are accustomed to not browsing through the whole menu of results but quickly choosing one of the first options. Entirely personalized search engines such as StumbleUpon, in consequence, go so far as to eliminate lists from their interface, instead rerouting a user directly to another page, thereby valuing screen flow above selectivity. By constructing a menu of selectable options across the screen and at the same time bringing these options into a top-down sequence for generating screen flow, lists have arguably become such a privileged form for web interfaces precisely because they do *not* represent the web. By reproducing existing paths through the web and allowing for non-linear operations of following up, they may rather be described as forms of serialization. This becomes more evident when we take a closer look at the organizational forms of YouTube.

As a cultural technique, browsing through YouTube might by now have become as intuitive as writing letters or zapping through TV channels. Indeed, other web video sites such as Vimeo, which aims at hobby and semi-professional filmmakers, or the live streaming platform Twitch, happen to be organized in a fashion similar to what we will here outline for the case of YouTube. However, since its launch in 2005, YouTube's interface has undergone several major and a myriad of minor updates, indicating a constant need for optimization and adjustment to its uses. Moreover, with the rise of mobile media, any notion of *the* YouTube interface has at least become problematic, for the introduction of specific small-screen and touch-based interfaces for smartphones and tablets has led the desktop interface to lose its binding or canonical status. For the purpose of this article, we will nonetheless focus on the desktop interface as our point of reference, because it still is the most encompassing type of interface, making most of the site's functionality accessible through a single screen (cf. Figure 1).

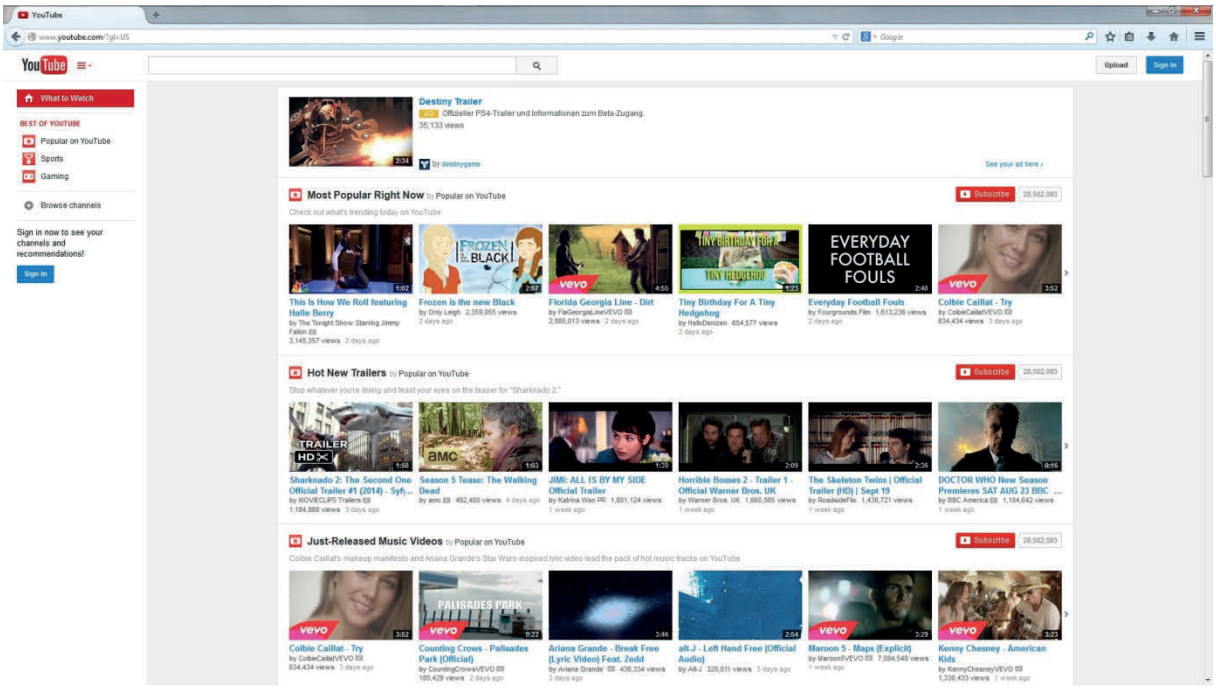

Figure 1: "Default" US YouTube start screen, 07/11/2014, http://www.youtube.com/?gl=US

If we wish to describe this interface in language, i.e. in a linear, text-based form, we already encounter a methodological problem: The site's design makes any assumption regarding an obligatory starting point seem arbitrary. Rather than being organized around a central point of entry, such as is the case with Google's search engine, we are here exposed to a spatial arrangement consisting of rows of identical-sized images and a column of navigation buttons, as well as a small header including the logo and search bar. In its spatial organization, this display clearly lends itself to the representation of databases, for it mimics tabular forms for the two-dimensional representation of separate data entries. The strict flatness of this operational image levels the potential hierarchy of top-down and left-right preferences for users accustomed to specific script cultures, making any image equally likely to be clicked upon.

While the tabular form evokes databases as collections of data without hierarchy, the interface opts at the same time for a display of well-sized and thus easily identifiable preview images, which significantly limits the number of entries available on one screen (without scrolling). Drawing upon a distinction drawn by de Certeau (1988, p. 221), the spatial arrangement here operates no longer according to the logic of an image space, which makes us recognize the order of places, but follows a logic of movement: The table of preview images is precisely not just a list; consisting of clickable links, it defines a range of possible paths or trajectories across the database. These paths result from a monitoring of media usage: by default, YouTube suggests videos according to their popularity, i.e. according to the metadata that the site itself collects about the frequency and order in which users watch videos. Watching YouTube therefore always already implies watching other people watch YouTube (cf. Adelmann 2012, p. 264), because the tiny snippets of data presented to the user can also be regarded as screened metadata (cf. Chamberlain 2011, pp.

236-237). These recommendation systems arguably play a key role in the experiences of watching YouTube, for they are, again by default, present throughout every part of the interface, most prominently featured as a top-down list on the right-hand side column next to the actual video player. (cf. Figure 2)

Figure 2: YouTube's paths of recommendation, 07/11/2014, http://www.youtube.com/watch?v=rvsuYssoTw0

Unlike search engines, which are designed to enable users to find something outside of the search engine's realm, recommendation engines pursue the purpose of prolonging and extending a user's activity on a specific page by the means of serialization. As Susan Murray (2008, p. 155) has argued for the case of the photo-sharing site Flickr, the interface's organization leads to a devaluation of single images and enacts procedural logics of streams and flows. Ever since Raymond Williams's (1974) seminal description of the experience of unmarked transitioning between heterogeneous moving images, "flow" has of course been thought of as a key property of television. YouTube's flow, generated by its recommendation engine, must be located on a different level of media experience, however. In television, flow emerges in two ways. On the one hand, it derives from operations within TV imagery: through teasers, announcements, and soft transitions, television produces a seamless experience of watching not just a distinct program, but a serial stream of programming, an experience of "watching television" (rather than watching a particular program). On the other hand, the mechanism of the remote control allows viewers to switch between channels, i.e. between completely self-contained images, and thus enables a serial flow of images to emerge out of technical manipulation outside of the moving electronic images. While in the former case serialization occurs within discrete images, in the latter case it is constituted outside of TV imagery proper by the means of "channel-surfing," which does not directly affect the respective images of different TV channels.[2]

In the case of YouTube, by way of contrast, flow has to be located on the level of interface and therefore *between* images. Since videos are produced and uploaded by users completely independently of one other, in principle they remain stand-alone images which may or may not be selected by users. Yet at the same time they are assembled on the very same screen and thus necessarily interact with other videos (and their users) through metadata, either through formalized tags and keywords or by belonging to paths of usage.[3]

William Uricchio has accounted for this transition between televisual and digital flow as "a shift from flow as default to flow as a condition that requires active selection" (Uricchio 2009, p. 33). More precisely, however, this shift has to be located on the level of serialized images: while serialization in television takes place either within or outside of images, YouTube's seriality occurs on the level of the interface itself, and therefore between images. As images which allow for operations of selecting, as well as pausing, rewinding or forwarding, YouTube's videos also shift and redistribute agency to the user. Unlike watching television, "database-watching," as Lovink (2007, p. 10) calls it, requires constant exertion of user agency, so the trajectories across the database, which the interface defines, aim precisely at upholding the user's agency. On YouTube, seriality is therefore not a process belonging to the realm of imagery, but a metadata-driven movement across a database, which the interface enables and aims to actuate in cooperation with the user. YouTube can thus be characterized as an agent for the production of serialized agency that occurs between images.

Recommendation-based serialization thereby necessarily leads to a series of similitude. Distinct segments link up with each other either through semantics (tags and keywords) or by automated observation of user activity. Following paths of recommendation leads, however, to a perpetuation of these paths and thereby tends to disable the interface's ability to produce difference. Thus, following recommendations frequently results in loop-like structures, where a user's movement across the database folds onto itself through algorithmic repetition (cf. MacKenzie 2006, p. 176). And while processes of serial looping, copying, and repetition play a large role in the aesthetics of digital, networked media (cf. section III of this article), YouTube's interface does provide an additional organizational form, which circumvents serial repetition by providing a personalized, subscription-based access to its database (cf. left-hand side column in Figure 3).

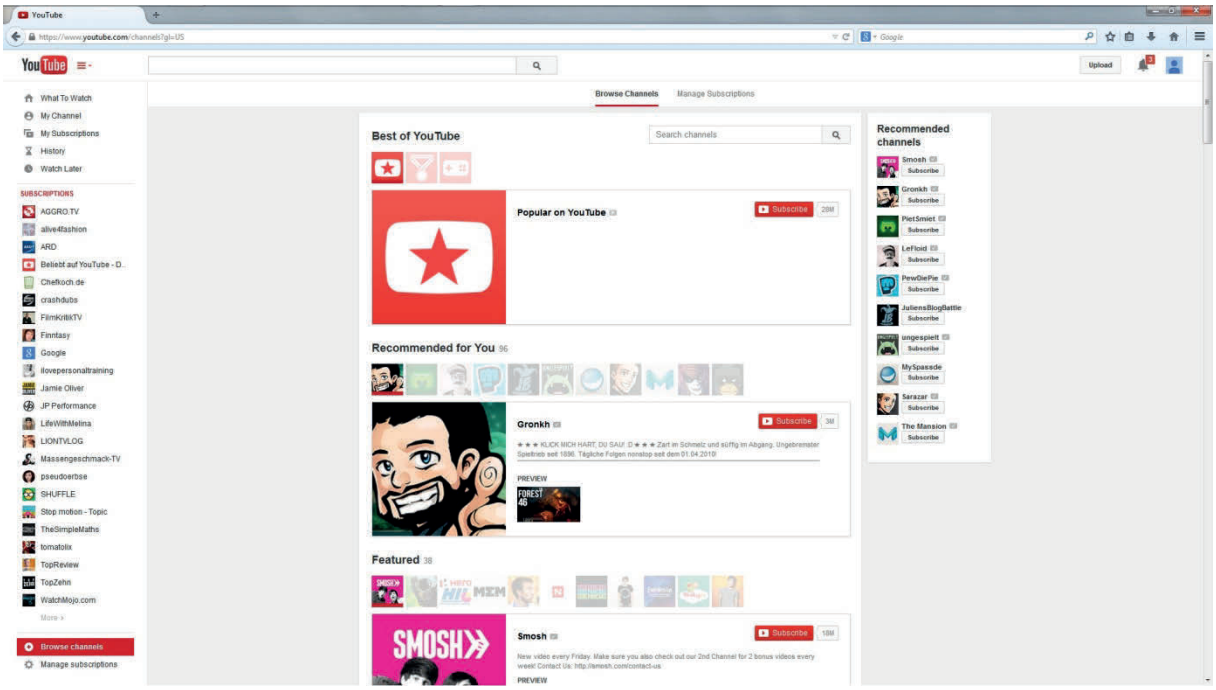

Figure 3: YouTube's left-hand side interface column provides an additional layer of navigation after creating an account and more or less randomly subscribing to recommended channels.

Subscribing to specific "channels" thereby not only mimics the logics of cable and pay TV, but it also enables seriality to become a feature of the images themselves, most pertinently in the emergence of *Let's Play* videos as a distinct YouTube genre with video uploads scheduled to appear regularly on specific weekdays, thus enabling *Let's Players* to produce distinct series. As a database within a database, a YouTube channel aggregates the content of individual producers or uploaders and allows for the organization of videos in producer-generated playlists, as well as allowing subscribers to receive automated notifications of new videos. By shifting agency towards producers/uploaders, YouTube's channel system has led to a large number of users being able to monetize their activities through YouTube's partner program. This allows for longstanding series to be produced, which may take the form of episodic series (e.g. introductory *Let's Plays* for different games) or long-form serials (e.g. complete *playthroughs* of Triple-A games) and thus for seriality to become a defining feature of these camera-less images. This shift of agency in turn also reintroduces problems akin to television's scheduled programming: *Let's players* frequently apologize for uploading "too late," for cancelling unpopular series, or for being unable to produce new videos due to vacations or other commitments.

Let's Play videos often emerge out of non-stop gaming sessions, yet they are usually split up in distinct segments. Games arguably already lend themselves to notions of seriality (cf. Denson and Jahn-Sudmann 2013), thus encouraging YouTubers to carefully align the serial structure of *Let's Play* videos with the serial structure of the games themselves, e.g. by matching video segments with gaming segments such as levels, turns, and stages. The serialization of gaming that occurs in *Let's Play* videos is not, however, a direct result of games' seriality, but of the organizational forms of operative images provided by the interface.

In addition to these interface-based forms of seriality, YouTube also hosts a different kind of seriality, in which agency is not so much located in formal operations of the interface, but in the self-directing processes of producing, transforming, and sharing images which have come to be known as "memes." It is to these that we turn now.

The Seriality of Memes

In the "ecology of practices" (Stengers 2010) which is the web, viral and memetic seriality plays a crucial role as both a form of mediated, image-based communication and as a self-reflexive means of analysis of the networked culture of which it is an essential part. Memes are digital and processual objects with an agency of their own. Whereas viral images or videos are based on a form of seriality familiar to us from industrial mass production—i.e. a continual production of more of the same—a meme can be defined differently: not as a discrete *part* of a series but as *itself always already a series* of different digital items that share only a certain set of characteristics—like form, content, or aesthetics—and thus refer to each other in a relatively closed formal system.[4] Hence, a viral video can be a part of a meme, but its viral spread alone does not make it a meme. Thus, what differentiates memes from viral images or videos is the handling of the "original" content throughout the serialized process. Memetic processes are not only about liking, simple copying and sharing, they are especially about transformation. Although the term meme was originally used to describe mechanisms of mere replication—as in evolutionary biologist Richard Dawkins's seminal use of it to describe small units of culture or distinct contents of consciousness spreading through communication and thus contributing to cultural evolution—more recent understandings of memes especially emphasize the oftentimes user-based transformation of "primary" content in the production of parodies, remixes, mash-ups, re-enactments, remakes (Dawkins 1976, Fuller 2007, Goriunova 2013, Shifman 2014).

Despite the possibility, in principle, of tracing most popular memes back to a certain original video or image, terms like "original" and "primary" have to be put in quotation marks. In most cases, it is questionable whether it even makes sense to speak about original content, for the meme-series completely decontextualizes the original image and changes its meaning. The significance, with respect to memeification, of some random image macro or moment in a film or video lies less in its unique original characteristics, but rather conversely in its ability to be transformed or be put in totally different contexts. It is not the source's meaning that creates the meme, but rather the other way round. Moreover, as mash-ups and supercut videos make particularly clear, an essential attribute of memes is their intertextuality, along with the fact that their production involves agents of totally different medial and material origins. Such series have neither beginnings nor ends, neither precisely definable predecessors nor successors. But despite this apparent indeterminacy with respect to (audio)visual or textual materials, thematic issues, aesthetic forms and so on, memes gain their strength precisely from a pronounced tension between repetitiveness and differentiation. Indeed, memes tend not only to organize around serial repetition and imitation within an individual meme-series, but also to build veritable genres with very distinct styles and/or contents that unite or relate individual memes, thus establishing a kind of inter-seriality in addition to the intra-seriality of memes discussed so far.[5] It

is beyond the scope of this paper to give an exhaustive list of these genres, but a short look at three of the most common (still) image-based meme genres—viz. the extremely easy-to-produce image macros, Photoshop memes, and photo fads—should suffice to illustrate this level of inter-serial proliferation.

Image macros, probably the most prevalent meme genre, can be described very simply as photographs with large, white text superimposed upon them. This multimodal genre can be divided into multiple subgenres like the notorious *lolcats*, the so-called "advice animals," or stock-character macros like "The High Expectations Asian Father" or "The Successful Black Man." Most of them share the same visual style, with images of the animals or stock characters presented in front of a color-wheel background (cf. Figure 4).

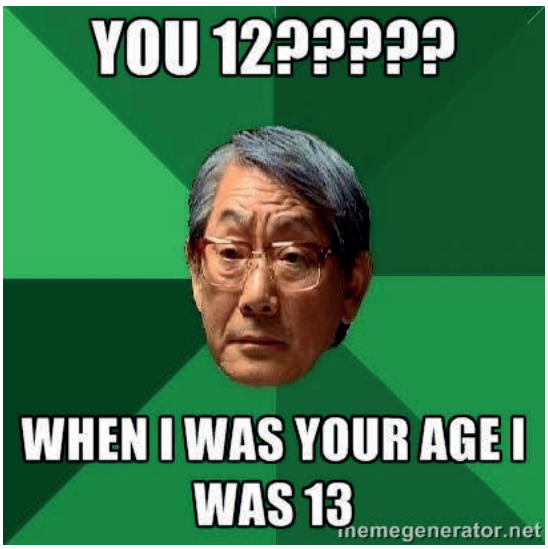

Figure 4: High Expectations Asian Father

The animal archetypes and human stereotypes that constitute the main body of this meme-subgenre are as such already the sedimented results of frequent, repeated recurrences in diverse cultural forms—serial figures which can be used either to affirm or undermine the historically consolidated underlying stereotype.[6]

The second genre, Photoshop memes, often places a famous object or person in a variety of extravagantly different contexts. A recent example is "The Ridiculously Good Looking Guy," a meme based on the photograph of a handsome young man captured during a marathon. This photograph inspired not only multiple images that photoshopped the man into totally different contexts, but also multiple series of different meme styles, including a series of advice animals and derivative series like "The Ridiculously Photogenic Metal Head" or "The Ridiculously Photogenic Horse,"—serialized (and emphatically inter-serial) memes that can only be understood in their full meaning if one is familiar with the first of those series. This meme-literacy is vital to understanding the complexity behind the seemingly platitudinous humor that often characterizes such phenomena.

