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When Codex Meets Network: Toward an Ideal Smartbook

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Summary

The experience of using a book in the classical, codex form – more than 2000 years old – is far from “broken.” However it is ripe for evolutionary enhancement. A Cambrian explosion of forms is underway, offering new software, hardware, appliances, and systems that seek to extend and enhance the pleasure, power and utility of reading – and writing. But which of these forms, if any, promises the ideal combination of qualities and functions? Our design research points toward a promising synthesis of traditional and emerging forms.

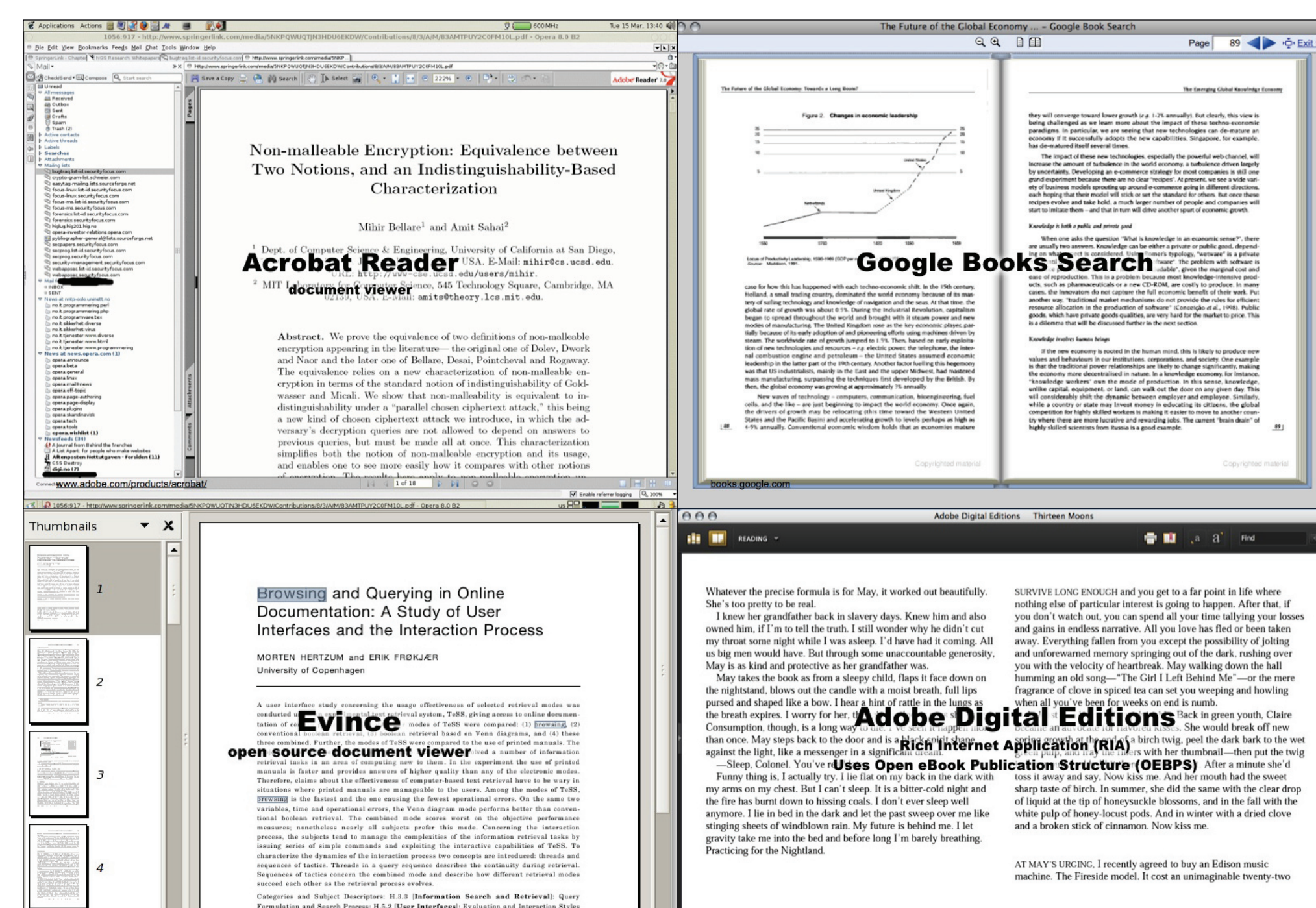
Introduction

This research project grows from two observations:

