Bookscapes: Modeling Books in Electronic Space

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Books on the screen are not books, they are models of books. In order to substantiate that assertion, we must first establish what a book is and then articulate the advantages of describing electronic books as *models* rather than as metaphors. In the process, we can expose a number of different strategies for how books work to organize information—what I will call bookscapes, after the now familiar idea of an information landscape. This paper is thus an attempt to combine HCI approaches with the long established humanistic field of the history of the book, also known as *l' historie du livre*.

According to the scholar Peter Stallybrass, the word "book" was first used to refer to wooden writing tablets which could be scratched and incised with a stylus, thus fit for mobile use. (The word may be related to the German for beech.) Often the codex book is defined by way of comparison to other information storage technologies, for example the scroll; Stallybrass notes the distinctive identity of the book cultivated within Christian theology, specifically in the way the clergy leveraged its affordances (I borrow the term from J. J. Gibson) by engaging in comparative reading of the Old and New Testaments, and the lives of the four gospels. Unlike the scroll, the codex is simultaneously a sequential *and* random access device. This makes books ideally suited for reference, look-up tasks, and lateral or comparative reading. (The differences between codex and scroll are satirized in a clever comedy skit that circulates on the Web under the title of "Medieval Helpdesk.")

For the past several decades, it has also been increasingly common to speak of something called an "electronic book." At once a touchstone in the popular imagination, a steady ideal in software development and product design, a commercial marketing failure to date (Amazon's recent Kindle, touted by CEO Jeff Bezos as "the iPod of reading," notwithstanding), and a lightning rod for intellectual property and other legal issues, the electronic book is a signature feature of what more than one critic has dubbed "the late age of print." The term electronic book itself, meanwhile, has been freely employed to refer to the full panoply of digital tools and technologies, hardware and
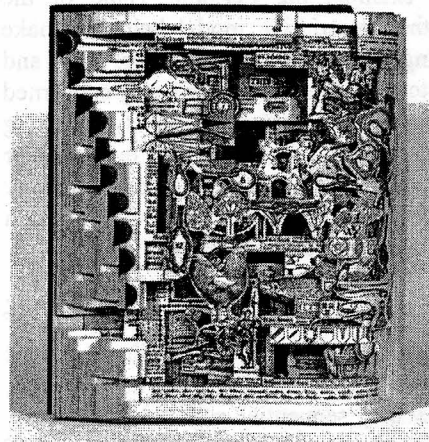

Figure 1 – A "book autopsy" by artist Brian Dettmer.

software alike—from Voyager's Expanded Books (a CD-ROM product of the early nineties) to the binary encrypted files generated by the once-popular DynaText publishing suite (legible only to electronic eyes, these files are dubbed "books" in the system's parlance), to the handheld devices marketed by GemStar, Rocket, Sony, Amazon, and others, to PC-based electronic book readers available from companies like Microsoft and Adobe. In the early 1970s, before the first personal computers hit the market, Alan Kay was already touting the "Dynabook," a precursor to the contemporary laptop. The company that Kay went on to work for (Apple) calls its current line of laptops PowerBooks. Clearly then, the idea of the digital or electronic "book" can serve as an index to an array of different electronic objects and entities; yet the idea of a digital book has seemingly been just as often dismissed by critics and the cognoscenti as a technological throwback, akin to the turn-of-the-twentieth-century fallacy of a "horseless carriage"—a situation further complicated by the knee-jerk techno-skepticism of pundits who have loudly proclaimed the antagonism between computer and codex. This last phenomenon is particularly troubling, for jeremiads about the "death of the book" have perhaps

displaced more essential public conversations about the restrictive ways in which digital content is now being licensed and marketed by the major publishing houses and corporate interests.

By introducing the idea of modeling into current discussions about electronic books, I hope to clarify some of the terms and issues at stake. Computers, of course, are modeling tools par excellence. John L. Casti distinguishes between predictive, explanatory, and prescriptive models. The predictive model is about forecasting future states of a system; the explanatory model provides a framework for understanding, for example the Periodic Table of the Elements; finally, the prescriptive model helps us make decisions by allowing its user to manipulate variables and explore different outcomes. We will be primarily concerned with electronic books as *prescriptive* models. By reflecting the affordances of the material codex artifact to greater or lesser extents, electronic books allow us to prescriptively model a range of different user interactions with bookish information spaces, or what I call bookscapes.

What are these different affordances of the material book, or codex? With the aid of the humanities' long tradition of scholarship about the history of books and reading, I submit we can identify at least five. First, as we have already seen, books are simultaneously sequential and random access. The linear sequence of pages is an intuitive means of ordering information, while the ability to open the book at any point—and to preserve multiple points of access, by using fingers or bookmarks as placeholders—is a powerful means of indexical retrieval. Second, books are volumetric objects—they store information in three-dimensional space. Novelist Jane Austen displays her awareness of this particular affordance when she tells her readers, near the end of *Northanger Abby*: "The anxiety, which in this state of their attachment must be the portion of Henry and Catherine, and of all who loved either, as to its final event, can hardly extend, I fear, to the bosom of my readers, who will see in the tell-tale compression of the pages before them, that we are all hastening together to perfect felicity." Awareness of the volumetric nature of a bookscape is often of importance to users who want to know, for example, whether a particular cluster of search terms is closer to the beginning or the end of the book, or evenly distributed throughout. Third, books are finite. They are (if you grant the pun) *bounded* information spaces. While often seen as a

limitation of the codex's physical form, in fact this boundedness is a critical sense making feature, demarcating the boundaries between discrete works in ways that novice users of hypertext and other electronic document technologies often find lacking. Fourth, books offer a fundamentally comparative visual space; the two-page opening of a standard codex, presenting recto and verso pages to the reader, has often been exploited as illustrations, diagrams, translations, transcriptions, notes, and all manner of material are placed on the facing page opposite a base text. GUI conventions of course imitate this in their use of separate windows, but many electronic book readers permit the user only a single page view. This abdicates one of the most powerful affordances of the book. Fifth and last, as we have already seen from the etymology, books are writeable as well as readable. Writing in books was a standard practice for readers throughout the history of the codex in the West; it is only with the advent of public lending libraries that writing in the margins of a book came to be regarded as a form of vandalism. Therefore, annotation is a major affordance of books as they are modeled in electronic space.

The remainder of the talk will offer examples of the bookscapes presented by a range of different electronic book projects, and assess the extent to which the five affordances listed above are implemented (or not) in different systems and devices. I will conclude that there is no one ideal form for the book to assume in electronic space; models of the book will instead need to be implemented to serve the needs of different users and constituencies. Critical self-awareness of the distinctive affordances of the book as a material and historical artifact and the extent to which these affordances are reflected in prescriptive models can help provide more thoughtful and appropriate solutions for different user communities.

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