At the time of writing this article, during the 2014 Soccer World Cup, a meme called "VanPersieing" has originated from soccer game footage.[7] This meme illustrates genre-seriality and genre-intertextuality on at least three different levels. Based on Dutch national football player Robin van Persie's goal against Spain with a flying header during the World Cup group match on June 13, 2014, this image proliferated widely and quickly as both a Photoshop meme and as a so-called photo fad, the third genre term discussed here, which describes staged photos capturing the subject posing in a very specific manner (e.g. in the "planking" pose, which requires that the subject lie head down on the ground, hands touching the side of his or her body, often in unusual locations). As a Photoshop meme, the soccer player appeared flying with the casts of the movies *Peter Pan* (Clyde Geronimi, Wilfred Jackson, Hamilton Luske 1953) or *Gravity* (Alfonso Cuarón 2013), was shown alongside superheroes, or was portrayed as the next step in human evolution, for example. One of the viral images shows him among salmon swimming upstream in a river, straight into the gaping mouth of a brown bear. This iteration of the meme references another popular meme genre, the so-called demotivaters or demotivational posters. As a genre, the latter are parodies of motivational posters, which, in their simplest form, combine postcard-like images with banal optimism and comical pessimism.[8] The common salmon-and-bear picture combines the title "ambition" with the phrase "the journey of a thousand miles sometimes ends very, very badly."[9] Van Persie's flight further inspired people to upload pictures of themselves in a Van Persie-like pose. As this pose is overtly reminiscent of the aforementioned planking pose, itself an extremely popular memetic photo fad genre, the "VanPerseing" almost seems to be a meme about memeing itself (cf. Figure 5-7).

Figure 5: Van Persie and the cast of Peter Pan

Figure 6: A journey ending badly

Figure 7: Van Persie pose

As we see, then, the peculiarity and appeal of memes, especially those related to the genres described here, cannot be situated outside the realm of their seriality. By doing a Google or Tumblr search for the term “owling,” you find a myriad of images of

people posing like an owl and staring blankly into space, and by googling the number 241543903—well—find out for yourself (cf. Figure 8).

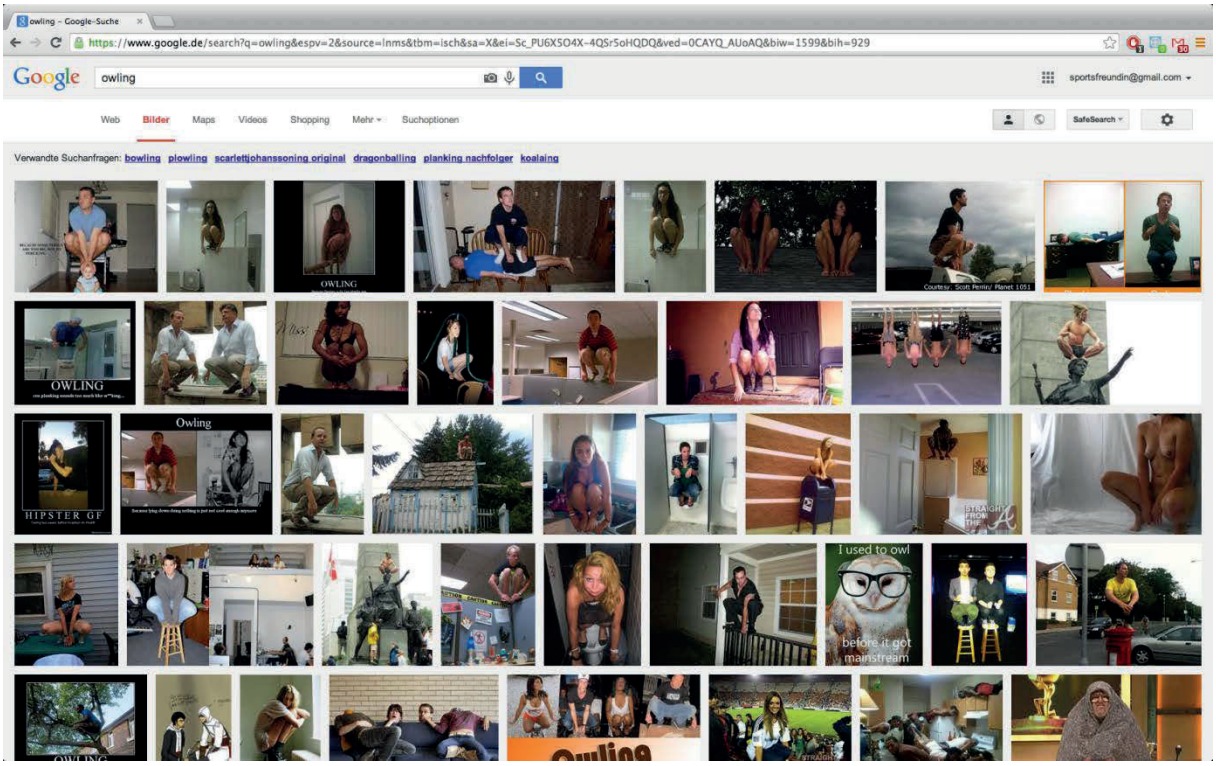

Figure 8: Image search for "owling"

The sheer quantity and juxtaposition of the similar creates veritable atlases of exalted "pathos formulas" (Warburg) without a history. It may at first sight seem eccentric, even forced, to relate the results of a Google image search for these meaningless actions or poses to Aby Warburg's famed *Mnemosyne* project, in which he pinned photographs and visual tropes to black boards and related them to each other in his Mnemosyne project in terms of an "afterlife of the antique" (Warnke and Brink 2000). But, as a matter of fact, these apparently disparate image collections not only share striking similarities concerning their style and the role seriality plays as an analytical and representational tool for the memetic—or, in the case of Warburg, mnemonic—project, but they also have in common a conspicuous interest in poses and gestures (for the epistemology of seriality in Warburg's atlas, cf. Wentz 2014).

Nor is this fact limited to the memes described so far. Rather, one of the most interesting meme genres—with genre here conceived in terms of techno-aesthetic form—is surely the ubiquitous animated gif, whose primary content is the bodily motion of humans and animals (on the gif, cf. Lewe 2014). There are countless examples of these extremely short and looped clips, consisting of animations, home videos, or fragments of movies, television series, or captured sports events; of course, the VanPersieing meme also exists as a gif, looping the movement of the flying Dutchman for all eternity. Gifs are downright obsessed with facial expressions and bodily gestures. A great entrance by Beyoncé, a yawning kitten, Ryan Gosling smoking, David Cumberbatch as Sherlock removing a scarf rather theatrically, some

guy trying to jump from a trampoline into a swimming pool but missing, a toddler falling asleep whilst in the middle of eating: the list, of course, is endless.

This obsession with the division of bodily movements, actions, and gestures into discrete parts is, of course, neither an invention made possible by gifs, nor is it especially new. Rather, it makes us think, almost unavoidably, of the analytical preoccupations of late 19th and early 20th century sciences such as physiology and physiognomy, criminology, ergonomics, and the photographic and proto-cinematic image techniques that enabled them. Etienne Jules Marey's physiological and chronophotographic studies, Eadweard Muybridge's photographic experiments for his encyclopedic atlas project on human and animal motion, Alphonse Bertillon's taxonomic image series of body parts and the so-called "signaletic registration system" of criminals, Frederick Taylor's and Frank and Gillian Gilbreth's time and motion studies for business efficiency: They all share an analytical focus on movement, especially gesture (cf. Levitt 2002, Wentz 2014), breaking images down into their smallest possible segments and creating series from the resulting images. Watching Van Persie fly and fly again or Ryan Gosling smoking that cigarette *ad infinitum* are highly reminiscent of Muybridge's series of women jumping over stools or dancing, horses galloping, men playing tennis or "Walking and Turning Around Rapidly with a Satchel in one Hand, a Cane in the Other"[10]—especially when such movements and gestures were brought back to life as looped animations with the help of the zoopraxiscope (cf. also Manovich 1995).

So what does this interest in the gesture have to say about network culture and digitized media? According to Giorgio Agamben, the gesture, which for him is the cinematic element par excellence, fulfills a media-philosophical role in that it "is the exhibition of mediality: it is the process of making a means visible as such. It allows the emergence of being-in-a-medium of human beings and thus it opens the ethical dimension for them" (Agamben 2000, p. 57). The gesture thus reflects pure potentiality and the mediacy of every meaning or message. In the gesture "nothing is being produced or acted, but rather something is being endured and supported" (1995, p. 56). Especially when images are repeated, the gesture is freed within them (Agamben 2008; see also Noys 2004; Hagman 2012). This becomes especially clear when the gesture, as in the gif, becomes decontextualized and disconnected from its original source. The gif frees the gesture from its context, e.g. its place in the causal chain of events in a movie; it thus replaces narrative telos with radical openness. Likewise referring to Agamben's notion of the gesture, media scholar Hampus Hagman identifies the gif's potential within the media ecology of networks precisely in terms of the form's pure mediality: "This is what the gif does: it shows movement as pure support; as the medium that carries actions and events. It is not a matter of communicating a particular content, but of showing movement as a medium of communicability as such. In itself, it is pure becoming and process, and this is key to understanding its success as an item of networked circulation. Through its decontextualized status as pure medium, it is free to enter into many different contexts" (Hagman 2012, n.pag.).

Serial repetition thus represents the heart of the aesthetic and analytical potential as well as the properly medial function of the meme phenomenon. In the infinite loops of human and animal gesture, meaning eventually surfaces. Supercut videos and archetypical image macros can be read as analytical tools to reveal patterns and

notorious clichés also far beyond the borders of Internet culture. Ultimately, as viral videos, images and memes of all sorts disclose the logics and characteristics of their media ecology by means of their own logic and functioning; simply by force of co-evolution, they are not only well-nigh paradigmatic reflections of their technological conditions and their media milieu, but they seem also to be the media that reveal most directly, via their own serial traits, that the notion of seriality as such has to be reckoned among the most basic characteristics of contemporary networked, digital media.

Digital Seriality and Television

So far, we have described two distinct modes of digital seriality. The first mode, which we located on the level of web interfaces, concerns the web as a structure of interconnected websites, as well as the organizational forms through which the operational images of web interfaces establish, manage, and regulate these connections. The second mode of digital seriality plays out on the processual level of viral autopoiesis, which is characteristic for memes as gesture-images in constant transformational becoming. While we have separated these two dimensions of digital seriality for analytical purposes, they should not be regarded as mutually exclusive, for they in fact presuppose each other. The purpose of interfaces is precisely the stimulation of image-processes such as memes, while the popularity of memes has likewise spawned new platforms dedicated to the accumulation and proliferation of memes.

The rise of digital seriality as a defining structure and process for web-based media coincides, finally, with the flourishing of serial forms in a rather "old" medium, viz. television. As contemporary TV series heavily rely upon their distribution through online platforms such as Netflix or BitTorrent and extend their realm far beyond the televisual texts themselves, we might speak more precisely of a co-evolution of televisual and digital seriality. It is thus no wonder that television series build a seemingly infinite supply for meme of all sorts. Supercut videos, in particular, take their materials from television series and compile them in order to reveal those patterns that, in their original temporal and narrative frameworks, remain more or less latent if nevertheless characteristic for the television series. The resulting videos can be considered media of reflexion, not only with respect to the seriality of their own media environment but with respect to televisual seriality as well. They condense the programs to their defining gestures and to the forms of repetitive seriality that todays' series so dearly wish to escape. In supercuts, a celebrated series like *Mad Men* (AMC, 2007-) is revealed as nothing more than a bunch of people sitting around drinking and smoking; *Breaking Bad* (AMC, 2008-2013) is the eternal recurrence of "Bitch"; *Game of Thrones* (HBO, 2011-) the mindless repetition of "You know nothing, John Snow." Sitcoms, on the other hand, positively offer themselves to memeification and an afterlife on the web with their episodic seriality, their short gags, and their willingly serialized catchphrases ("Bazinga," "Challenge accepted," "Wait for it," etc.). Moreover, the producers of series like *The Big Bang Theory* (CBS, 2007-) and *South Park* (Comedy Central, 1997-) have created episodes entirely about memes, while Bravo TV has gone so far as to produce a meme-related reality TV series, LOLwork (2012-), devoted to the people of Icanhascheezburgers, the weblog renowned first and foremost for its cat content.

At the same time, contemporary long-form multi-serial narratives have come to be classified as "network narratives" themselves, i.e. as aesthetic forms which take the shape of webs precisely through increased serialization. Evoking the epistemological realm of drug addiction, for instance, *The Wire* (HBO, 2002-2008) traces the viral spawning of the drug trade over the districts, social milieus and institutions of Baltimore by way of an ever-expanding narrative that accumulates a vast cast of major and minor characters. This serial expansion in turn necessitates means of orientation and navigation such as pinboards, charts and tables, which closely resemble the spatial forms of orientation that are provided by digital interfaces (as well as Warburg's juxtaposition of "pathos formulas" in his Mnemosyne atlas).

There are thus multiple intersections and attendant processes of imitation and adaptation between televisual and digital seriality; as a result, the television series still has to be considered as a central hinge in the transition to a digital media regime and is of great relevance even there where its serial forms have become almost completely independent from their media of origin. The rise of network narratives in contemporary television series and the increasing serialization of digital, web-based media could thus be understood as a process of co-evolution, in which old and new media do not collide, but mutually influence each other. Just as the web has become an ineluctable condition for the development and analysis of contemporary television, seriality has to be thought of as key characteristic of aesthetic forms and processes in digital network media.

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Notes

[1] For a discussion of “relevancy” as a criterion for search engines, cf. Röhle 2010, pp. 106-143.

[2] Indirectly, of course, TV’s images always take into account and thus react to their switchability, because they aim at making viewers not switch to other channels.

[3] Of course, the same holds true for digital TV interfaces (cf. Adelmann 2012).

[4] For the basic difference between these two forms of seriality, cf. Beil, Engell, Schröter, Schwaab, and Wentz (2012).

[5] On the intra- and inter-seriality of digital games, see also Denson and Jahn-Sudmann (2013).

[6] For the relation between seriality and stereotypes, cf. Winkler (1992). For a detailed analysis of the race and gender issues of stock character memes, cf. Milner (2013).

[7] http://knowyourmeme.com/memes/vanpersieing.

[8] http://knowyourmeme.com/memes/demotivational-posters.

[9] http://www.despair.com/ambition.html. Witnessing the defeat of the Dutch Team in the semi final on July 9th, the image almost becomes prophetic.

[10] Animal Locomotion Plate 49, 1979 [1887].

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The Eternal Recurrence of All Bits: How Historicizing Video Game Series Transform Factual History into Affective Historicity

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The Eternal Recurrence of All Bits: How Historicizing Video Game Series Transform Factual History into Affective Historicity

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History and Historicity

Video games featuring historical content—what I term 'historicizing' video games (cf. Kerschbaumer and Winnerling 2014a, p. 14) —often come in series. *Civilization* (I – V),[1] *Age of Empires* (I – IV), *Anno* (5 parts), *Monkey Island* (5 parts),[2] *Total War* (8 parts),[3] *Assassin's Creed* (I – IV), to name but a few, are heavily serialized in that they all, save for their respective first incarnations, point continuously to the other titles in their series, be it on a structural level or with regard to content. They do so for many reasons, most of which are almost totally unrelated to everything these games signify on a representational level—economic reasons above all, but also the need to meet genre- and audience-imposed expectations, as well as technical limitations. Setting these factors aside for the moment, given that players who like one game in a series are likely to play other installments as well, the mere existence of a series carries important implications for the games' contents—for a common 'look' they share, a story running through them, or recurring settings, items, or icons. When these serialized contents purport to represent aspects of the real world of history, they open themselves to a different sort of scrutiny than we otherwise bring to bear on games and game series. This article explores some of the implications of the serialization of historicizing representations, such as those employed in the aforementioned game series.

First, though, it may seem odd to classify these otherwise very different game series together on the basis solely of their historicized iconographies; in accordance with the formalist bias of much game studies scholarship, it is much more common to disregard representational surfaces and focus instead on abstract rules and procedural logics as the basis of game taxonomies (cf. Clearwater 2011, p. 32). But these surfaces might not be so easily dismissed as superficial; they not only structure players' expectations and interpretations of a given game but are entangled with the mechanics of the game in various ways. "The aesthetic material is best described as the 'art' or 'decoration' but is fundamental to the video game. Without art, the video game is reduced to code and is probably unplayable; certainly, it lacks the sensual character of art. The aesthetics include visual assets, music, and sound, as well as larger structures such as narrative paths that structure the player experience" (Ruch 2012, 333). The difference between *Call of Duty* (2003) (itself predecessor of yet another series of historicizing video games)[4] and *Counter-Strike* (2000) eludes formalist typologies such as that developed by Elverdam and Aarseth (cf. 2007, pp. 17-18), who "find that [the two games] are identical in each dimension of the typology" (pp. 17-18). The difference, however, consists in the fact that one is a historicizing game and the other is not. The incorporation of historical circumstances into *Call of Duty*, made necessary by its historicized appearance, is exactly what

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made the game a "more slow-paced and gritty 'World War II' shooter" compared to "the fast-paced Counterstrike" (p. 17)[5]—a difference that appears secondary and subordinate in the context of Elverdam and Aarseth's comparison. Trying to convey an appropriate atmosphere, a World War II flair, through the historicized surface as well as the associated mechanics—in this case, through slowing the pace of gameplay—makes *Call of Duty* a fine example of what I deal with in this essay: the in-game transition of factual history (as signified by the game's surface) into affective historicity.