1. We acknowledge the *pleasure and persistence of the codex book* as a physical vessel for storing, transmitting and spreading knowledge
2. We recognize the *explosive effect of digital networks and media* on the increasing acceleration, democratization, collaboration, audio-visualization, animation, automation, and complexity of knowledge production, dissemination and use. (Benkler, 2006)

From here we posit our core research questions:

- ◇ How might we synthesize the benefits of both codex and network, creating a new platform for superior aggregation, access, presentation, retrieval and sharing of knowledge?
- ◇ How can design thinking be applied in the creation of an integrative and innovative new platform for publishing, uniting the best of both traditional and new media?



Software ebook applications



Precedents for the “Networked Book”

Hardware ebooks offer advantages including searchability, multiple titles in one package, online delivery of texts, and potentially lower environmental impact than paper books. But the pleasure of the user experience, and rates of adoption, continue to be held back by strict hardware dependency along with proprietary standards and Digital Rights Management (DRM) that result in uncertain future access, obstacles to sharing, and no used book market.

Software ebooks and reader applications offer flexibility and, in some cases, access to open standards. They more clearly point to what the Institute for the Future of the Book (IFB) calls the “networked book.” IFB’s Ben Vershbow has said it may be possible that “defining the networked book as a new species within the genus ‘book’ sows the seeds of its own eventual obsolescence.... But that strikes me as too deterministic.... As with the evolution of biological life, things tend to mutate and split into parallel trajectories. The book... may indeed be headed for gradual decline, but we believe the network has the potential to keep it in play far longer than the techno-determinists might think. (Vershbow, 2006).

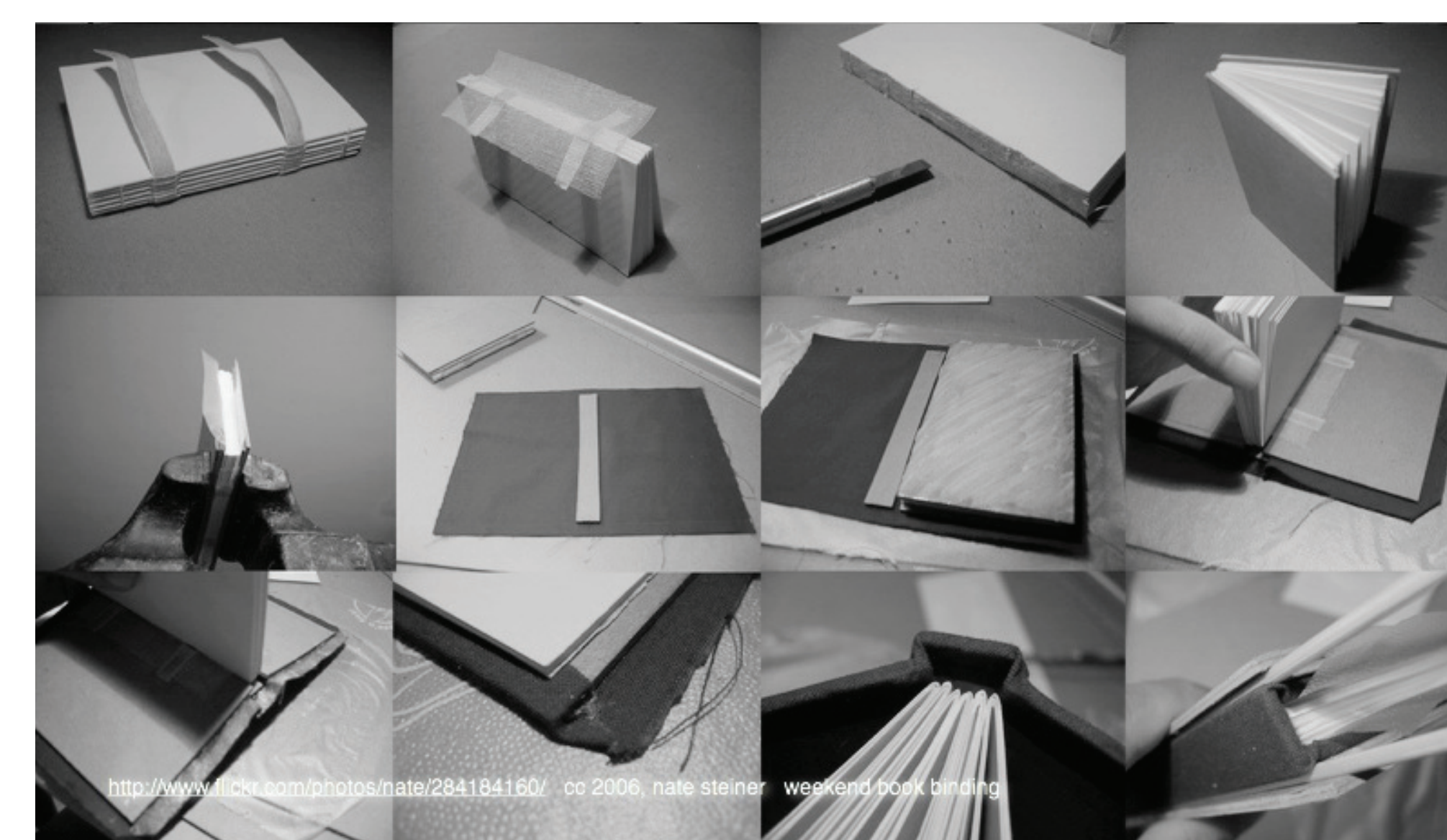
Readers clearly enjoy the persistence and reliability of physical books, which last and don’t break. And yet, users and publishers of digital media, their expectations whetted by Web 2.0 possibilities, lean increasingly toward user-generated content, including collaborative co-creation. People increasingly want and expect to work independently and/or together in developing, expressing and sharing ideas as well as simply reading official or commercial publications. But most current ebook systems don’t even permit, let alone encourage, original content creation and dissemination.

