Introduction: Welcome to the Funhouse!

The box measures 6.25 by 9.25 inches and is skinned in a shiny black finish and silver lettering that reads "Uncle Buddy's Phantom Funhouse" and "a hypermedia novel by John McDaid" (Figure 1).

Removing the box top, you see two audio cassettes, each containing musical compositions (the first by someone named Buddy Newkirk and the second by an Art Newkirk); a letter from Chris, who appears to be an editor of a magazine called *Vortex*; a copy of a science fiction story written by Buddy and edited by Chris; a twelve-page manual, a one-page installation guide; a registration card – and five 3.5-inch floppy disks. It is 1993, and though you are familiar with hypertext narratives having previously read Michael Joyce's *afternoon, a story* and Stuart Moulthrop's *Victory Garden*, you have never encountered one packaged in a box and with so much physical media associated with it. So, you read the manual and learn how to install the work. After a few minutes of your Macintosh Classic whirring and beeping, the work launches, and you land at the opening screen where you encounter a bitmapped image of a house. Mousing around the image, you realize it is an interactive map with hyperlinks leading to various spaces in the house. During your exploration of these spaces, you also learn the box you opened earlier constitutes the literary estate of *your* Uncle Buddy. You are not told what happened to him, but in order to find out, you must continue to explore the house with its many strange and wondrous rooms, listen to the music cassettes, and read the short story and editor's letter.

Welcome to McDaid's *Uncle Buddy's Phantom Funhouse*. The work was published in 1993 on HyperCard 2.0 on the floppy disk format and on CD-ROM later that same year by Eastgate Systems, Inc. Since the release of MacOS X 10.5 in 2007, however, it has been inaccessible to the public. An emulated version that runs easily in the Mini vMac environment was made available in 2017 via download from the Internet Archive, but this version does not include any of the physical media or mention they exist. While fans of McDaid's interactive novel may cheer about their ability to read the work again, this version – disconnected from its contextualizing components – leads us to wonder how readily readers of the emulated version can piece together the mystery of Uncle Buddy's disappearance without listening to the cassette, "The Story of Emily and the Time Machine" or reading Newkirk's "Tree," a story about a man led astray by a mysterious tree. On a visceral level, we wonder about how the loss of the physical media impacts our experience with the work. Obviously, the floppy disks serve as storage for the novel's digital elements, the words, and images that comprise the story. That there are five of them – each containing vital parts of the story as well as programming instructions the

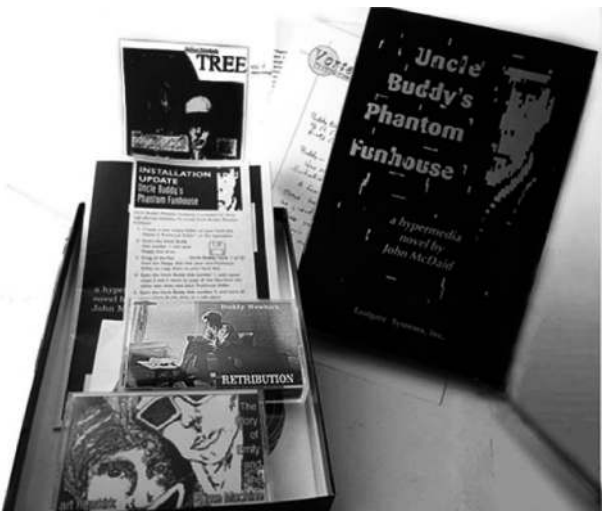

Figure 1 Image of the box containing McDaid's *Uncle Buddy's Phantom Funhouse.*

computer needs to display the story on the screen – means loading all disks to read the novel. Sliding the disks in and out of the floppy disk drive, looking at the work on the screen, clicking the words and images with the mouse to make the screens change, listening to the audio cassettes, thumbing through the letter, story, manual, and instructions all require our senses to apprehend the story and, ultimately, solve the mystery. The box itself, referred to by the author as "the chocolate box of death" (McDaid, "Interview Part 2," 2015), introduces at the outset the story's conceit – what is left of the literary estate of *your* Uncle Buddy – thereby quickly immersing you into the story before you even load the first disk into the drive. Thus, the box and its contents suggest the entirety of the work and conspire to imbue meaning to it.