My argument in this paper revolves centrally around this difference between 'factual history' and 'affective historicity'—terms that I will try to define briefly. But as there are substantial philosophical and epistemological issues involved, what I offer here must be regarded as an attempt to provide working definitions, heuristically flexible tools rather than statements to be cast in stone. First, history is clearly not identical with the past (cf. Schut 2007, p. 218). Rather, it is the enterprise of putting together a meaningful picture based on the remnants of the past that are still available for our present use and needs. History can at best be an approximation of the 'real' past events which are lost to us forever (Kerschbaumer/Winnerling 2014b, p. xix). Thus, history is necessarily of an interpretative nature, but this does not mean that these interpretations are arbitrary; they follow a clearly established demonstrative procedure that distinguishes the undertaking of history as a clearly 'factual' one. Doing history in this sense means bringing forth well-grounded, methodologically sound, inter-subjectively agreeable arguments for the validity of representations of the past (cf. Heinen 2011, p. 7).

Second, and in contradistinction to factual history, I define affective historicity as the attempt to create representations that convey the *feeling* of (representations of) the past. Affective historicity, therefore, is also clearly not identical with the past. It is at best an approximation of the 'past as it was,' and it is also necessarily interpretative. The key difference between the two approaches in this conceptual framing is that affective historicity is more flexible in its manner of interpreting because it follows mainly aesthetic and imaginative procedures to arrive at its results, which in the eyes of the factual historian may seem (and in some cases most certainly are) arbitrary. History works towards the rational, utilizing reasons, while affective historicity tends towards the emotional, utilizing feelings. Both approaches, though different in aim and method, are therefore still sufficiently related to draw easily upon each other in building their respective narrations. Factual history may turn to affective historicity for illustration, calling it reconstruction; affective historicity may use factual history as a resource, calling it verification (cf. Heinen 2011, p. 34).

It must be kept in mind, nevertheless, that since the two approaches are not mutually exclusive but complementary to one another, the difference between them is mostly one of perspective.

> Now contents are not 'signifieds' dependent upon a signifier in any way, nor are they 'objects' in any kind of relation of causality with the subject. They have their own formalization and have no relation of symbolic correspondence or linear causality with the form of expression: the two forms are in reciprocal presupposition, and they can be abstracted from each other only in a very relative way because they are two sides of a single assemblage. (Deleuze and Guattari 2013, p. 163)

The same basic resources—the extant remnants of the past—are just used in different ways, and for different aims. The difference, in this case, is not in the eye of the beholder but in the purpose of the maker, and it is often difficult to spot and may easily elude the casual observer. If a game engine is used to make a 3D virtual model of an archaeological reconstruction of a Roman *domus* with the claim of "Living the past" (Rua and Alvito 2011, cf. title and 3304-3306)—and the environment is filled with AI-controlled NPCs such as "the guard avatar who defends the *villa* in case of attack" (ibid, 3304), is this factual history or affective historicity?

Games, then Seriality

Another, more serious complication arises in connection with larger series of games: how are the time(s) represented in these games related to concepts of historical time? Factual history employs time as its main structural principle: something may be considered 'historical' only if it is past. And the time that confers historicity in passing is considered as linear, one-directed, non-reversible, and uniform. The order of its flow determines historical lineage and order by the principle of cause and effect: causes are always temporally prior, effects are subsequent. Occasionally, historical time may be considered as proceeding in spirals, for instance in the circular movement of seasons. After winter comes spring, and in time winter again; but the spring after this winter is not the same spring as the one before it. Historical time may never be circular; it cannot return to any point it has once passed.

Turning now to a series of games such as *Age of Empires I* (set in antiquity), *Age of Empires II* (covering the Middle Ages), and *Age of Empires III* (covering Early Modernity), it would seem at a first glance that the historical principle is respected, as the various epochs are traversed in their proper textbook order. The progression from the High Middle Ages in *Assassin's Creed* to the Renaissance in *Assassin's Creed II* and the 18th century in *Assassin's Creed III* and *IV* also seems fine in this respect. There is a very different sort of progression, however, in the sequence that leads from Ubisoft's *Anno 1602* to *Anno 1503* to *Anno 1701* to *Anno 1404* to *Anno 2070* or, on a smaller scale, from the 19th century in *Imperialism* (1997) to the 17th century in *Imperialism II* (1999). The seriality of these games, the particular identification of individual titles as belonging to the series of a greater trademark whole, is not established by content-level chronology but by the feats and traits of gameplay and game mechanics peculiar to the respective series. The place of each element within the series is thus defined not by progress in chronological time but by progress in gameplay, and by the refinement and (attempted) improvement of the games' features in comparison to their predecessors. This also holds for *Age of Empires* and *Assassin's Creed*, whose later installments boast tighter controls, enhanced AI, greater freedom of movement for the player, and so on, and in this way define their relationships to the earlier titles of the series: the serial progression is defined more at the level of the games' interfaces than in terms of their settings' chronological order. In fact, since each title in these series is itself a stand-alone game, there is effectively no chronological progress at all within the series, as it is impossible to carry over high scores or avatars from one title into another. Players always start at zero, at the beginning of both game and play time. Chronological progress thus happens in a way that is seemingly detached from the game, outside its narrative,

only to enter into each title at its beginning again. One of the rare exceptions to this is Paradox Entertainment's *Victoria* (2003),[6] whose savegames may be converted (with the help of the Doomsday Converter included in the *Revolutions* (2006) expansion) into files fit for *Hearts of Iron II: Doomsday* (2005),[7] so that cross-game chronological progress actually becomes possible—but at the expense of in-series 'mechanical' progress, as the mechanics of *Hearts of Iron* are quite different from those of *Victoria*.

What we see, then, is a conflict between games' representational and mechanical levels. But just like the example of *Call of Duty*, in all of these games the historicized surface/appearance influences the mechanisms of the game. For example, *Anno 1404* relies crucially on the representational level to provide similar yet 'improved' game mechanics in comparison to *Anno 1701* and to use these mechanics to get a better grip on a historical situation set 300 years earlier—making the Late Middle Ages look rather advanced compared to the early 18th century. To players of the games, this fact does not present any great problem. But how are we, as critics, to make sense of this conceptually? I suggest that each such set of game titles may aptly be described, semiotically, in Deleuzo-Guattarian terms as an instance of the paranoid-despotic regime of signs (cf. Deleuze and Guattari 2013, pp. 130-132), where signs signify nothing but other signs, bound up in an endless virtual cycle where denotation becomes (in some instances completely) part of connotation. "When denotation (here, designation and signification taken together) is assumed to be part of connotation, one is wholly within this signifying regime of the sign" (ibid., p. 130). The representations of factual historical events and circumstances that these games employ are not effective denotations: either it is impossible to correlate them with any verifiable events/processes, or they are just so thoroughly informed by the games' own needs and presuppositions that they cannot be considered factually adequate. Their functions are to evoke a *feeling* of historicity and to exploit the reminiscences they may trigger in players—reminiscences based not only on factual knowledge or the emotions associated with historicized objects, but also memories of earlier and similar games within the same field: "The sign refers not only to other signs in the same circle but also to signs in other circles or spirals as well" (ibid.).

Philosophically, this cyclical form of reference may be taken, in turn, as a prime instance of the Nietzschean 'eternal recurrence of all things' (Nietzsche 1973, p. 250,[8] and 2000, pp. 220–221). Deleuze and Guattari themselves recognize the association:

> Whether it passes into other signs or is kept in reserve for a time, the sign survives both its state of things and its signified; it leaps [ ] to regain its place in the chain and invest a new state, a new signified, from which it will in turn extricate itself. A hint of the eternal return. (2013, p. 131)

The concept that Nietzsche seems to have envisaged in the fragmentary statements that cluster around the topic of this incessant return of every state of being, hypothesized as occurring again and again in due time, fits video games almost obscenely well—at least in the reading provided by Abel (cf. Abel 1998, pp. 208–210), according to whom the required setting for a smooth, self-consistent running of the process of eternal recurrence includes: a finite but unbounded world; a finite number of "dynamic will-to-power-quanta" (p. 130) working within this world beneath its surface of appearances/things; agents bound to competitively try to achieve self-

conquest to attain a higher position and to overcome all others; and consciousness that all facts in this world are just matters of interpretation, representing no inherent 'reality' per se (p. 175). Replace "will-to-power-quanta" with "algorithms," and there you are. The number of possible combinations of the elements of the system is limited, and therefore, given that time is eternal, each combination of algorithmic states is bound to appear time and again, even if clothed in different apparitional garb (p. 198). This reiteration of certain states of the system should be a familiar feature to anyone who has played a game more than once and adjusted their gameplay to the patterns they recognized. 'Do you really want to exit without saving?' No, you don't. You want to re-start, and you want to reiterate a past state anew (cf. Gazzard and Peacock 2011, p. 503), this time taking a new turn and thus (hopefully) surpassing your old player-self.

On a more general level, this semiotics of the eternal return also holds for entire societies, if Allison's interpretation of the surge in World War II games at the beginning of the 21st century is to be believed; according to Allison, this represented an attempt to conserve the "triumph of the West" by enacting it again, and again, and again (Allison 2010, p. 183). This re-enactment and re-creation of states of algorithmic configurations is not only a distinct feature of gaming, it also becomes a habitual—or serialized—praxis of play, a ritualized reading and use of the signs provided by games.

> This transmediation [ ] draws more on pop cultural representations of ritual than on any direct experience of religious ritual. [ ] [T]he representation and the performance of ritual in video games are derived from popular films, comic books, music and music video, anecdotes, jokes and sayings, sports, the vernacular of popular journalism in newspapers and magazines. Therefore, the ritual logic of video games involves the signs of signs of signs of ritual. (Gazzard and Peacock 2011, p. 502)

If the rendering given above of Nietzsche's thoughts about eternal recurrence is plausible—though it seems futile to seek interpretative self-consistency for his various utterances (cf. Nietzsche 1980, pp. 28–30)—then a video game is the perfect Nietzschean world. Or, in a more dynamic reading, our world should best be viewed as the greatest video game of all times. Well, the largest anyway.

Seriality, then Historicity

Now the question is what this might mean when we are facing a game that presents itself as 'historical.' When the semiotics of the game are historicized, when the signs players read are taken from history, does a 'transmediation' like that described above by Gazzard and Peacock take place, transforming pop cultural references and representations and transporting into our cultural understandings of history? Although most certainly pop cultural associations will be drawn and recognized both by designers and players in making and interpreting the games, these will be shaped into a particular form by the historicized appearance of the signs that trigger them. At first, the historicized surface seems to point to a deeper connection between the game and factual history. It would seem, then, that this surface is to be read as a promise—namely, that the game embodies in its syntagmatic structure, its underlying

algorithms, an emulation of the real-world processes at work in the historical situation it enacts (cf. Christesen and Machado 2010, pp. 108–109, for video games covering antiquity)—in short, that it not only looks like history, but that it also behaves as such. And, accordingly, that it may ultimately be read as such as well.

Gazzard and Peacock describe players' actions as becoming ritualistic instead of merely repetitive when these actions concentrate on a transformative goal to be reached – finishing the level, gaining the bonus, solving the quest, in short: powering up (2011, p. 506). This is a valuable insight, though seemingly problematic in the context of historicizing games. The problem lies in the connotations of 'ritual': merely following the rules toward goals in a habitualized fashion first of all points to establishing a praxis (cf. Reckwitz 2003, p. 286, pp. 294-295). However, it does not necessarily mean that ritual is enacted, for ritual conveys meaning. A power-up has no meaning in and of itself. The question if there is meaning in this praxis of playing and how this meaning is constructed may be answered by segmenting the praxis along a Deleuzo-Guattarian line into three separate acts: First, information is integrated into the system via a symbolic transformation (Deleuze and Guattari 2013, p. 158). In a strategic management simulation game an enhancement of the player's economic possibilities may be introduced in the shape of a new type of farm, say, a tobacco plantation (as in the game *Anno 1701*, Related Designs/Ubisoft/Koch Media 2006). Second, this symbol is emptied of content in becoming reduced to a power-up for the player as soon as he or she realizes that planting tobacco is a strategic decision to enlarge one's possible options, thereby taking on another form of referentiality: "The question is not yet what a given sign signifies but to which other signs it refers, or which signs add themselves to it to form a network without beginning or end that projects its shadow onto an amorphous atmospheric continuum" (Deleuze and Guattari 2013, 130). A tobacco plantation thus points to a sugarcane plantation (thus *Anno 1701* points to *Anno 1602*, Max Design/Sunflowers 1998), which points to a spice field (*Anno 1503*, Max Design/Sunflowers 2002), which points to a hemp plantation (*Anno 1404*, Related Designs/Blue Byte/Ubisoft 2009), which even points to an oil refinery (*Anno 2070*, Related Designs/BlueByte/Ubisoft 2011), which points to (*n*), which points back to a tobacco plantation—thus initiating a cycle that is to be continued... "[I]nterpretation is carried to infinity and never encounters anything that is not already in itself an interpretation." (Deleuze and Guattari 2013, p. 133).

As a network, these signs thus constitute "ways in which the real world and game worlds are bound together by intertextualities and economies of signs and sociocultural activities, which are inherently ritual-like" (Gazzard and Peacock 2011, p. 510). This holds so long as they all are read as power-ups in similar procedural contexts; but they do not remain power-ups pure and simple. In the third step, they begin to be interpreted by players, and so to be layered with new, non-inherent meanings—a process set in motion by the interpretative appropriation of the game elements, necessarily incurred by realizing them in their specific configurations and states through the act of playing (cf. Cremin 2012, p. 77).

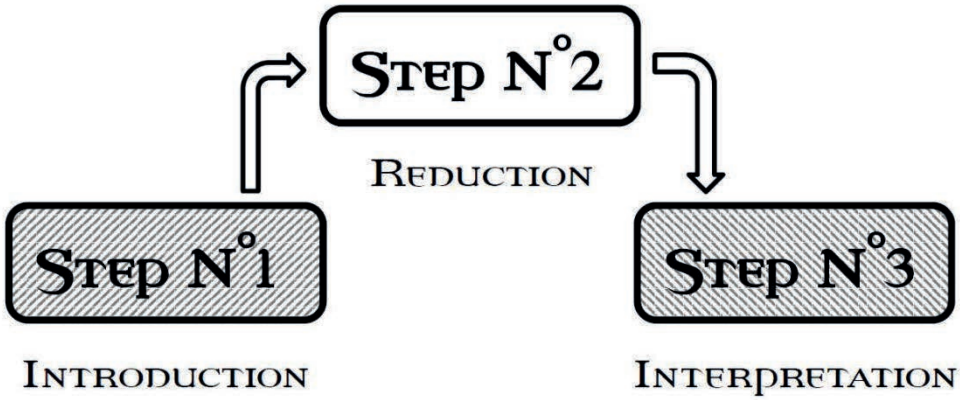

Figure 1: Three steps of transformation

This three-step transformation of historicized content—by way of introduction, reduction, and interpretation—clearly corresponds to the pattern of discourses within which games are situated, following Nohr's (2014) inter-discursive connection model; the latter offers the best available diagrammatic visualization of the mechanisms through which any type of content is processed in video games, one which makes the connection readily apparent.

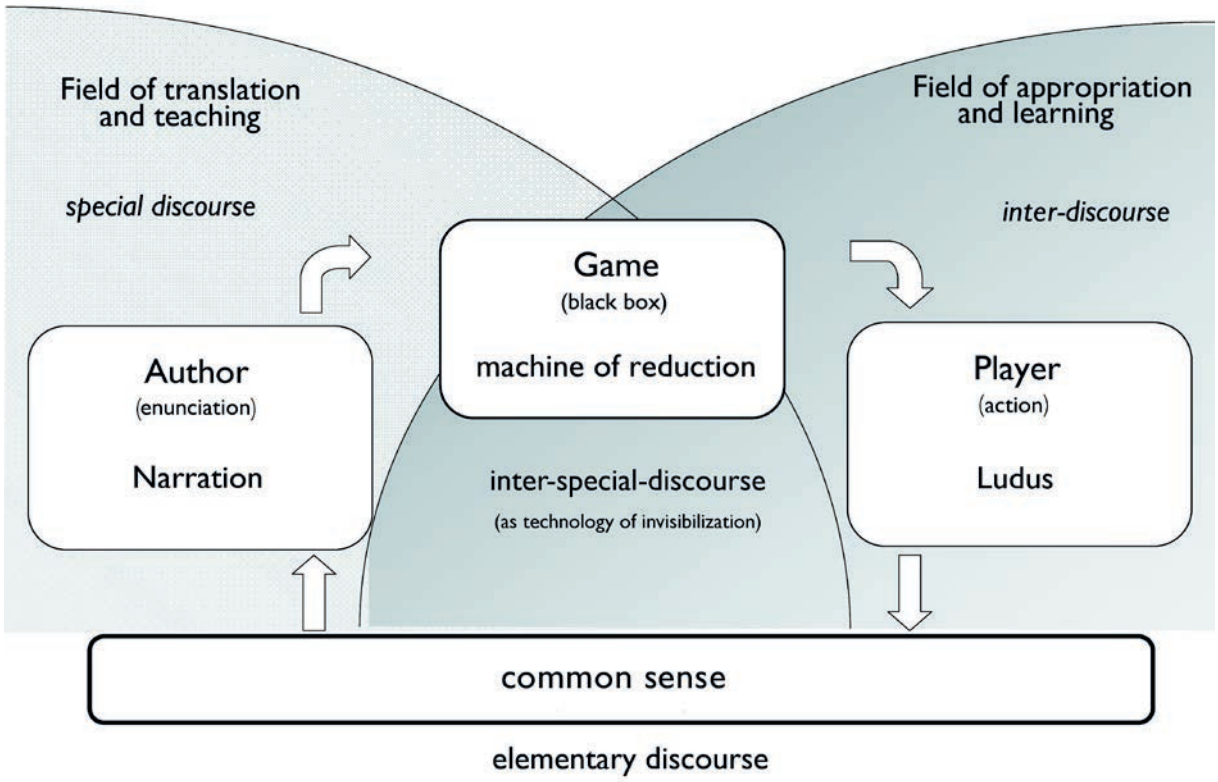

Figure 2: Rolf Nohr: Inter-discursive connection model (Nohr 2014, p. 15).