Can design thinking and strategic foresight be leveraged toward a greater interpenetration of physical and digital book forms? Is it possible to marry the codex with the network? Can we aspire to increase pleasure, utility, sustainability, and evolvability in the same design gesture? We believe these goals are both desirable and feasible. Our vision of the ideal smartbook experience is:

- Readable:** the pleasure of the physical book;
- Searchable:** the utility of electronic text;
- Smart:** anticipating and meeting user needs;
- Networked:** to harness collective intelligence.

A Prototype Smartbook Solution

In our work at the Beal Institute we are developing a prototype system in order to test and evolve our concepts. The primary physical interface we envision is a traditional, codex book in which is embedded a machine-readable RFID tag to achieve item-level



Full electronic text satisfies user needs and wants in the post-Google era. Search, bookmark, copy/paste and related functions are handled by the **smart book enabler**. This application, available for desktop, laptop, PDA, and mobile phone, supports single-title and federated search based on the complete works tied to the user’s account.



Object-level ID via RFID **Deep-linking via 2D barcode**



http://www.rfid-solutions.com/images/rfid_inlay.jpg

genio.alice.it/questions/Disegno_misterioso_7359991562120/

identification. Within the book are printed machine-readable tags (such as Datamatrix 2D barcodes) that enable content-level tagging, that is, deep linking to URI’s within a parallel information space harbouring the book’s content in a password-protected Web site. This site will optionally support social media features such as commenting (as used in the blogosphere) and multi-author version management (as used in wikis).

The SmartBook Enabler is envisioned as an application running on a device such as a smartphone, PDA, laptop, or desktop computer. The application communicates over Internet protocol with a server and database equipped with collaborative filtering technology, enabling content related to the user’s needs and behaviour to be pushed by the system or pulled by user query. System features will be developed for scalability, adaptability and diversity, providing an open platform that supports growth and development by all stakeholders.

We will test this prototype system and prepare a summative evaluation using qualitative criteria to assess emotional, cognitive and visceral impacts (Norman, 2003). We will formatively evaluate the commercial and cultural impact of these prototypes. Stakeholders that stand to benefit include teachers, researchers, learners, schools, libraries, bookstores, publishers, booksellers, and designers and producers of new media.

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