The Element's Focus

Our Element, *The Challenges of Born-Digital Fiction: Editions, Emulations*, and *Translations*, examines activities, approaches, and strategies underlying the preservation of born-digital literature – that is, art and expressive writing – like McDaid's. Drawing upon platform and code studies, archival theory, translation studies, and media theory, it addresses the growing concern among digital preservationists about how best to maintain and extend the accessibility of works created for hardware and with software no longer supported by contemporary computing systems and which often include contextualizing packaging and physical media that extend beyond what is traditionally recognized as "the work."

The born-digital literary works used as case studies in this Element were produced before or shortly after the mainstreaming of the World Wide Web with proprietary software and on formats now obsolete. Some are works of net art that relied on coding practices, like Java Applets, that are no longer supported by contemporary browsers. In all cases, preserving and extending born-digital art and expressive writing for a broad and sustained study by scholars of book culture, literary studies, and digital culture necessitate these works are migrated, emulated, and ultimately translated for a new audience – yet these activities can impact their integrity and readers' experience. Thus, this Element centers on three key challenges facing such efforts: (1) media integrity: relying on emulation and migration as prime modes for long-term preservation, (2) precision of references: identifying correct editions and versions of emulated and migrated works in scholarship, and (3) enhanced translation: approaching translation as "media translation" informed by the changing context in a collaborative environment during the process of emulating and migrating media. In sum, the Element argues that when the emulation and migration of born-digital media translate the work's code, it also impacts the edition and version outputted in the process and potentially our experience with the work.

Theoretical and Philosophical Underpinnings

Because in this Element we often speak about objects and codes (digital, material, aesthetic) and formulae that let us migrate objects and codes from one environment to another, a good starting point would be to offer a definition broad enough to embrace any codes and any objects. For this we turn to media philosopher Vilém Flusser, who asks us to consider media as the means of expression specific to communication. Such means, Flusser argues, are "structures (material or not, technological or not) in which codes function." Codes are understood in this context as communication codes between sender and receiver that let us orientate ourselves in the media that surrounds us. According to this broad concept, media are not only technologies and means of expression that are taught in media departments of our universities, but also that which can be applied to "the classroom, the body, or even football" (Zielinski, Weibel, and Irrgang 2016: 268). Flusser's commentators identify two main classes of media: Those where the codified message flows from the memory of a sender to the memory of a receiver and those where codified messages are exchanged between different types of memory. The first class of media is discursive media, and the second class is dialogic media. Examples of the first category are ads and the cinema; stock market and a public village square represent the second (270).

The type of discursive media reflected in this Element are *digital* media. If one applies Flusser's definition of media as structures in which codes function in the digital realm, a further distinction is needed. Turning, therefore, to media theorists Jay David Bolter and Richard Grusin, we see a focus on technological objects, such as "[t]elevision, film, computer graphics, digital photographs, and virtual reality" (1999: 65), an approach echoed by Lev Manovich (2001: 8–9). Taken together, the use of the word "media" in "media translation" – as a form of enhanced translation that goes beyond the linguistic – makes perfect sense because digital preservationists migrate and emulate objects and media.

As Nick Montfort reminds us, code is the distinguishing feature of born-digital media (Manovich 2021: 45). The conversion of media, like hypertext literature and net art that rely on code, from one format to another that takes place during migration and emulation is called transcoding, which is, according to Manovich, "the most substantial consequence of the computerization of media" (2001: 45). Along with a distinct "computer layer," associated with "process and packets . . . sorting and matching; function and variable; computer language and data structure," Manovich also argues for the "cultural layer," which he links to "encyclopedia and the short story; story and plot; composition and point of view; mimesis and catharsis, comedy and tragedy." He reminds us that the two layers "influence each other" or are "composited together" and that "to 'transcode' something is to translate it into another format" (2001: 46–47). He also says that "[n]ew media thus acts as a forerunner of this more general *cultural reconceptualization*" (our emphasis, 2001: 47). In his comparison between old and new media, Manovich says that "[d]igitalization inevitably involves a loss of information. In contrast to an analog representation, a digitally encoded representation contains a fixed amount of information" (2001: 49).