The element 'tobacco plantation' is introduced by the authors—the designers, programmers, publishers of the game—as a part of the narration, located within the field of the special discourse: this is Step N°1. Special discourses in this model are all discourses within a clearly delineated group of specialists, in this case the authors: game designers/developers. Their discourses may contain the same topics and terms as other discourses, but they impart a special meaning to them. The tobacco plantation thus becomes part of the black box of the game, the insides of which are neither visible nor understandable to the players, thereby also becoming reduced, emptied of content, and, above all, made into a sign as such. In the context of actual play, players apprehend the sign, first, exactly as that, located in the field of the inter-special-discourse—as a power-up: Step N°2. The inter-special discourse constitutes the discourse in which the special discourse of designers/developers intersects with the inter-discourse of the players (in which a discursive element from another discourse is situated via appropriation and learning within their own—in their own ways special—discourses). The inter-special discourse therefore works with a kind of symbolic pidgin language to establish a trading zone for concepts (cf. Huang 2005, p. 396)—concepts that are employed by both groups, authors and players, and are likely to carry different meanings within their respective special discourses, meanings that converge only partially. So while the power-up in question has been emptied of content, it nevertheless keeps its peculiar shape, the historicized shape of the tobacco plantation as which it appears in-game, and via this it can be connected by players to other signs on other circles, within the field of appropriation and learning. Being located, at this stage, in the inter-discourse—where discursive elements are invested with meanings to be incorporated in the special discourses of the players and, perhaps, finally even in the elementary discourse of common sense—the tobacco plantation's inner emptiness and outer shape turn it into an object of projection for players, open to interpretation: Step N°3. In this context, the historicization of game elements takes on a particular significance as it forecloses certain areas of the field of appropriation for these elements. This phenomenon is best illustrated, perhaps, with toddlers' sorting and stacking toys: a square block will not fit into a round hole. It may be green or red, a cube or a cuboid, but as long as its base is square, it will resist being pushed through the round hole. If, on the other hand, an element fits through the historicization hole, it will most likely be interpreted in historical fashion (cf. Schut 2007, p. 218).

Historicity, then Seriality

If a Nietzschean recurrence of a certain state of configurations within the game-world is to be the aim of this ritualized handling and patterning of play, this fits neatly with the view that games as such are inherently pleasure-bound activities[9] while the eternal recurrence of the same is associated with the pursuit of a pleasure-principle (Bornedal 2006, pp. 112–113): with losing oneself by indulging in an eternalized moment of joyful consciousness, never-ending in its timelessness (Bornedal 2006, p. 130). This, in turn, mirrors the 'flow' concept as it is often invoked in game studies, especially when one takes into account the immersive effects of the player's experience being directed towards a subjectified incorporation of the 'game body' (Crick 2011, p. 262)—thus producing the feeling of a "real" or authentic experience in the interaction with a video game's simulated environment. Again, interpretation is

necessary to fill the gaps in the data that the system provides to players; this need arises not least because the graphical presentation and detached perspectives that modern games employ separate players from protagonists, and this separation must be overcome (Black 2012, p. 216). The mechanisms that provide video games with the possibilities to authenticate themselves in colorful ways are just the reasons why games need to resort to such forms of authentication in the first place (cf. Mallon 2008, p. 1).

In saying this, I am fully aware that the concept of 'authenticity' is fraught with difficulty in the context of video games and history. To experience a game as 'authentic' must not be taken to mean that the game conveys a message by being 'factually correct.' This holds especially true for historicizing games which are not, and can never be, windows onto a long gone past. Neither are history books, though, so it would be moot to belabor the point much further. What is meant here, on the contrary, is that a game that is able to convey the feeling of an authentic experience to its players is a game that has succeeded in presenting a convincing vision, in being a little world in its own right. Then the game has reached a state of authentication in which it ceases to irritate players and succeeds in immersing them instead. Interestingly, games dressed up in a historicizing fashion use the history in which they are clothed as one—and in many cases the most important—of their strategies of authentication (cf. Nohr 2014, pp. 20–21). Understood in this way, a successful historicizing video game is a game that, through careful presentation of selected historical elements, achieves a state of not-being-questioned by its players. The affective historicity of the game establishes a link to the real world that is crucial if the game is to be taken seriously (Ruch 2012, p. 334). Not for the sake of history, of course, but for its own sake!

Thus, this touch of historicity, if successfully applied, provides the game with a tacit conceptual integration into a wider imagination of history as an overarching archplot (cf. Hassemer 2014, p. 64) that provides "a classical structure, which includes the principal characteristics of causality, closed endings, linear time, [ ] and a consistent reality" (Ip 2011, p. 113). Which, in turn—and this is where the process becomes awkward or problematic in the historian's eye—may lead to a situation in which the representation of history used for authentication is taken as authentic in itself, as not-to-be-questioned. Affective historicity in this respect "acts as a kind of conceptual glue that holds the other content together in a simulation of real space that behaves more or less the way our own reality does" (Ruch 2012, 335), or that may be taken as a model for the reality of the historical world. Of course the jury is still out on this one—we do not know what it is that players take home from the games they play. Some recent studies indicate that in-game violence does not influence gamers' behavior after all, at least not for the worse (cf. Festl, Scharkow, and Quandt 2013; Grizzard et al. 2014)—but that does not necessarily say anything about in-game history.

Turning to Nohr's scheme once more, this is the point that has been left out so far—namely, the insertion of the results of step N°3 (interpretation) into what Nohr calls 'elementary discourse,' that body of common knowledge that everyone just knows or can come to know as such without much effort. This elementary discourse, which is very different from the historians' discourse (cf. Montero Díaz and Paz Rebollo 2013, p. 162), is precisely what game designers draw upon in shaping games into

historicized ones—because these are precisely the elements that everyone knows and recognizes, that may appeal to pretty much anyone and lure them to play (and to buy!) their games. It may well be that the prominence that video games have achieved in our culture's media landscape over the past few decades indicates that this process is already taking place on a much larger scale, especially if "the structure of a culture's dominant media is a major shaper of that very same culture" (Schut 2007, p. 215). Once this media-cultural dominance is achieved, the discursive transformation of the historicized elements has come full circle, and the three-step scheme posed above is completed like this:

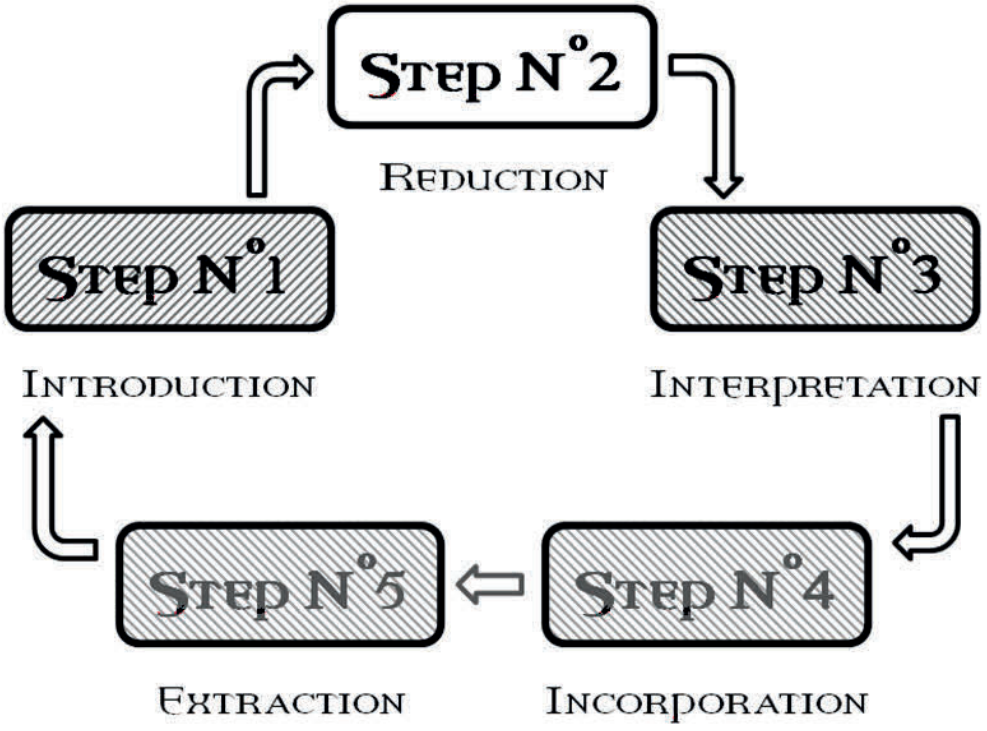

Figure 3: Five steps of serialized transformation

Divergence: History vs. Video Games vs. Historicity

This now completed circle of discursive transformation presents a key to understanding why serialized historicized games, by virtue of the very fact of their seriality, deserve special attention. Steps N°4—the incorporation of players' interpretations of an element (such as the tobacco plantation) into the discursive body of mutualized knowledge—and N°5—the extraction of this interpretatively shaped historicized element for the purpose of interpretatively shaping a video game element in a historicized fashion and introducing it into a new game—are likely to have taken place in the production of any video game sequel. This serial logic applies also to a franchise like *Sid Meier's Civilization*, which might not be accorded the status of a 'genuine' series on the grounds that it consists of something like revised editions rather than proper sequels; each installment of *Civilization* is part of a (seemingly eternal) recurrence and re-enactment of the same story and setting,

again and again. Whether sequels, remakes, updates, or some other forms of serial continuation are involved, the circle of discursive transformation ensures that "what goes around comes around." Successful elements, elements that were appreciated by critics and/or players, are likely to re-appear in the successive installments of a series, in time becoming recognizable trademarks of certain games or franchises, cherished and remembered by their gaming communities not only for the pleasure they provide in being played on their own, but also for their function as empty signs referring back to the other parts of the series already played, and pointing forward to the envisioned and sometimes dearly hoped-for parts still to come. They may take on altered shapes, yet by virtue of their function they bind together the conceptually and chronologically disparate parts or installments into a series. In this way, the circle of discursive transformation is not so much a hermeneutic circle as a hermeneutic spiral, as the meanings at stake are not closed but perennially re-opened to serial continuation. The black box of the individual game situated at the intersection of the various discursive fields operates in this sense as a tool through which players may negotiate meanings and interpretations; it works as an "abstract machine" and "[t]hus when it constitutes points of creation or potentiality it does not stand outside history but is instead always 'prior to' history" (Deleuze and Guattari 2013, p. 163). As Nohr puts it,

> video games have (at least) to be understood as a part of a discursive operation in which a society provides itself with a concept of history. In a radical abbreviation, such a position could be reduced pointedly to this: the historiography-discourse comes down to a reconfiguration and restructuring of the past in the light of the present. (Nohr 2014, p. 16)

In searching for the particular character of the history built into video games, historians will therefore do well to pay more attention to series of such games, for it is in their seriality that the special character of video games' use of (factual) history as (affective) historicity is, I think, most readily apparent and available for analysis. The model that I have rather cursorily sketched in this article provides a tentative foundation upon which to undertake such an investigation, but the model clearly needs to be refined, or even replaced, with a better understanding that might emerge through more detailed studies of the phenomenon.

In doing so, special attention needs to be paid to the differences of perspective between games and (factual) history delineated above. Video games do not make an argument as to why they present anything the way do. Theirs is, again in line with Nietzsche's thoughts in *Beyond Good and Evil*, a persuasive rather than demonstrative mode of reasoning:

> there is nothing of 'causal-connection,' of 'necessity,' or of 'psychological non-freedom'; there the effect does not follow the cause, there 'law' does not obtain. It is we alone who have devised cause, sequence, reciprocity, relativity, constraint, number, law, freedom, motive, and purpose; and when we interpret and intermix this symbol-world, as 'being-in-itself,' with things, we act once more as we have always acted—mythologically" (Nietzsche 1980, p. 36, cf. also p. 56).[10]

Nietzsche uses the image of perceiving and conceptualizing a tree: what we see are some leaves and twigs but never the whole tree as such; how do we know that a tree really is the reason behind these perceptions? Rather than demonstratively

constructing the tree step by step from the visual evidence we encounter, following the principles of logic and verified knowledge, we instead are prone to just imagine it; "one is much more of an artist than one is aware of" (ibid., pp. 113–114). Video games do not argue the correctness of their representations; when affected by historicized game elements, we are prone to use this affective historicity as conceptual glue to construe a coherent image of the processes presented to us as historical. Reading a game like a text in the historian's way is thus a misinterpretation from the very start: games are simply not texts.

Fogu, for instance, seems to have suffered from this mistake when he criticized detractors of Sid Meier's *Civilization* for their ahistorical reading of the game as text (cf. 2009, 116–118), only to compare it shortly afterwards to Jared Diamond's books, thus textualizing it himself in the process of rendering it a masterpiece of "procedural rhetoric": "To play is to move in the space defined by that set of rules, and in so doing the player creates a procedural rhetoric that makes claims about the world" (ibid., p. 118). I contend, therefore, that we need to be very careful with statements like Schut's: "In many ways, the digital game medium is an ideal tool for building historical knowledge and understanding" (2007, p. 214). The problem is that this persuasive mode of reasoning, seen from the demonstrativist's point of view, implicates beneath its surface a series of hidden demonstrative—causal, methodical, logically construed—arguments. As the game world is the outcome of contingent processes, a feat of interaction between game and player, these processes are the foundation on which the argument rests.

> They determine first the Whither and the Why of mankind, and thereby set aside the previous labour of all philosophical workers, and all subjugators of the past—they grasp at the future with a creative hand, and whatever is and was, becomes for them thereby a means, an instrument, and a hammer. Their 'knowing' is creating, their creating is a law-giving, their will to truth is—will to power. (Nietzsche 1980, p. 145)

Nietzsche originally dedicated this sentence to the future philosophers he hoped to come, so it is perhaps only fitting that it is applied to video games here, given their cultural impact. If you acknowledge the surface of the game, you also declare silent approval to the particulars that produced it. In other words, in the very moment that you attribute authenticity to the colorful historicizing garment of a game, all the processes by which it was dyed, spun, woven, and sewn are in turn regarded as historical necessities, laws of history. Essentially this amounts to breaking down the difference between 'affective historicity' and 'factual history.' The contents of one's own imagination as a player, formed in the course of going through the steps of (serialized) transformation under the influence of historicized game contents, may take on the same demonstrative character of statements about 'what it was like, then' that factual historical information claims. Historians may disapprove, but such breaking down and intermingling of affective historicity and factual history happens quite frequently, and of course not only in games.

In the three-step model of symbolic apperception of game contents (and the larger five-step model of serialized transformation) proposed above, this blurring of states begins with the third step: interpretation. This is, increasingly, a collective phenomenon, performed online – it spawns additional, fan-made content radiating from individual titles: blogs, mods, forums, wikis, YouTube channels, and so forth. On

these platforms, “the expansion of the circles is assured by interpretations that impart signified and reimport signifier [here: the game] (the interpretosis of the priest)” (Deleuze and Guattari 2013, p. 136). Those interpreting gamers who fulfill such a priestly function often do so by astutely insisting on the ‘factual correctness’ of the surface, of seeing to it that each soldier’s uniform represented on the screen is adorned with the proper buttons and that no weapons be found on the battlefield in 1941 that went into production in 1942 etc. (cf. Pöppinghege 2011, p. 463, 467).

Convergence: History, then Video Games, then Historicity

The processes delineated above converge in the implication that historically-themed game series, while seemingly staging history, are in fact engaged in producing affective historicity. Under the special conditions of their specific mediality as video games, they thereby unlink history and temporality, installing instead a ‘chron-alogical’ framing – that is, they replace ‘time’ as the central narrative axis and structural principle that determines the methodology of historical explanation with their respective subject matter, consisting of the hidden processes and the surface forms they create and by which they are represented (cf. Winnerling 2013, pp. 725–726). An assassin’s cloak (say, in *Assassin’s Creed*) is an assassin’s cloak (in *Assassin’s Creed II*) is an assassin’s cloak (*Assassin’s Creed III*) is an assassin’s cloak (*Assassin’s Creed IV*) – regardless of whether it is 1191 or 1776. The cloak as an implement of the game is transformed from an authenticator—for inserting the avatar into its historical context—to a marker—for distinguishing the avatar from other figures, even in the haze and hurry of mortal combat (cf. Cremin 2012, p. 75)—to a sign referring on a meta-game level to other points in the series where the cloak fulfilled the same functions, and thus to an overarching constancy of interrelated gameplay mechanics that constitute one basic element of game seriality. Though it is to all appearances a thoroughly historicized element, the increasingly pronounced anachronism of the cloak moving through time, virtually unchanged, points to a disconnection of the element from its historical-chronological frame. From the perspective of a Nietzschean-persuasive approach, this is reasonable, as this approach does not aim at a linear deduction and therefore does not need time to be organized diachronically around the subject matter. Rather, the persuasive argument aims at a simultaneous/transhistorical presentation and therefore requires that its subject matter itself synchronically organize the flow of time—for games, like music, exist through being played in time, but they can be appreciated only as the quasi-synchronically perceived integrity of the moments they encompass (cf. Montero Díaz and Paz Rebollo 2013, p. 165). As ‘time’ within games and their narrations is not a part of the encoded program structure but always subject to players’ interpretation (Black 2012, 210, 223), it is not conceptually fixed but may be unlinked and re-configured. The cloak then is no longer organized by time, no longer belongs to certain periods only, which would define the exclusive contexts in which it can be used as a valid argument. Rather, the cloak itself becomes the organizer of time, in that it points to periods that may validly be inserted into the cloak theme and are thus connected by it, made part of a series—seriality being intrinsically chronometrical: I precedes II, II precedes III, and so on.

In a larger perspective, this applies of course not only to serialized games, as the reader may already suspect. It seems, moreover, that the framing of the series which sets an initial trigger for both reduction and interpretation of the games' signs is in many ways a special sub-framing of the genre-oriented framing that sets in almost automatically when two conditions are fulfilled: first, that there is more than one game at all, and second, that a given player has experienced more than one so far. As soon as the medium has branched out in sufficient breadth to develop specific codes, players will begin anticipating them, implementing the same process of reduction and interpretation on a more general scale. Serialized games are a special form of this as they trigger these processes, as it seems, twice—first with respect to genre, and then with respect to the series—and so double their effects. Seriality produces affective historicity (rather than factual history), which in turn produces a sort of de-temporalization. On an even more general level these findings might even be extended beyond genre to media in general, which would lead to the somewhat unsettling but, I think, correct conclusion that this process is at work within any kind of apperception of (and most likely not only of) historical content, even within scholarly history books. It is only more visible in video games because this medium still irritates us enough to provoke questions about such matters. That other, more traditional media no longer do so is due to custom and habit, not to their 'innocence' in this respect.

Thus, series of historicizing video games, by virtue of their very seriality, effectively kill off in themselves any factual history as the concept has traditionally been understood in Western discourse since the middle of the 19th century, replacing it with a form of affective historicity. In this respect, these games may reflect, as do other media featuring historical content (whether literature, film, TV, radio, comics, re-enactment, 'living history,' or live-action role playing), popular demands not satisfied by academia, or they may foreshadow a conceptual transition as part of the digital revolution. Only time will tell – if, indeed, this is still possible.

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Notes

[1] The series at the moment consists of (main titles only): *Sid Meier's Civilization* (Microprose 1991); *Sid Meier's Civilization II* (Microprose 1996); *Sid Meier's Civilization III* (Firaxis/Infogrames 2001); *Sid Meier's Civilization IV* (Firaxis/2K Games 2005); and *Sid Meier's Civilization V* (Firaxis/2K Games 2010).

[2] The series at the moment consists of*: The Secret of Monkey Island* (Lucasfilm Games 1990); *Monkey Island 2: LeChuck's Revenge* (LucasArts 1991); *The Curse of Monkey Island* (LucasArts/FunSoft/THQ 1997); *Escape from Monkey Island* (LucasArts/Electronic Arts 2000); *Tales of Monkey Island* (Telltale Games 2009).

[3] The series at the moment consists of (main titles only): *Shogun: Total War* (Creative Assembly/Electronic Arts/Sega 2000); *Medieval: Total War* (Activision/Creative Assembly 2002); *Rome: Total War* (Creative Assembly/Activision/Sega 2004); *Medieval II: Total War* (Creative Assembly/Sega 2006); *Empire: Total War* (Creative Assembly/Feral Interactive/Sega 2009); *Napoleon: Total War* (Creative Assembly/Feral Interactive/Sega 2010); *Total War: Shogun II* (Creative Assembly/Sega 2011); *Total War: Rome II* (Creative Assembly/Sega 2013).

[4] Historically themed games of the series: *Call of Duty* (Infinity Ward/Activision/Aspyr 2003), *Call of Duty 2* (Infinity Ward/Activision 2006), *Call of Duty 3* (Treyarch/Activision 2006), *Call of Duty: World at War* (Treyarch/Activision 2008), *Call of Duty: Black Ops* (Treyarch/IdeaWorks/Activision/Apple 2010).

[5] It therefore is necessary to add to the eight metacategories proposed by Elverdam and Aarseth a ninth, 'Iconography', to be subdivided into the dimensions of 'realistic' and 'non-realistic' iconographies, and the first one to be subdivided again into 'historical', 'contemporaneous,' and 'futuristic' ones. *Call of Duty* as historical and *Counter-strike* as contemporaneous clearly illustrate the difference. As Elverdam and Aarseth's model was conceived as an open-ended typology (cf. 2007, 20), such an addition should not pose a problem.

[6] Itself the starting point of a new series: *Victoria II* was released in 2010, and there are rumors that *Victoria III* is in planning (cf. Anon. 2014, Sequel).

[7] Itself the second part of the *Hearts of Iron* series: *Hearts of Iron* (Paradox Development Studios/Strategy First 2002), *Hearts of Iron II* (Paradox Development Studios/Paradox Interactive 2005), and *Hearts of Iron III* (Paradox Development Studios/Paradox Interactive 2009) (*Hearts of Iron IV* announced).

[8] Aphorism 341: 'Das grösste Schwergewicht'.

[9] As opposed to fun-directed activities. You may easily derive pleasure out of something that clearly isn't fun, such as the successful completion of a particularly long, complicated, tedious task. Games are not made to be fun, but to purvey pleasure.

[10] All Nietzsche translations by Helen Zimmern "as published in the Complete Works of Friedrich Nietzsche (1909-1913)", see www.gutenberg.org: http://www.gutenberg.org/files/4363/4363-h/4363-h.htm [Accessed: August 27, 2014].

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Gandalf on the Death Star: Levels of Seriality between Bricks, Bits, and Blockbusters

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Gandalf on the Death Star: Levels of Seriality between Bricks, Bits, and Blockbusters

RIKKE TOFT NØRGÅRD AND CLAUS TOFT-NIELSEN

Introduction: Towards Digital Seriality as 'Movements Across'

> The term seriality is generally used to mean objects that are arranged in some form of a series, whether temporal, spatial, or conceptual. (Boluk and LeMieux 2012, p. 17)

Over the past 65 years millions of fingers have constructed their own worlds of wonder with *LEGO* bricks, and thousands of fingers have controlled *LEGO* figures through franchise-designed *gameworlds* of wonder with *LEGO bits*. Typically these concrete tangible user-created story designs and activities remain absent from the field of media studies in general and research on digital seriality in particular. However, when it comes to contemporary franchises such as *LEGO*, *Skylanders*, *World of Warcraft*, or the revived *Star Wars* universe, the conceptualization of digital seriality as solely relating to transmedia or even trans-transmedia storytelling are no longer sufficient. Here, digital seriality emerges as interplay: "While the individual experience of play arises from a unique and irreducible assemblage of complex technological, conceptual, haptic, and narrative phenomena, players unconsciously participate in a vast network of composite actions that make up the aggregate histories of digital environments" (Boluk and LeMieux 2012, p. 16).

So while there have been multiple approaches to the seriality of digital games as well as their cultural and narrative practices—notably the frameworks of "transmedia storytelling" and "convergence culture" (Jenkins, 2006), "remediation" (Bolter and Grusin 1999), or the more fragmented notions of "remake culture"—we call for a more play(er)centric and interactional approach that would be more in line with the concept of "new serialities" (Steinberg 2003). These so-called "new serialities" proliferate through transformation and transgression where a figure such as Gandalf becomes "an infinitely renewable resource whose potency lies not in scarcity, but [in] its multiplication and cross-pollination" (Boluk and LeMieux 2012, p. 27). In this way, Gandalf—like Denson and Jahn-Sudmann's Batman figure—becomes a "plurimedial figure" appearing across materials, media, and modalities (Denson and Jahn-Sudmann 2013, p. 20; cf. also Denson and Mayer 2012). One could say that Gandalf is a paradigmatic figure in this regard—a figure with seriality in his genes, so to speak. Gandalf lends himself easily to practices of transmission, transformation, and transgression within what we here call "serialities-in-use." Serialities-in-use should be understood as serial forms and practices that emerge from actual play instantiations and manifestations. In other words, we look at seriality as it comes into play and is appropriated and played out in actual play situations, interactions, and experiences.

This article diverges from more narrowly franchise-centric conceptions of digital seriality and moves beyond purely text- and content-based approaches to seriality in order to develop an understanding of digital seriality as arising through players'

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playful "movements across" media, materials, and modalities. The goal is to grasp and conceptualize such new playful seriality-franchises like *LEGO*, *World of Warcraft*, or *My Little Pony* that transcend narrow franchise-transmitted world-building conceptions of seriality. In this way, we follow Denson and Jahn-Sudmann's call for a decidedly interdisciplinary approach to the study of digital seriality while seeking to develop and refine their exploration of scholarly contexts within which to study it (Denson and Jahn-Sudmann 2013, p.1). Our aim is not to oppose or question their exploration but to expand some of the parameters and categories outlined by Denson and Jahn-Sudmann. Thus, we explore not only "the aesthetic forms and cultural practices of serialization as they are articulated in and around interactive digital media" (Denson and Jahn-Sudmann 2013, pp. 10-11) but also the kinaesthetic forms and practices of interaction design practices at the heart of playful serialities.

This expansion is effected through a decidedly play-centric and player-centric approach where digital seriality is "not defined by the production of software [or stories] but by play" (Boluk and LeMieux 2012, p. 15). We take this approach because within new interactive serialities like the *LEGO* franchise:

> the viewer/user/player (VUP) transforms the story [and design, etc.] and enables the Artwork to surpass medium. It is in transmedial play that the ultimate story agency, and decentralized authorship can be realized. Thus the VUP becomes the true producer of the Artwork (Dinehart 2008)

To adhere to such a play(er)centric approach, this article combines conceptual frameworks and analytical insights from the fields of media studies and digital game research with the fields of interaction design and toy research studies. Consequently, our exploration itself exemplifies a "playful movement across" in our efforts to present and outline a take on (digital) seriality that to a larger degree encompasses such movements—the "movements across" materials, media, and modalities that are central, in our opinion, to the products, processes, and experiences within "new serialities." Our interdisciplinary approach to seriality within digital cultures—an approach that oscillates between design-oriented/media-oriented, interactional/ textual, and tangible/digital alternatives—is carried out in order to circumvent some of the inherent tendencies within both disciplinary sides of this article's "scholarly playing field." That is, while media studies and game studies have a tendency to exercise a relatively narrow focus on media contents, texts, audiences, or fan cultures in relation to the practices and experiences of seriality, interaction design and toy culture have a tendency to exercise a similarly narrow focus on tangible materials and design practices, users' action-oriented interactions, and participants' technological appropriations.

Answering Denson and Jahn-Sudmann's call for a multi-pronged approach, therefore, we likewise hope to initiate a dialogue between (at least) two distinct fields of research: media/game studies and design/toy studies. Both echoing and expanding the efforts of Denson and Jahn-Sudmann, our focus here is on three sets of interrelations with respect to (digital) serialities:

1. interrelations between transmission, transformation, and transgression on the one hand and world-building, world-sharing, and world-designing on the other;

2. interrelations between technologies, social practices, and spaces on the one hand and franchise-centric, play-centric, and player-centric spaces of serialities-in-use on the other;

3. interrelations between intra-texts, inter-texts, and para-texts on the one hand and what we call intra-actional, inter-actional, and para-actional levels on the other, including how they come together in the intra-ludic, inter-ludic, and para-ludic serialities described by Denson and Jahn-Sudmann[1]

Taking the *LEGO* franchise as a prime example and tracing these multiple interrelations within and around it, we will see that "it becomes increasingly limited to analyze a game solely as a bounded textual object, as transmedia techniques have led to interesting overlaps in cultural norms, textual design, and fan engagement across normally distinct media, highlighting the need to think across ludic and narrative modes" (Mittell 2012, p. 5). Two decades ago, we witnessed a shift in perspective on the way digital media and technologies "function as structure" to how they "communicate as content" (Winograd 1997); now, we suggest, it is time to shift our attention once more and to retrain our focus from what digital media and technologies "communicate as content" to how they emerge in the form of hybrid "trans/media-design/actions" where serialities materialize through playful trans-actions between participants and franchises.

The *LEGO* franchise can in many ways be viewed as the epitome of the "new serialities," for *LEGO* at its very core is characterized by playful seriality and movements across materials, media, and modalities—oscillating, centrally, between tangible bricks, digital bits, and blockbuster worlds. Through an analysis of the *LEGO Star Wars* and *LEGO Lord of the Rings* franchises, the present article aims to develop a conceptual understanding of how playful serialities within contemporary culture are something concurrently material/tangible (bricks and interaction designs) and digital/imagined (bits and perceived worlds). Experiencing and interacting with the *LEGO* franchise involves movements across these spaces—not as demarcated products and processes, but as a unification of interaction-design ecologies and transmedia storyworlds. Hence, digital seriality does not connote separate chunks of media experience or technology interaction, but a hybrid totality of material/digital and interactional/textual "worldness" expressed and experienced across different technologies and media platforms (Toft-Nielsen 2013, Nørgård 2012). Hence, this notion of seriality implies flowing compositions of interaction design and storyworld, fused into particular spaces for hybrid trans-actions.

Overall, the present article argues for the benefits of fusing insights from the fields of media studies, game studies, and interaction design. More specifically, the article merges perceptions of "intra-texts, inter-texts, and para-texts" and their relation to storyworld, with "intra-actional, inter-actional, and para-actional" levels and their relation to tangible design. We endorse Winograd's contention that advances in our understanding will not emerge simply by getting a fuller or deeper comprehension of what we already know "but [also] from finding new metaphors, new starting points" (Winograd 1997). This article is an attempt at establishing such a new starting point.

Seriality as *Brick*olage: The Paradigmatic Case of the Rise and Fall (and Rise Again) of the *LEGO* Brand

LEGO – from LEg GOdt (Danish for "play well")—is without a doubt most renowned for its line of construction toys—*LEGO* bricks. These bricks are colorful interlocking plastic pieces that can be assembled and connected in multifarious ways. As of 2014, more than 560 billion *LEGO* parts had been produced and sold to playful constructionists all over the globe.

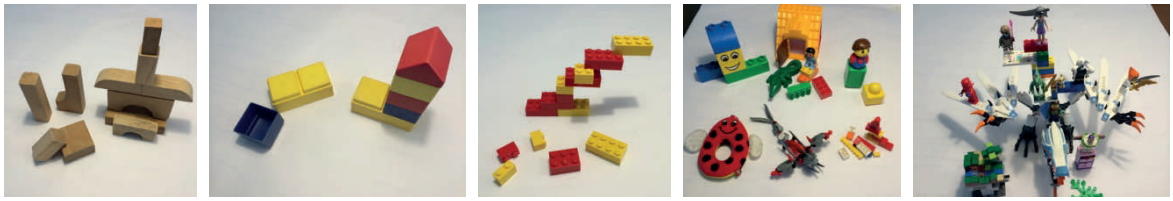

Figure 1: Pictures exemplifying the five waves of the LEGO franchise: 1. wooden toys, 2. "Automatic Binding Bricks," 3. the "System of Play," 4. assemblage of "products-to-assemble," 5. play(er)centric brickolage (all pictures by Rikke Toft Nørgård)

It all kicked off when carpenter Ole Kirk Christiansen began making wooden toys in Billund, Denmark in 1932. In 1949 he began, under the *LEGO* brand name, to produce an early version of the now famous interlocking bricks. These first "Automatic Binding Bricks" were modelled after the Kiddicraft Self-Locking Bricks (patented in the United Kingdom in 1939), a development of traditional stackable wooden blocks but locked together by means of round studs on top and a hollow bottom. Finally, in 1958, the iconic modern freeform "System of Play" *LEGO* brick design was developed.

A lot has changed since the *LEGO*'s System of Play *LEGO* brick was patented. The *LEGO* brand now encompasses theme parks, digital games, board games, movies, television shows, robotic technologies, clothing, plush toys, and much more. Since 1999, *LEGO* has increasingly partnered with major franchises to create licensed lines based on established "texts" (or "properties," as they are increasingly referred to in the industry) such as *Batman*, *Toy Story*, *The Lord of the Rings*, *Star Wars*, and many more. Recently, however, there has been a move away from the diversification and heterogeneity of autonomous *LEGO* franchise lines (e.g. *Clickits* or *Bionicles*) and a return to the unifying homogeneity and interconnectedness of the original "System of Play" brick-logic.

Looking through the lens of "seriality," broadly conceived, we can conceptualize the development of the *LEGO* brand as consisting of a series of waves across different forms of serial thinking:

- from the initial wooden blocks and toys (1932-1949), expressing a "pre-serial" thinking in which detached products did not yet connect to other products,

- to the "automatic binding bricks" (1949-1958), expressing a physical, masonry-based seriality where consumers could buy a line of brick-sets to build their own designs of "stacked constructions,"

- to the "System of Play" bricks (1958-1995), expressing an interaction design-based seriality that shifts the framing of bricks from masonry components to design components for "open-ended Imagineering,"

- to a proliferation of heterogeneous stand-alone product-lines (1995-2004), expressing a from-franchise-to-consumer serial transmission where "products-to-assemble" are marketed to consumers in a form that, like IKEA furniture, dictates a standardized "assemble-to-never-disassemble" product poorly disguised as open-ended process,

- to the present intermingling and interplay of tangible bricks and digital bits across designs and worlds (2004-present), expressing a play(er)centric *brick*olage across interconnecting design-lines on the basis of reciprocal enactments of participants and brand, play and design, bricks and bits, expressions and experiences, constructions and consumptions.

From the above, we can see how the fourth wave—characterized by hermetically compartmentalized design-lines and serially transmitted (narrative) consumption of franchise-sanctioned worlds—is very much in line with traditional transmedia thinking within consumerist fan culture. With this shift, *LEGO* adopted a "transmedia world-building" thinking, moved away from constructing itself as a material design tool for playful designs, and instead began branding itself as a series of narrative-oriented products for "assembling in order to play." Adopting this lens of "transmedia world-building," *LEGO* succumbed to a culture of franchise-dictated narrative content and stand-alone, click-together products. When these products were assembled, there was nothing left to do but to enact the implied franchise-built storyworld. Within this wave, "[m]any of the new products were, for example, not compatible with the System of Play. Preformed elements were often only useful in the context of one single *LEGO* set" (Lauwaert 2009, p. 61).