The processes of transcoding, one of the main characteristics of the language of new media, point to internal processes that happen on each of the various levels of digital media, from low to high level of programming languages, from back-end to front-end. Remediation, on the other hand, defined by Bolter and Grusin as a process of one medium being represented in another medium, referring to external, or even a universal dynamic of the development of media through history, is not limited to digital media (1999: 11) and, so, does not rely on code for media transformation. It is worth mentioning another perspective on media that brings forth its *poietic* (generative and creative) potential: According to Polish semiologist Edward Balcerzan, we can only speak of a medium if it can constitute at least one autonomous genre (1998: 15).

The close relation between medium and genre can lead to useful, practical categorization within the history of a given medium that demonstrate their material and aesthetic contacts: audio books, interactive fiction, Instagram

poetry, image macro memes – these are examples of genres produced by different media yet entangled in broader processes such as transcoding and remediation. As we will show in this Element, *media* translation is one of such processes.

Because the born-digital literary works discussed in this Element were all produced during the period of time when digital network media developed into what Philip Auslander calls "the cultural dominant" (2008: 23) and potentially "displace[d]" previous modes of communication and ultimately the way humans interacting with them think (Bolter 1991: 1–3), our view toward the human experience with born-digital literature is grounded on a set of premises.

First, knowledge is embodied, and meaning is "always a matter of relatedness" (Johnson 1987: 177). In talking about the embodied schema focusing on containment, Mark Johnson says, "We are intimately aware of our bodies as three-dimensional containers into which we put certain things (food, water, air) and out of which other things emerge (food and water wastes, air, blood, etc.) . . . . In other words, there are typical schemata for physical containment" (1987: 21). He goes on to delineate what he calls "entailments or consequences," including responses to external forces, limits/restrictions, fixity, accessibility, and transitivity (1987: 22). We can say that it is not enough to recognize the containerization of other objects but instead to make sense of them and understand them. Johnson says that "*understanding is the way we 'have a world,' the way we experience our world as a comprehensible reality* (author's italics). Such understanding, therefore, involves *our whole being* – our bodily capacities and skills, our values, our moods and attitudes, our entire cultural tradition, the way we are bound up with a linguistic community, our aesthetic sensibilities, and so forth" (author's italics, 1987: 102). He ends the book with this statement:

> *[M]eaning is always a matter of human understanding, which constitutes our experience of a common world that we can make some sense of. A theory of meaning is a theory of understanding. And understanding involves image schemata and their metaphorical projections, as well as propositions. These embodied and imaginative structures of meaning have been shown to be shared, public, and "objective," in an appropriate sense of objectivity* (author's italics, 1987: 174).

"Meaning is thus always a matter of relatedness" (1987: 177).

Second, the embodied human container relates to the world (and other containers) through its sensoria; it is how we think. By sensoria, we mean the vast comport of modalities that includes sight, hearing, touch, haptic, kinesthesia, kineticism, taste, smell, and proprioception. In her introduction to *Sensorium* Caroline A. Jones tells us that "[t]he human sensorium has always

been mediated." Expanding on this statement she argues, "[T]he embodied experience through the senses (and their necessary and unnecessary mediations) is how we think" (2006: 5). Moreover, Francisco J. Varela, Evan Thompson, and Eleanor Rosch remind us that "human experience [is] culturally embodied" and the knower and known, mind and world, stand in relation to each other through mutual specification or dependent coorigination" (1993: 150).

Third, conceptualizing relations between containers involves interacting with other containers and results in various levels of feedback that enable connections and disruptions. Citing Maurice Merleau-Ponty's work, Varela, Thompson, and Rosch tell us that "perception is not simply embedded within and constrained by the surrounding world; it also contributes to the reenactment of this surrounding world. The organism both initiates and is shaped by the environment." They are "bound together in reciprocal specification and selection" (1993: 174). This idea is echoed by N. Katherine Hayles, who argues that cognition is a process of interpreting information "*in contexts that connect that information with meaning*" (author's emphasis 2017: 26).