Figure 2: Picture 1: Bionicle figures to be assembled and played with; Picture 2: None of these LEGO design-lines are compatible with each other; Picture 3: The Bionicle series is not compatible with the classic System of Play (all pictures by Rikke Toft Nørgård)

This design philosophy—articulated along the lines of franchise-built compartmentalized transmedia worlds, of discrete "content" lines and products that turned the constructor into consumer—almost ruined the *LEGO* company, until "[t]he classic construction toys were re-established in 2005 as one of the *LEGO* company's core product lines" (Lauwaert 2009, p. 61). Importantly, however, *LEGO* did not simply return to its former pre-textual, storyworld-free brick-logic of purely constructionist toys. What makes *LEGO* a paradigmatic case of new serialities within digital culture is its fusion of participant play and brand design, narrative worlds and tangible engagements, material bricks and digital bits, constructionist expression and consumer experience. It is a vibrant form of participatory design seriality where consumers are not only "prosumers" but co-constructors of their own serialities-in-use. Within this new form of seriality, material-digital contents and materials intermingle with one another to such an extent that Gandalf suddenly finds himself on the Death Star: "The return to the bricks, to the classic construction toys does not mean that popular media tie-ins and themed *LEGO* products that center on narrative play disappeared. Rather, it means that the *LEGO* Company intends to keep a better balance" (Lauwaert 2009, p. 61).

Today's playful digital culture has changed the structure of digital seriality—from corporately transmitted franchise-centric world-building to transformational play-centric world-sharing and onwards to transgressive player-centric world-designing. Against the backdrop of *LEGO*'s development through more or less successful ways of "moving across," we argue that the replacement of pre-participatory design culture's top-down serialities by the more transformational and transgressive participatory and networked "new serialities" calls for a new approach: an approach attentive to playful processes rather than products and to the intertwining of participants and franchises as they bring seriality to life through playful textual and interactional aesthetic-kinaesthetic engagements. What this more specifically implies for our understanding of seriality in general and for serialities-in-use in particular will be unpacked in the following.

Introducing Gandalf on the Death Star

> Play itself, we must recall, is an essentially serial activity, characterized by ritualistic practices of repetition and variation. (Denson and Jahn-Sudmann 2013, p. 8)

In line with this broad statement, we can see how a particular instantiation of play with(in) bricks, bits, or blockbusters is itself part of larger serial network ecologies. Seen in this way, actual manifestations of *LEGO*-based play – "hands-on" play sessions in the hands of participants – constitute episodes in an ongoing series of "single-player" *LEGO* play within the worlds of individual participants (intra-seriality), as well as series of "multi-player" *LEGO* play between participants around the globe (inter-seriality), thus constituting *LEGO* play itself as an emergent cultural realm of practice.

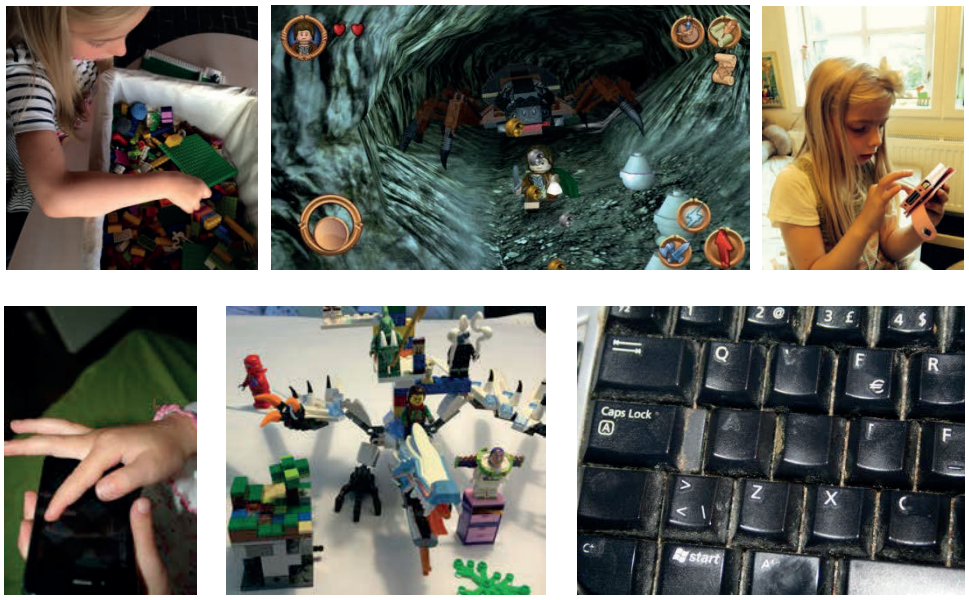

Figure 3: Selma exploring the Lego franchise through kinaesthetic play-episodes of moving across LEGO as material, media, and modality (all pictures by Rikke Toft Nørgård)

When seven-year-old Selma explores the *LEGO* franchise through a series of play-episodes, she is simultaneously exploring her place within the *LEGO* franchise. As she uncovers the storyworld and interaction design of *LEGO Star Wars* or *LEGO Lord of the Rings*, she is also uncovering how the franchise envisions her as a fan and participant. In any particular instantiation of play she will move across *LEGO* as material, media, and modality and oscillate between consumption and construction, experiencing through immersing herself in a world of play and expressing herself through designing a world in play. In other words, the seriality of *LEGO* emerges and is accessed by Selma in the form of seriality-in-use through her (kin)aesthetically engaged hands and imagineering perception as she playfully moves across bricks, bits, and blockbusters.

When Selma puts her finger on the smartphone or tablet to access and experience *LEGO* movies, *YouTube* videos, and digital gameworlds, and when she puts her hands into the crates filled with *LEGO* bricks to create her own worlds, Selma is getting to know the technologies, social practices, and spaces of this particular form of contemporary seriality. She explores how this interaction design welcomes her engagement, inviting her to express herself (kin)aesthetically through her body while she explores how this storyworld has carved out a place for her in which to experience and imagine herself through her perception. By moving across the bricks, bits, and blockbusters of the *LEGO Star Wars* and *LEGO Lord of the Rings* franchises and their structures of textual, interactional, and ludic seriality, Selma is coming to grips with the materials and technologies this form of seriality has to offer when put into use—how she is able to transform and transgress the franchise through interaction, and how she is able to take the world in and make it her own through transformational or transgressive media storytelling. Herein, Selma experiences the seriality-spaces of *LEGO* as "transmutable," as she can shift between episodes of franchise-oriented world-building, co-produced world-sharing, and independent world-designing.

In a typical episode of Selma's engagement with the franchise in this seriality-in-use, she will perhaps start by watching some *YouTube* episodes of *LEGO Star Wars* before she turns to her crates and transformatively enacts her own episode through *LEGO* brick-play. Then, when she grows weary of constructing, imagineering, and role-playing within the *LEGO Star Wars* universe, she will throw herself on the beanbag to play a range of *LEGO* games on the smartphone that she used earlier to watch *LEGO Star Wars*. Perhaps she will play some *LEGO Lord of the Rings* games. Then she suddenly returns to the *LEGO Star Wars* universe – but now with the Lord of the Rings in mind and *LEGO Lord of the Rings* in hand. Giggling while she playfully places Gandalf on the Death Star, only minutes later she will be involved in deep transgressive play when Pinkie Pie from *My Little Pony* comes flying on a *Ninjago* ice dragon, with the Lion Laval from *LEGO Chima* as her sidekick, to rescue *LEGO Harry Potter* from the evil scheming of Gandalf and Darth Vader. Swivelling through the hybrid space of transgressive trans-action she has designed, she is experiencing and expressing the inner core of new playful serialities such as the *LEGO* franchise.

Figure 4: Putting Gandalf on the Death Star (all pictures by Rikke Toft Nørgård)

Grasping Gandalf on the Death Star: Digital Seriality between Transmedia Worlds and Interaction Design

In the following, we present a short outline of "interaction design ecologies" and "transmedia world-building" as two methods for grasping the tangible-digital products, processes, and practices involved in this new seriality. These two methodological takes on (digital) seriality are then combined in an analysis of playing with "Gandalf on the Death Star" as an intermingling of franchise and participant, tangibility and imagination, materiality and digitality across materials, media, and modalities. In this way, we hope to provide an analytical foundation for understanding "Gandalf on the Death Star" as a multifaceted compound of tangible bricks, interactional bits, gameworlds, and media blockbusters.

Grasping Digital Serialities as Transmedia Worlds

The strategy of utilizing two or more media platforms for distributing a coherent narrative universe has been described and theorized most prominently in terms of "transmedia storytelling." Following Henry Jenkins, who defines the concept as a narrative that "unfolds across multiple media platforms, with each new text making a distinctive contribution to the whole," transmedia storytelling has been hailed as the narrative model best suited for engaging users and promoting user participation through cross-promotion in our contemporary media ecology (Jenkins 2006, pp. 95-96). Transmedia storytelling is, at its core, based on the principle of seriality, since it is the unfolding of a story over time, through the process of chunking meaningful bits of the story and dispersing it through interconnected installments via different media platforms. Through recurrence, repetition, and seriality, transmedia storytelling allows users to become acquainted with the characters and spaces of a narrative, which through the sum of transmedia installments makes a complete and persistent world.

Thus, a core characteristic of transmedia storytelling is the act of world-building described by Henry Jenkins as: "[t]he process of designing a fictional universe that will sustain franchise development, one that is sufficiently detailed to enable many different stories to emerge but coherent enough so that each story feels like it fits with the others" (Jenkins 2006, p. 294). Transmedia stories are defined by their expansively serial abilities: they expand and enrich franchised fictional worlds, they expand cross media platforms, and they empower an expansive fan base by promoting collective authorship and participatory spectatorship by way of a constant revisiting and reengagement with the franchise. But such constellations are, at the same time, the product of industrial consolidation and conglomeration, mirroring the "economic logic of a horizontally integrated entertainment industry" (ibid, p. 96). Transmedia storytelling has much to offer and has paved the way for theoretical understandings of the phenomena of seriality in distributing an expansive, coherent, and canonical narrative world across multiple media platforms. But it has also reinforced a perspective centered on the coordinated strategy of the (corporate) sender or world-builder responsible for extending such franchises across media. What we are faced with here are distribution models that work through industrial conglomeration, through the controlled flow of content across platforms, which in turn consolidates a canon of official texts and, at the same time, discourages unauthorized fan use (Hills 2012; Scott 2010, 2013). These models reward a particular kind of creator-centric use: "affirmational" fandom, in which "the source material is restated, the author's purpose divined to the community's satisfaction, rules established on how the characters are and how the universe works, and cosplay etc. occur" (obsession_inc 2009). In other words, transmedia storytelling serves to bolster the boundaries of a single franchise through sender-controlled, franchised seriality. But what happens when fan use and fans' participation moves beyond the consumption of texts that narratively and financially supplement a single franchise? How do we theorize the playful intermingling of multiple franchises through multiple media?

Matt Hills offers a description of the cult text as operating according to the idea of "hyperdiegesis," which was originally conceptualized as a vast, coherent narrative world, only a fraction of which is ever glimpsed by audiences (Hills 2002, p. 104)—that is, as a textual quality that promotes fan engagement in cult texts. In a more

recent article Hills revisits and reframes the idea of hyperdiegesis through the concept of "trans-transmedia" as a means of thinking about how narrative worlds are co-produced between fans and producers over time, as "trans-discourses which move across industry and fan contexts as well as across media" (Hills 2012, p. 425). In a similar vain, while still working within the framework of franchising, Derek Johnson suggests that we shift our focus and move "past world-building to conceptualize the franchise in terms of world-sharing among creative workers and communities" (Johnson 2013, p. 109). Taken together, Hills and Johnson highlight the role of users in acts of world-sharing which bring together specific universes that are not, from the outset, held together by a singular, auteur-controlled, coherent world. The notion of hyperdiegesis and transmedia world-sharing can here be understood as phenomena which emerge through fan engagement in and fan use of multiple texts and worlds.

This kind of engagement is configured along the lines of a "transformational fandom," which is "a democracy of taste; everyone has their own show at declaring what the source material means, and at radically re-interpreting it" (obsession_inc 2009). This kind of re-interpretative and playful seriality is a means of opening up transmedial worlds to a wide array of different forms of engagement and uses, both as franchise-centric world-building and transgressive, re-interpretative world-sharing.

These processes all invoke and intermingle with different layers of seriality through transmedia world-sharing: We find what Denson and Jahn-Sudmann call a layer of intra-ludic seriality within computer games themselves, in which the replayable nature of games, through structures of repetition and variation are manifested in the game levels or worlds. Another layer of inter-ludic seriality emerges between specific games—the sequels, prequels, remakes, updates and versions are explicit continuations of a game series. The third and in this context most pertinent level of seriality we find is the para-ludic, which is the transmedial web of connected media platforms and especially the social practices of a fan community (Denson and Jahn-Sudmann 2013).

These three levels of seriality can be utilized to both bolster and to transgress the boundaries of a particular franchise, as we have discussed earlier in terms of "affirmational" and "transformational" fandom. These types of fandom support two very different sorts of user practices, each of which informs the three levels of seriality. On the one hand we have a vertically informed seriality-in-use, which works as a depth engagement within a franchise, according to what Jason Mittell has labelled "drillability." The term is used to describe media texts that "encourage viewers to dig deeper, probing beneath the surface to understand the complexity of a story and its telling [ ]. Such programs create magnets for engagement, drawing viewers into story worlds and urging them to drill down to discover more" (Mittell 2009).

Opposed to this, we find a horizontally informed seriality-in-use, which works as a practice of moving across franchises, as communities circulate content according to their own interpretations, uses, and social relations (Jenkins, 2009). Drillable practices work vertically within a single franchise, and in relation to its world-building strategies whereby content is serially distributed to users for them to engage with and immerse themselves in. "Spreadability" practices, on the other hand, work

horizontally across franchises, transforming, negotiating, or re-interpreting content through a serial play of multiple texts. Here we have moved on to world-sharing, as a co-construction between world-builder and world-user, intended play and actual play – which can also encompass "improper use," as Jonathan Gray reminds us: "Though *Star Wars* toys offered many implicit end explicit 'proper' uses, in the schoolyard, garden, or on the bedroom floor, children could do anything they wanted with those toys, from the 'proper' to the 'improper'" (Gray 2010, p. 187). Viewed this way, vertically informed and horizontally informed serialities-in-use are two opposing practices of play, co-present in the process of play itself.

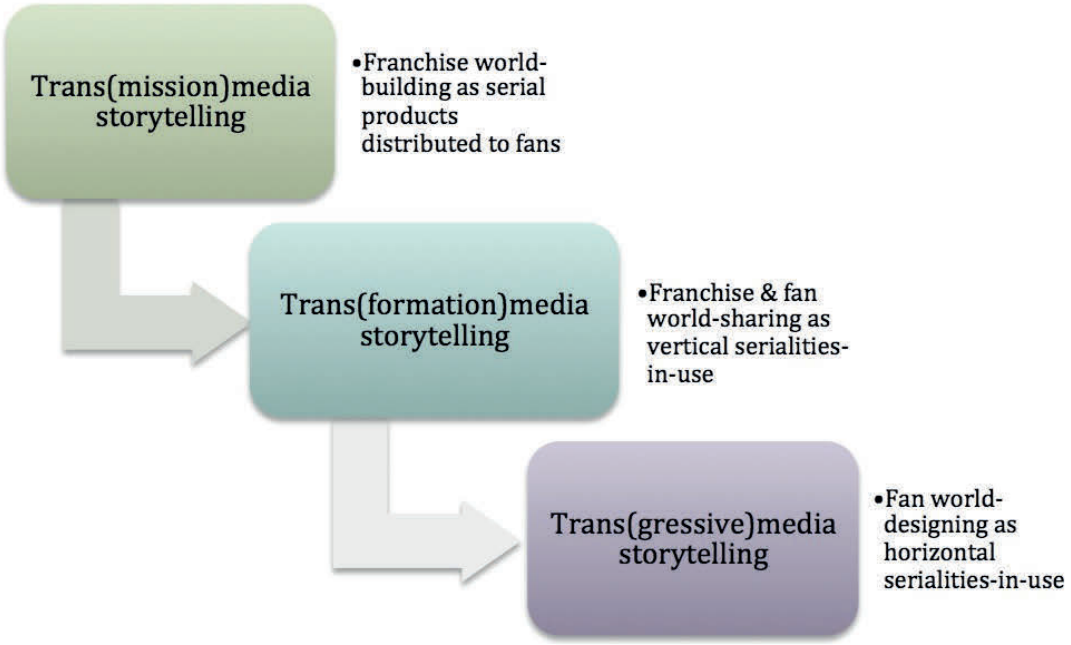

Figure 5: Three levels of "transmedia storytelling" within playful serialities

Grasping Digital Serialities as Interaction Design

Shifting our attention from digital seriality as transmedia worlds to contemplate digital serialities through the lens of interaction design, we are encouraged not only to grapple with digital seriality as experienced storyworlds but also with the tangible and embodied expressions of seriality within digital culture. To understand contemporary playful serialities such as *Skylanders*, *Star Wars*, *World of Warcraft*, *My Little Pony*, or *LEGO*, we also need to understand participants' expressive (kin)aesthetic engagements with the tangible bricks and digital bits of these franchises. Here, the lens of interaction design suggests itself because it is centred on embodied interactions and experiences with material-digital designs (cf. Smith et al 2013, Crabtree and Rodden 2009, Kaptelinin and Bannon 2012, de Valk et al 2013). As is often the case with flourishing play-based franchises and brands working within the logic of seriality, *LEGO*'s own transmedia storyworlds are only part of the overall material-digital space of possibilities that a participant encounters when entering the serial brick-logic and *brick*olage of *LEGO*. An equally large contributor to these contemporary playful serialities' longevity, penetration, generation, and advancement within our digital cultures is the open invitations they put forward to participants to

become active designers and agents that move across tangible-digital materials, media, and modalities. A playful franchise, such as *LEGO*, calls upon its participants to become participatory designers in an iterative cycle of construction and consumption.

Given that many playful serialities today emerge as much from participants' expressive (kin)aesthetic interactions with materials, media, and modalities as they stem from their perceptions of the content of immersive storyworlds, we need to incorporate a balanced emphasis on the tangible and interactional ecologies in which digital serialities are embedded and from which they emerge. In other words, if we want to adequately grasp contemporary playful serialities within digital cultures we need to balance narrative content with (kin)aesthetic interaction, storyworld with interaction design, and participants as fans with participants as designers. Such a balancing becomes possible when we pair the "transmedia worlds" of media studies with the "tangible hybrid ecologies" of interaction design.

In the field of interaction design, the focus is on "how new technologies [for seriality] might stimulate new patterns of use" (Smith et al 2013). Such hybrid ecologies merge tangible technologies and intangible content, immersive worlds and interactional spaces, fan perceptions and design expressions into a "hybrid reciprocal world-designing." Within these playful serialities, participants and franchises intermingle as they shape and co-design each other through material-digital products, processes, and practices across multiple materials, media, and modalities.

Hence, if we acknowledge the fact that many contemporary playful serialities, such as those exemplified by *World of Warcraft* or *LEGO*, do not operate within static serialities of transmission or even the more dynamic serialities of content transformation, but are rather serialities in the making, (kin)aesthetic interaction by interaction, we need to incorporate aspects of embodied interaction and design as well as tangible environments and technologies into our analytical methodologies. Such an attention towards social practice as tangible participatory interactions within digital-material environments has been a central focus within interaction design for many years (e.g. Weiser 1991; Crabtree et al 2005). Through integrating such frameworks within our understanding of "transmedia worlds" and "digital serialities," a more holistic approach is enabled: media content is paired with interaction design, immersive storyworlds are paired with tangible (kin)aesthetic possibility spaces, consumption is paired with construction, and fan experiences are paired with designer expressions. We need to start emphasizing how the totality of media content and interaction design of playful franchises or brands are scaffolded in order to promote shared hybrid material-digital storyworld/interaction-design ecologies – ecologies in which interactions and experiences emerge in the entanglements of participants and franchises/brands. These technology and media saturated tangible-digital spaces have also been described as "third spaces" (Muller and Druin 2010), "design collaboratoriums" (Bødker and Buur 2002), and "technology-enhanced activity spaces" (Kaptelinin and Bannon 2012); they are generally characterized by a shift of focus to "the entire use ecology [ ] [that is,] the entire activity space including the physical space of children's technology use" (Smith et al 2013). It is with this perspective in mind that we can invoke such third spaces to investigate how new forms of media and technology organize new serialities that transmit, transform, and

transgress the constructions and consumptions of participants and franchises/brands.

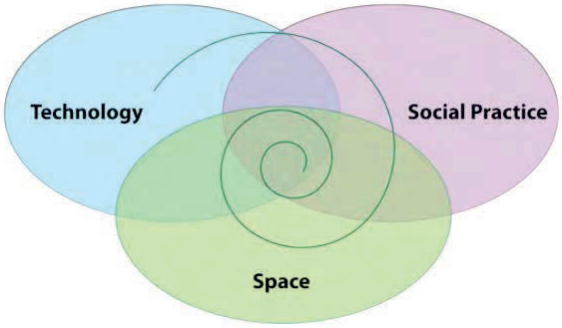

Figure 6: The three dimensions of the Ecological Inquiry (Smith et al, p. 185)

From the standpoint of digital seriality, we can interpret Figure 6 as the construction and/or unfolding of seriality (the spiraling thread) in terms of a movement across three dimensions (technology, social practice, and space). These three dimensions, as seen through the lens of digital seriality, will be explained briefly in the following, before we go on to merge "interaction design" with "transmedia worlds" into a compound model for grasping "Gandalf on the Death Star."

- *Technology* (movements across media and materials): When grasping digital seriality as movements across media and materials, we look for how digital seriality as technology emerges through participants' appropriations and improvisational iterations of hybrid technologies for world-sharing and -designing inside participants' everyday context of digital culture. The focus here is on how digital-material technologies scaffold and promote transmission, transformation, and/or transgression.

- *Social practice* (movements across modalities): When grasping digital seriality as social practice, we focus on how participants design and share digital seriality through (kin)aesthetically engaged digital-material constructions and consumptions with and across modalities. Through participants' engagement in social practices within hybrid participatory cultures, technologies shift from merely being products for consumption to becoming ingredients in processes for socially embodied practices of play.

- *Space* (movements in hybrid story-interaction worlds): When grasping digital seriality as movements in hybrid story-interaction worlds, we look for the ways digital seriality emerges simultaneously as an experienced storyworld in which to immerse oneself and an interactional possibility space in which to express oneself. In this way, participants' instantiations of a particular seriality turns abstract seriality space into a concrete seriality place that is experienced and expressed through participants' and franchises' entanglements of consumption and construction.

Seen through these three perspectives, seriality is always "in the becoming" by way of a franchise's or participant's movements across technology, practice, and space. Accordingly, digital seriality becomes something that is always processual and performative. Digital seriality is, when viewed through the lens of interaction design and on the grounds of transformative or transgressive interaction with(in) hybrid ecologies, a form of assemblage—where "assemblage is imagined as inherently unstable and infused with movement and change [as it] generates enduring puzzles about 'process' and 'relationship'" (Markus and Saka 2006). Given the interaction design lens, which views digital serialities as hybrid ecologies, the smallest unit of analysis will always be relational and interactional rather than isolated and static.

Grasping Digital Seriality with Both Hands

Our presentation above of a media-cultural and design-interactional approach to playful digital seriality as transmedia worlds and (kin)aesthetic design for engagement, we believe, does justice to the basic idea that participants and brands, play and design, bricks and bits, expressions and experiences, constructions and consumptions are not essentially opposed but capable of complex forms of interplay and intermingling. The goal here is to move beyond purely text- and content-based approaches to seriality and to present perspectives and models for grasping the ways contemporary playful seriality-brands and -franchises (e.g. *LEGO*, *World of Warcraft*, or *My Little Pony*) are themselves shaped by and around the serialized transformative and transgressive practices of players. We are building, in this article, on Denson and Jahn-Sudmann's exploration of contexts within which to study digital seriality and following their call for a decidedly interdisciplinary approach to this study; but, as should be clear by now, we seek to develop and expand this horizon by including not only "the aesthetic forms and cultural practices of serialization as they are articulated in and around interactive digital media" (Denson and Jahn-Sudmann 2013, pp. 10-11) but highlighting also kin-aesthetic forms as a subset of what they have termed "serial interfacing" and interaction design practices as overlapping both the latter and the realm of "collective serialization." In other words, ours is an effort to grasp how serialities can emerge as transmitting transformational or transgressive storyworlds and interaction ecologies through the social practices between players and franchise in hybrid spaces with digital-material technologies. Below (Figures 7-9) is a first outline of such an interdisciplinary model for grasping the levels of seriality between bricks, bits, and blockbusters in the study of material-digital play-centric serialities such as *World of Warcraft*, *My Little Pony*, and *LEGO*—it is an attempt to grasp Gandalf on the Death Star with both hands, so to speak.

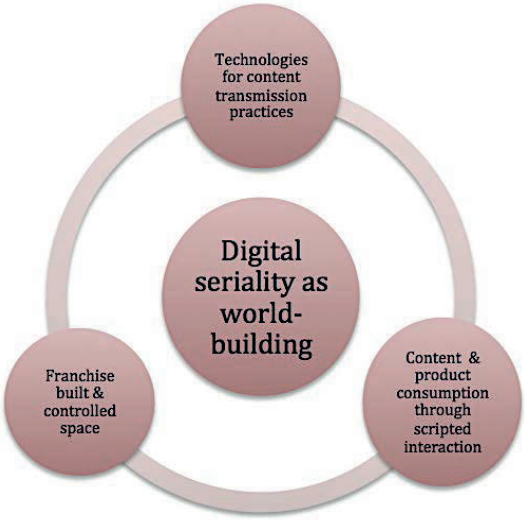

Figure 7: Franchise-centric seriality as world-building through transmission technologies and product-consumption practices

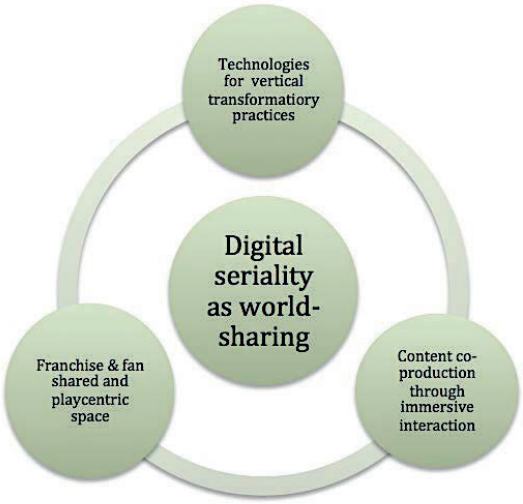

Figure 8: Play-centric seriality as world-sharing through transformation technologies and content-production practices

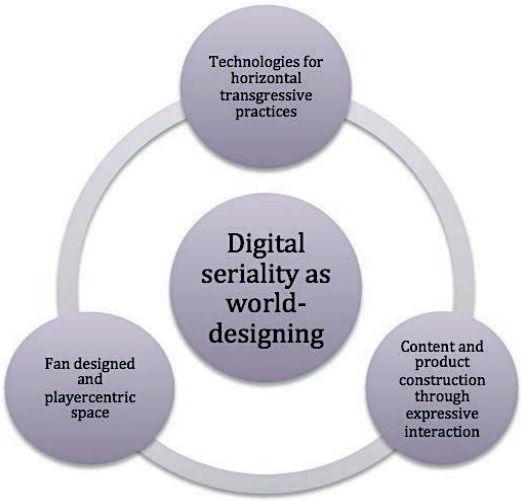

Figure 9: Player-centric seriality as world-designing through transgressive technologies and product-construction practices

Fusing the "transmedia worlds" of media and cultural studies with the "hybrid action spaces" of interaction design we get three distinctive ecologies or systems of digital seriality. Besides underlining the fact that digital seriality needs to be read in the plural – digital serialities – these models furthermore demonstrate the potential intermingling and interplay of different dimensions and levels of seriality within a particular franchise such as *LEGO*. This thinking is in line with that of Nick Couldry, who argues for talking about convergence cultures in the plural in order not to obscure cultural differences (Couldry 2011, p. 495). Likewise, we would argue for the need to talk about serialities in the plural in order not to obscure structural differences between distinctive ecologies of seriality.

Furthermore, the above should not be read as compartmentalized models of autonomous ecologies of seriality. Rather, they should be viewed as abstract logics of seriality that can be mixed and matched within concrete instantiations of seriality in the intersections and interplay of participants and franchises. Consequently, even though the form of content (transmitted, transformed, or transgressed storytelling), the aim of practice (world-building, world-sharing or world-designing), the functionality of digital-material technologies (consumption, production, construction), and the logic of control within the space (franchise-centric, play-centric, or player-centric) relate to their own specific abstract logics of seriality, they can shift or be replaced from series to series, from instantiation to instantiation, and even from unit to unit. A play-episode that takes off with the consumption of an official episode of the franchise TV-series *LEGO Star Wars* can evolve into a re-enactment and transformation of that episode through LEGO play with *LEGO Star Wars* sets; it can be followed up with a further exploration of the episode's storyworld through playing a *LEGO Star Wars* digital game; and it can end up in a transgressive explosion of franchise mash-up when the player constructs his or her own YouTube channel featuring *LEGO Star Wars* episodes where *Pinkie Pie* from *My Little Pony* comes flying in on a *Ninjago* ice dragon with Spiderman as a sidekick to battle "Gandalf on the Death Star" in a constructed landscape of diverse *LEGO Star Wars, Chima, Ninjago* and *Friends* sets inhabited by *My Little Pony* figures and *LEGO* mini-figures.

Figure 10: Pinkie Pie in a Hama beads rainbow landscape, with Spiderman as sidekick, coming to battle Gandalf on the Death Star

In the midst of the media-design interdisciplinary collisions outlined above, we can see the beginnings of something new—something that might be called a method for "hybrid trans/media-design/actions" or "hybrid trans-actions"—where digital seriality emerges through playful trans-actions (i.e. actions of trans-mission, trans-formation,

or trans-gression) between participants and franchises within hybrid aesthetic-kinaesthetic environments of construction and consumption. It is a hybrid worldness that is both experienced and expressed, narrated and designed, received and delivered, as "[s]ocial practice, hybrid spaces, and digital technologies are embedded with other technologies, social contexts, past and future events, in more holistic ecologies and continuous acts of appropriation" (Smith et al. 2013, p. 184). This hybrid worldness involves a comprehension of seriality as trans-actions across materials, media, and modalities as Gandalf is placed on the Death Star in various ways by participants and franchises. Consequently, playful seriality becomes extended into tangible materiality and decentered from core products into productive processes wherein serialities emerge as "containers or scaffolds that rely on participation and user-driven contributions to take their form. Their shape emerges through activities of use, over time, and their use is social and situated and depends on activities of those who use them" (Hagen and Robertson 2010, p. 77).

Conceptual Levels of Seriality within Gandalf on the Death Star

Moving now from grasping the technologies, practices, spaces, and worlds at play within new playful serialities and on to the task of conceptualizing the textual and interactional levels at play within serialized transmedia worlds and (kin)aesthetic interaction designs, we need to add additional layers to our model. Firstly, we need to be able to distinguish between the structures of narrative worlds and the levels of text-seriality put into play by participants and franchises (text-serialities-in-use). Secondly, we need to be able to distinguish between the structures of interaction design and the levels of actional-seriality put into play by participants and franchises (actional-serialities-in-use). Therefore, we present a short outline of "expressive worlds of play and text-serialites" and "expressive worlds in play and actional-serialities" before drawing up a compound model for comprehending Gandalf on the Death Star as the intermingling of bricks, bits, and blockbusters within ludic-serialities-in-use.

Immersive Worlds of Play and Text-Serialities

When conceptualizing seriality at different levels and across different media, modalities, and materials, the traditional notion of what constitutes the text is challenged and becomes fluid, as texts are connected to other texts through the transformational process of play. What is at stake here is the very notion of texts and textuality. How do we grasp a textuality in which Gandalf emerges as a part of the world of *Star Wars*?

The concept of "text" is a central category in media studies, game studies, and cultural studies. Engaging the question of "what is a text," Couldry argues that "[s]pecific forms of 'textuality' have to be examined in their own right" (Couldry 2000, p. 72); the playful practices and the serial dialogue of combining franchises, media, and modalities, we suggest, constitute a very specific form of textuality. When we as fans and playful users are engaged with multiple worlds in and through different media, the task of defining the text becomes immensely more difficult, as "texts"

cannot be conceptualized as fixed or bounded units. Texts are positioned in, engaged through, and experienced from a whole universe of related and surrounding texts: “Each narrative is a rewriting of theses already written ‘knowledges’ of the culture, and each text makes sense only insofar as it rewrites and re-presents them for us” (Fiske 1987, p. 115). This means that individual texts are part of a wider web of textual occurrences and their textual elements are read in the context of other texts. The end of a singular textuality is a result of the shift in perspective from the text itself to its reception and appropriation, to the user herself.

We can distinguish between three forms of textual connections here. The first of these consists of “intra-textual” relations, where the references are solely within a single text or a single diegetic universe. We find such connections when *Star Wars* computer games reference the archetypical narrative or the familiar characters found in the canonical films, the cartoons, the novels, or other media. This often serves to uphold the histories, cultures, themes, structures, and logics of *Star Wars* across media.

The second form of textual references is the “inter-textual.” The traditional understanding of intertextuality, in a Kristevaian sense, functions as a semiotic framework where “every text is from the outset under the jurisdiction of other discourses which impose a universe on it” (Culler 2001, p. 116). In this way, intertextuality functions like an inescapable link between texts and creates added meaning by linking to the huge network of related, never-ending plotlines within a franchise. This serially informed intertextuality invites viewers/users/fans in and gives their imaginations acres of space in which to roam. This understanding does not account for the playful practices of navigating between universes and between media. Such movements function para-textually. This third level of textual relations—“para-textuality”—is a key concept in Jonathan Gray’s work on popular culture franchises as textual worlds. Gray has shown how paratexts, depending on their specific users, can shift the very balance between what we regard as primary texts and paratexts. Where “inter-textuality” has to do with world-building, “para-textuality” pertains to world-sharing and the user experiences inherent therein. The “text” at play is not a finished production, but a continuous serial productivity, larger than any film, game, book, or *LEGO* set. It is, in short, the entire world at play. We are thus faced with a particular type of serial textuality, consisting of what Cornell Sandvoss describes as “fan objects”; they form

> a field of gravity, which may not have an urtext in its epicentre, but which in any case corresponds with the fundamental meaning structure through which all these texts are read. The fan text is thus constituted through a multiplicity of textual elements; it is [ ] formed between and across texts (Sandvoss, 2007, p. 23)

When Gandalf is placed on the Death Star, neither the character of Gandalf nor the universe of *Star Wars* is completely deprived of its original meaning and rewritten in the process of play. Rather, the characters and objects function as “story pieces” of sorts, ripe with their own narrative potential—“starting blocks” which can be brought together and spark a story. These can be seen on a continuum from weak to strong narrative anchoring. Some of the elements can carry more narrative baggage than others, a heavier structure or implicit directions for how the story or the characters

should develop or be played with. We may think of these as serially infused "play scripts": "sequential patterns of action and meaning—which children replicate in their play" (Kline 1993, p. 327). This ties in with the notion of "affirmational fandom" we discussed earlier, whereas "transformational fandom" comes into play where mediatized objects become tools for assessing, negating, or even challenging play scripts. Here the transformational processes of play can prompt the user to enter into an "intermediate space" of "interactive fantasy" (ibid, p. 38) where the different objects are open to replacement, rewriting, recombination, where they function as mere content or raw material in the construction of the play world.