Fourth, because approaches to preserving born-digital literature that take the work out of its original context through migration and emulation have the potential to disrupt the human experience with the work as well as maintain the connection to it, it is important for the integrity of the process to find a balance between the two.

Fifth, we follow Merleau-Ponty's assertion that indeterminate and contextual aspects of the perceived world are positive phenomena that cannot be eliminated from the complete account of reality. A digital object of art, just as any work of art, is perceptible not only through our structures of understanding, but also through structures on the more material, sensorial level. Sensing, for Merleau-Ponty, is a form of "living communication with the world" (Merleau-Ponty 2012: 53) that enhances our perception through meanings and values that refer essentially to our bodies and lives (Toadvine 2019). Although the work of art belongs to a domain of symbolic activities, from the vantage point of the embodied mind, the sphere of sensing needs to be fully integrated into the sphere of second-order structures that it informs. For Merleau-Ponty these second-order structures belong to the "spiritual," but for a literary scholar they represent the level of interpretation and a wider cultural context that the work is placed by the scholar as a result of interpretation. Because pre-Web digital literature engages our perceptual experience – as we argue – in a more visceral fashion than contemporary digital objects, its "sensing" dimension should inform not only its interpretation, but also migration and preservation efforts. In other words, because the work of born-digital literature is both an object and a process (Bouchardon and Bachimont 2013) in our interpretation

and in an effort to preserve the work to future generations, a range of accompanying "disclosures," which Merleau-Ponty finds inexhaustible (Toadvine 2019) – need to be accounted for, at least to an extent that satisfies the preservationists and brings a fuller knowledge and experience of the work to its new reader.

Media translation, one of the main topics of this Element, is a process concerned with "structures in which codes operate" that focuses its attention neither on text nor on representation. In other words, its concern is not language or even the content of storytelling, but rather the totality of modes and media objects that need to be considered while making the effort to migrate born-digital literature from source to target configuration of modes and media. Apart from focusing on code and its various layers that inform the process of versioning and emulation, preservationists direct their attention to other extra-linguistic elements, such as sensorial phenomena that accompany the reading of digital works. These additional effects are a direct result of the embodiment implied in the reading of born-digital literature, the engagement of not only of the user's attention and imagination, but also of motoric, haptic and other "nontrivial" actions. If in addition to interactivity the author of digital work addresses the reader via nondigital surfaces, such as material paraphernalia, as in *Uncle Buddy's Phantom Funhouse*, the extra-linguistic part of the message is even more important.

The nonlinguistic factors of media translation put the preservationist in an interesting position, not only as the translator or curator of the work, whether published in "purely" digital form or as a hybrid of digital and analog materials, but also as a curator of the experience of the work who is fully aware that the conduit of such experience is not only the reader's imagination but also the body. If one wants to search for a theoretical framework that could inform the work of preservationists that target experience of the work instead of the work itself, it would involve reader-response theory, cognitive poetics/narratology, and the new materialism. All these fields of inquiry turn away from the prominence given to language and representation to identify other aspects of human and nonhuman experience as equally important in cultural communication. As such, they can deliver a necessary context for the digital preservation efforts by focusing on phenomena outside of text, whether in the reader's mind or in the material components and relations that entangle the text with the material-discursive forces (Barad 2003: 810). The rethinking of translation and preservation efforts might start, for example, with the basic understanding of anthropologists that inform cognitive approach to literature. Peter Gärdenfors reminds us for example that human beings have been communicating long before language and that in terms of evolution language is a very recent addition

to our abilities (Gärdenfors 2006: 120). Following such leads, cognitive narratology searched for elements of nontextual communication that literary storytelling delivers in the text itself by using point of view techniques in nondirect narration, internal monologues and stream of consciousness (Fludernik 2001: 621). Cognitive narratologists identified special intersubjective mechanisms of narration, such as sensory focalization, that refer directly to the readers' sense of smell, taste, touch (Rembowska-Płuciennik 2012: 189).

Born-digital literature, such as *Uncle Buddy's Phantom Funhouse*, make the sensory side of literary communication even more important. This is achieved through amplifying point of view techniques through the second-person narrative, providing user interaction with the text and its objects, and evoking signals from hardware and physical artifacts. The range of sensory communication in born-digital literature has extended, and their potential is much greater than in print fiction because of the much larger number of feedback loops between the work and the reader. The job of a media translator is to migrate these feedback loops and convey the sensorial information they generate to new audiences.

If the text that flickers on the computer screen is not the sole object of media translation, it is neither solely the sphere of bodily interactions nor the sphere of internal workings in the mind of the reader. All these shape our meaning making and interpretation. Johnson proved that physical bodily interactions influence the very way we think by way of metaphorical projections of spatial, motoric categories into language and thought (1987: xiv). However, in the case of digital work deeply entangled with its material conditions and extensions, a distinctive form of a reversed projection takes place. Just as image schemata are figurative extensions of physical and bodily realm into language, the material conditions of digital work form a reversed projection of language, the content of story that is being told, into its context. Hardware and software become material support of the work, and material and multimodal artifacts function as its semantic extension. One can treat that mechanism as a direct result of digital materiality. It works in reverse of image schemata that cognitive poetics speaks of because it does not project sensory information into the domain of thought (to form an extended organizational metaphor), but the mechanism takes elements of the conceptual domain, a theme, voice of the character, elements of storyworld imaginary and distributes them into different registers of the digital-material hybrid that the computer, the material surfaces, and the resulting reading environment create. This digital-material configuration becomes a type of embodied material metaphor that conveys the work's meaning. In the case of McDaid's *Uncle Buddy's Phantom Funhouse* the units of user interaction, *actemes* (Rosenberg 1996: 22), create their

embodied meaning by the entanglement of the digital text with material spheres of hardware, printed paraphernalia, and analog media.

Just as media translation cannot be text-centered, it also affiliates itself with a nonrepresentational approach to communication that encourages both preservationists and translators to focus on things rather than words, on material artifacts rather than pure concepts. Such "agential realism" that identifies cultural objects as specific material configurations of the world, and the resulting philosophy of the body and "entanglement" of matter and meaning (Dolphijn, van der Tuin 2012: 15), constitute a valid model for media translation of born-digital literature discussed in this Element. Born-digital literature and its complex materialities can serve as a cultural reservoir for contemporary reflection on human and nonhuman agents in contemporary discourse. However, there are accounts that are even more affiliated with media translation's approach to digital objects that will always be as close to the work, the text, and their material affordances. Ian Bogost in his *Alien Phenomenology, or, What it's Like to be a Thing* projects object-oriented ontology's interest in things onto the realm of digital cultural artifacts, such as software and computer games. Things and objects, according to Graham Harman, are in conversation with each other, where they "witness one another and each contributes to the consistency and coherence of all" (Harman 2005: 95). Thanks to their ability to form relations with other objects, things are able to contain other things, "erupting infernal universe within" (95). Bogost, thanks to his experience as a game developer, is able to test these insights on digital things and objects. The results are fascinating and quite relevant to the subject of this Element. The cultural and computer levels intertwine in Bogost's approach to computers in the context of his version of object-oriented ontology that he rebrands as "flat ontology" (2012: 9).

None of the ontological instances of the computer game that Bogost analyses is one single E.T. Rather, as with every object of digital art, it is all these instances at once, best perceived as an orchestrated blend of interconnected ontologies. Every work we discuss in this Element has exactly the same, or almost the same status. Every time the code of a work changes at one of its levels a new version is created and a new configuration of the work's "ways of being" appears. When a version is acknowledged on a discursive level, by publisher for example, and recognized as a separate object, a version gives way to an edition further complicating the initial state of the original. The work of a media translator and digital preservationist is to track, oversee, and – if needed – initiate such transformations for the benefit of cultural circulation. The main goal of such work and the processes it entails is the accessibility of the work to new audiences.