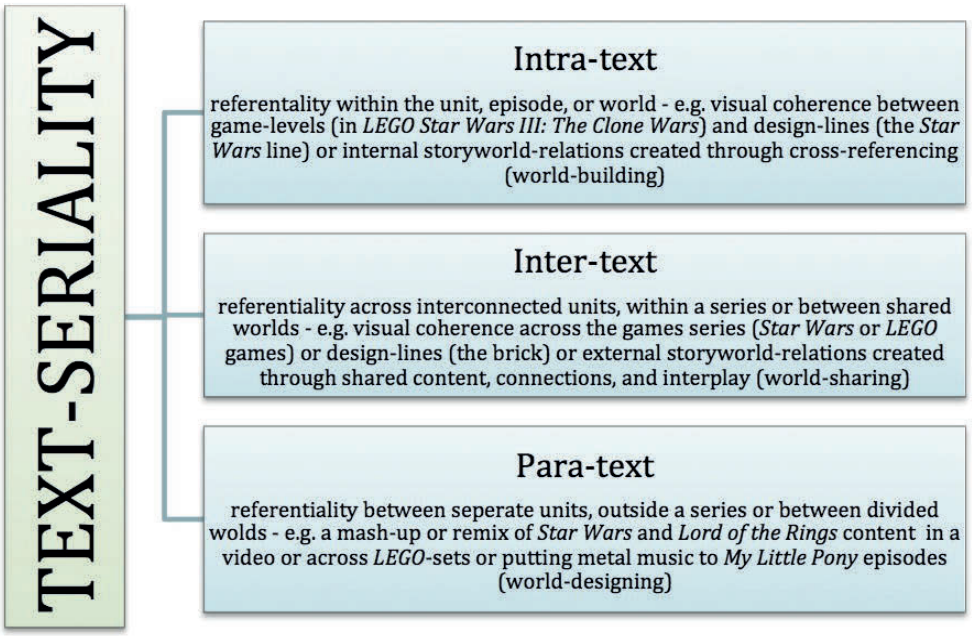

Figure 11: Levels of text-seriality within immersive worlds of play

Expressive Worlds in Play and Actional-Serialities

In this section we move from conceptualizing "Gandalf on the Death Star" as text and as content to be transmitted, transformed, or transgressed through different intra-textual, inter-textual, and para-textual practices, to conceptualizing "Gandalf on the Death Star" as hybrid interaction space and design. Where the media-cultural take on "Gandalf on the Death Star" helps us to comprehend and conceptualize how digital serialities are generated from worlds of play between participants and franchises, the design-interactional take on "Gandalf on the Death Star" helps us to comprehend and conceptualize how digital serialities emerge from participant-franchise interactions with and within play(er)centric designs. Here, the traditional notion of (digital) seriality as transmedia storytelling becomes fluid and merges with participants' embodied (kin)aesthetic engagements. In this way, worlds of play manifest themselves not only as immersive or expressed narrative (text) worlds but also as tangible (action) spaces for immersive or expressive (kin)aesthetic engagement. What is at stake here is the very notion of digital seriality. How do we grasp a form of seriality that is composed not only of intra-texts, inter-texts, and para-texts but also of intra-actional, inter-

actional and para-actional levels? How do we grasp a serial form in which Gandalf not only emerges and is experienced as part of the Star Wars universe but is also actively placed there by participants through expressive interaction in an attempt to construct their own serialities through embodied transgressive world-designing?

The concepts of "open-ended play," "design toys" (de Valk et al 2012, 2013; Bekker et al. 2009, 2010), and "geographies of play" (Lauwaert 2009) lend themselves nicely to such a perspective. Thus, the concept of open-ended play seems apt when we are dealing with the design of contemporary playful serialities that endorse and promote transformative and transgressive practices:

> Open-ended play with interactive objects provides children with the freedom to construct their own rules, goals and meaning. Instead of games with strict rules, open-ended play designs offer interaction opportunities as a trigger for creating personalized games. The process of developing these designs differs from designs with predefined use. (de Valk et al 2013, p. 92)

Within such contemporary playful seriality designs (and *LEGO* is the epitome of these), technology, practice, and space is designed to invite the participants to interpret the digital-material components of seriality and create their own transformative or transgressive serialities with them. In other words, such franchises deliberately leave room for interpretation by the participants both in relation to the content level and the construction level of the franchise's seriality. In the case of *LEGO*'s *brick*olage the participants are free to spontaneously enact, improvise, and design with what the hybrid trans-action space offers them. Importantly, open-ended play is not the same as free play: "Open-ended play somewhat restricts children in their free play as it offers objects with design intentions" (de Valk et al 2013, p. 93).

This is also the case with *LEGO* and even more so with other playful serialities such as *World of Warcraft* or *My Little Pony*. However, playful serialities share some traits with respect to the ways they invite participants to transform or transgress through their interaction design. In general, they aim to deliver serialities for improvisation—that is, participants should be able to create their own "story pieces" and "play scripts" spontaneously without being challenged by a hermetically sealed seriality. However, as it is not "free play," franchises working within the logic of playful serialites offer shared "mental models" or "storyworlds" as a basis upon which participants can improvise. This is the case in design-lines such as *LEGO Lord of the Rings* or *LEGO Star Wars*, where storyworlds are presented to participants as geographies of play atop which participants can improvise through transformational or transgressive interactions. Playful serialities operate within the design-logic of leaving room for design interpretation and construction in order to trigger participants' creativity.

This is, however, a delicate balance: "On the one hand, the [seriality] design should not be too open. At one point it will be nothing anymore, no real design. [ ] Open-ended play should focus on finding a balance between spontaneity and structure [ ] between directing play and emergent play" (de Valk et al 2013, p. 97). Accordingly, every (digital) seriality constitutes its own "geography of play" through its combination of interaction design characteristics—its layout of bricks and bits—and the texts and discourses embedded in or surrounding the design (its intra-, inter-, and para-texts). Here, tactile bricks and digital bits function as connectors and facilitators that enable

and catalyze transformative and transgressive play practices within and across the storyworlds encompassed by the *LEGO* franchise. Consequently, digital-material seriality also depends on the ways participants (are able to) click bricks and bits together through intra-actional, inter-actional, or para-actional practices: "toys and play practices are intimately connected, and the design of a toy facilitates certain play practices (and not others)[;] [conversely] the way people play with *LEGO* toys will also influence the design of (future) *LEGO* products" (Lauwaert 2009, p. 53).

On this view, bricks and bits function as two-way facilitators of serial construction and consumption as they are continuously assembled, disassembled, and reassembled by participants and franchises through intra-actional, inter-actional or para-actional practices, "thereby opening up a large area for divergent design and construction" (Lauwaert 2009, p. 57). Hence, the emergence of playful serialities as movements across tangible toy bricks and interactional digital bits is performed as a kind of dialogue between a franchise's brick-and-bit-design and participants' brick-and-bit-play. Bricks and bits are mediators between transmedia worlds and interaction design, and they serve as intermediaries in bridging participants and franchises. Accordingly, through intra-actional, inter-actional, and para-actional levels of engagement, bricks and bits are transformed from simple "components to consume or construct with" into mediators, mirrors, and promoters of participant-franchise world-building, world-sharing, and world-designing. Bricks and bits are in this way much more than a vessel for digital seriality. They are the design components from which digital seriality arises and is carried out—and in this way also a determining factor in how a particular serial form functions, is constructed, and consumed. They are active and dynamic "seriality-shapers" (Lauwaert 2009, pp. 40-41).

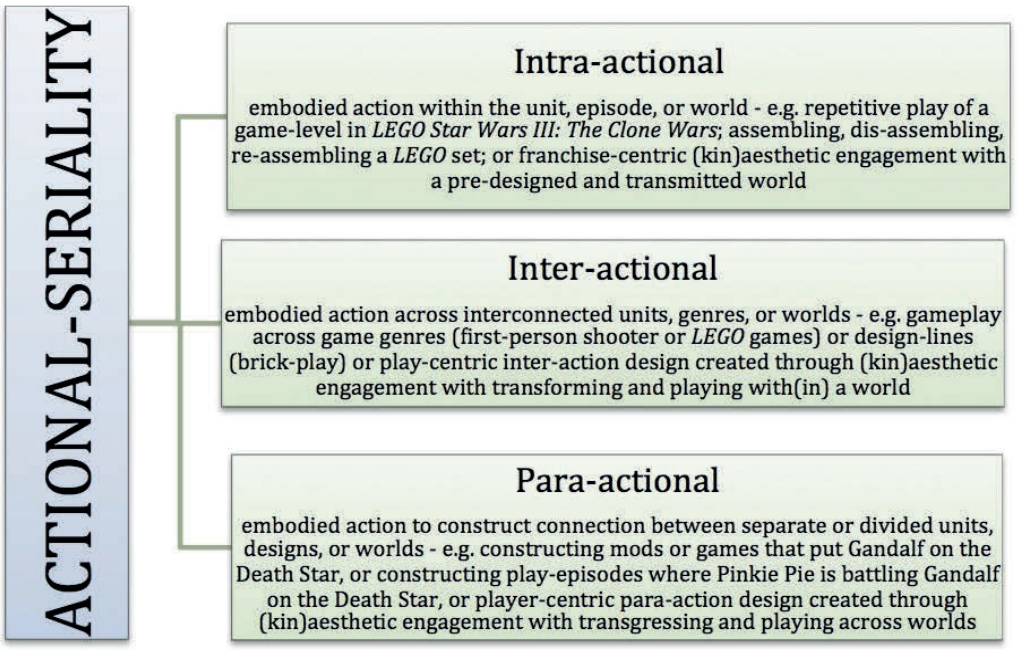

Figure 12: Levels of actional-seriality within expressive worlds in play

Conclusion: A Compound Model for Ludic-Serialities-in-Use, or: Gandalf on the Death Star

Looking back at the trajectory marked out in this article, we can see how far we have moved from Henry Jenkins's original concept of transmedia storytelling—a concept which, in essence, frames seriality in accordance with Hollywood's transmission of franchise-controlled world-building and fans' story and product consumption (Hills 2012, p. 413). When viewed in the light of the conception we have developed here of new playful serialities-in-use, we can see how the original concept of trans(mission)media storytelling only grasped serialities consisting of singular coherent storyworlds built for the purpose of distributing the franchise to its consumerist or prosumer fans across multiple platforms. This understanding of seriality is basically a "derivation of academic television studies" (Clarke 2009, p. 448), where fandom is key and where fan-produced content is structured and controlled within these trans(mission)media ecologies by the franchise (which Hills's reading of *Torchwood* as trans-transmedia also clearly demonstrates) (Hills 2012).

In its answer to the call put forward by Denson and Jahn-Sudmann, our article can be viewed as an attempt to broaden the study of seriality and transmedia to encompass new non-transmission forms of seriality operating under the logics of transformation or transgression. It is an effort to develop an appreciation for the ways in which a franchise emerges through transmitting, transformational, or transgressive (embodied) play-practices within hybrid trans-action ecologies. And we underline the fact that seriality must always be in the plural in order not to overlook crucial differences. We argue, that is, for the need to talk about "serialities" as well as consider actual "serialities-in-use" in order to avoid obfuscating important structural differences between distinctive ecologies of seriality.

When considering the levels of seriality at play in "Gandalf on the Death Star" and between the bricks, bits, and blockbusters that come together here, we must be able to grasp how transmedia storytelling meets interaction-design technology, space, and social practices to form a particular seriality-in-use through the ways it brings text-seriality and action-seriality into play. Through this interplay, a ludic seriality arises in the space between participants and franchises, where immersive transmedia worlds of play and expressive interaction-design worlds meet in the form of particular instantiations of world-building, world-sharing, and world-designing.

In the diagram below, we have drawn together these different levels and dimensions of ludic serialities-in-use as we have conceptualized them in this article. This compound model, which articulates "levels of new playful serialities-in-use within hybrid trans-action ecologies," is our contribution to the study of seriality within digital culture; it is an attempt to broaden our understanding of how new playful serialities (also) emerge through the logics of transformation and transgression when franchises and participants playfully move across media, materials, and modalities.

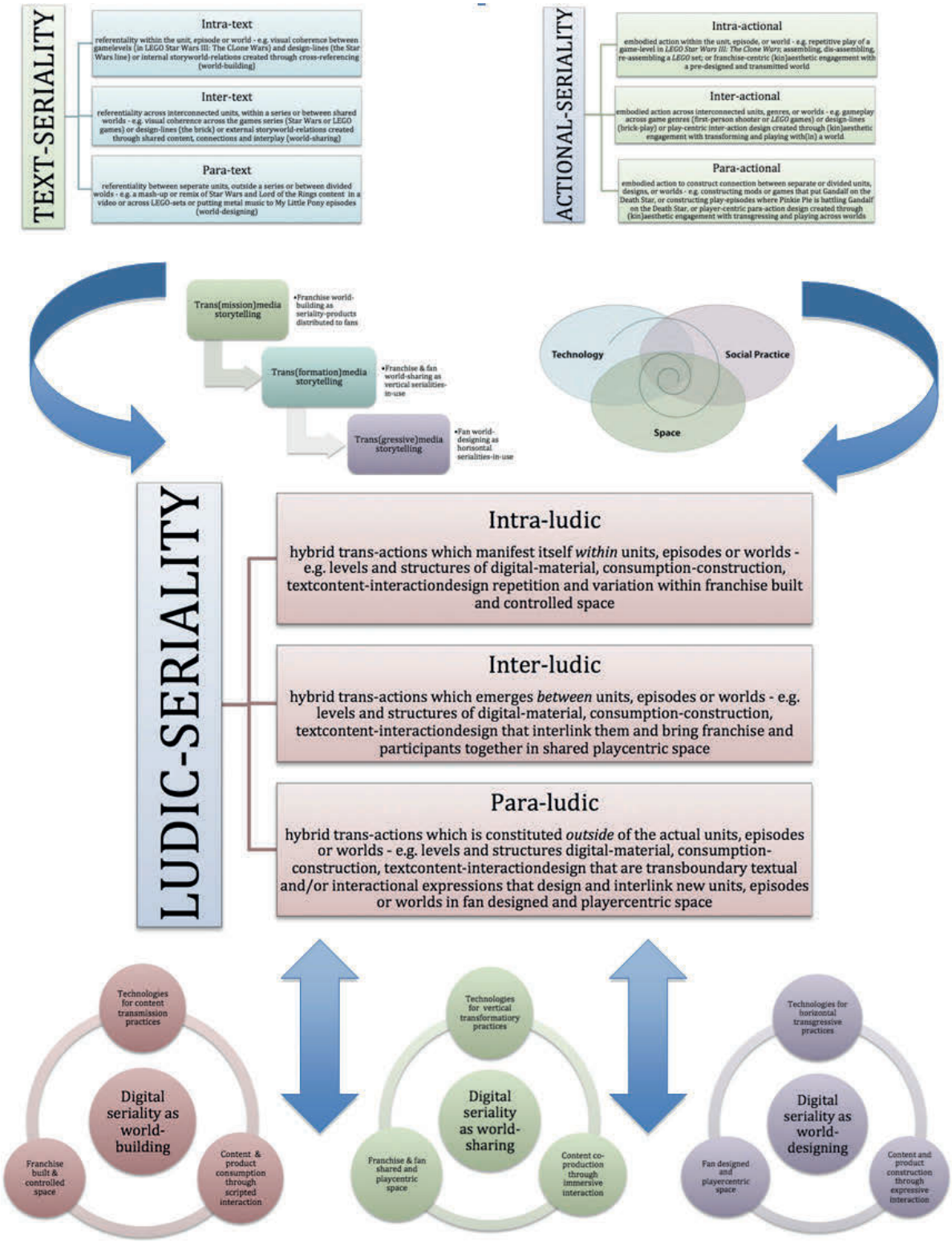

Figure 13: A compound model of levels of new playful serialities-in-use within hybrid trans-action ecologies. The central model of "ludic-seriality" is a refinement and further development of the model found in Denson and Jahn-Sudmann (2013, p. 11).

Importantly, the model is also meant to encompass the fact that even though a participant may initially have put Gandalf on the Death Star as a playfully transgressive act against the intended purpose of the franchise's designed universe,

that participant may well subsequently find that this act of transgression is appropriated by the franchise and incorporated into its product line. This might in fact explain the logic behind *The LEGO Movie* (2014), where worlds and franchises blend together in a way that makes previously segregated bricks, bits, and blockbuster universes disintegrate and melt into each other. By acknowledging and allowing for this reciprocal mode of new serialities, "divergent play practices can become facilitated play practices [where] divergent uses of designed objects will often lead to the design of new consumer objects that have at the intersection of design and discourse, in the core, exactly those unintended uses" (Lauwaert 2009, pp. 18-19). Such is the inherent logic of franchises operating under the logic of playfully transgressive serialities.

The scholarly study of new playful serialities has just begun. We still need to put the compound model to real work by exploring actual serialities-in-use in depth. And we need, through such in-depth analyses of transformative and transgressive serialities-in-use, to deepen our comprehension of the underlying structures and interplay of the layers and levels within the compound model. The models and conceptualizations outlined here are primarily aimed at pointing towards possible futures and pathways for research in this the field. Thus, the perspective outlined in this article should be read as a supplementary dimension to those facets explored by Denson and Jahn-Sudmann in their "Digital Seriality: On the Serial Aesthetics and Practice of Digital Games" (2013)—with the understanding that further dimensions wait to be uncovered in an ongoing serial unfolding. So just as we have playfully placed our "transformative interdisciplinary Gandalf" on their "research Death Star," we can only hope that somewhere somehow somebody will playfully place their own "transformative Gandalf" on the "Death Star" we have developed here.

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Notes

[1] We are here adopting a broad notion of the "ludic," such as it is defined in both the Oxford Dictionaries and Merriam-Webster Encyclopedia – viz. "showing spontaneous and undirected playfulness" and "playful: ludic behavior."