By sorting through immense stockpiles of text and images, computers can quickly assemble and display one-time confections designed to serve immediate, local, unique purposes. For example, below is my interface for guiding museum-goers to exhibits and facilities. Right from the start, this opening panel shows the scope of information made available. Only a small part of the screen is devoted to computer administration (this is a touch screen, these are the language options). Free of icons, decorative logotypes, and navigation apparatus, about 90% of the image is substance, a contextual overview describing the reservoir of data. In an architecture of content, the information becomes the interface. Rather than sequentially stacking up little bits of data to be unveiled gradually, this flat interface surfaces 45 options at once, distributing the information in space rather than in time. Museum-goers then touch the item that they wish to learn about (here, the location of Flemish paintings) and the next confection appears. Shown are a three-dimensional guide-map,
written directions, and a live video image of museum-goers standing at the computer. Users will surely half turn and wave at the camera behind them. Again **content dominates**, with only two computer commands visible: (1) Return to the original table of contents, or (2) Touch the middle button to generate a sheet of paper reproducing what is on the screen: a map, written directions, and a video snapshot of the museum-goer at the computer kiosk! Emerging from a high-resolution printer, this paper serves as a portable and permanent memory, helping visitors navigate through a complex of buildings (shown here is the National Gallery in Washington). Indicating a route down the stairs, the red pointer on the video-image (linked to red line and footprint on the map) resembles the three-dimensional gesture made by someone giving directions, "Go around and down that way." Only a **printed** guide will lead people gracefully along a complicated route to Flemish paintings. The personal and entertaining photograph, combined with the map,
helps museum-goers orient themselves—in fact see themselves—within the three-space they are navigating. Each technology does what it is good at: the computer selects, organizes, customizes data; paper makes visible the high-resolution information in portable permanent form.

Information-sensitive designs are exacting and laborious, requiring a deep appreciation of the particular content at hand. More generic approaches to interface design are widespread.

For example, a news broadcast method: as users approach the kiosk, the computer plays a 30-second video of the Director of the Museum welcoming the visitor, then a series of 20-second videos of curators of various galleries introducing their territory, and then the Vice President for Facilities Management pointing at the telephones and rest rooms. Besides resembling bad public television, such an approach commits a common error: the information architecture mimics the hierarchical structure of the bureaucracy producing the design. This also occurs in the design of magazines, as strongly colored frames delineate each sub-editor's turf. Those accented borders and running heads, sometimes the strongest visual statement on the page, are not there to help the reader but rather to replicate the organizational form.

Another way to design an interface such as the museum kiosk is to reason that people use computers all the time and so the design will simply follow standard computer practice. Thus the interface offers a sequence of binary choices, perhaps beginning as follows:

**CHOOSE ONE (1) FROM THE LIST BELOW:**
- ✧ YOU LIKE ART?
- ✧ OR NOT?

And so a museum-goer sequentially marches through a tedious decision tree in tiny irritating steps, as the logic of software is exposed to those who simply want to see some paintings or find a telephone. Context and overview are lost in this dopey approach. These poor designs are sometimes defended on the grounds that they conform to computer industry standards (for example, in a typical arranging-the-deckchairs-on-the-Titanic dictum: “Drop shadows on binary-choice boxes shall have the [pretend] light coming from upper left.”). Ding-a-ling design is thus sanctified and institutionalized.

Another weak approach is to make the interface itself a conspicuous visual statement, with a great deal of creative effort going into styling a billboard that masks a data dump. Believed to be boring and in need of decorative spice, the content becomes trivialized and incidental.

Too many interfaces for information compilations have suffered from television-disease: thin substance, contempt for the audience and the content, short attention span, and over-produced styling.²⁵

²⁵ Printed publications and their readers have long been similar design victims. Joseph Giovannini writes: “The effect of graphic design in many publications, then—even when it is handsome design—is the fragmentation or subordination of the text. The result affects no less than how we think: the broken page delivers impressions and even sensations, but it does not lead a reader into the depth that carefully elaborated ideas, crafted writing, and layered passages can create in quiet sequence.... The capitulation of text to layout can also be seen in books about the visual arts, in which texts are often treated as visual blocks that are subservient to pictures. In the most graphically 'painted' books each page is a design that may or may not have words, and texts are relegated to introductions that play a minor supporting role. Books about graphic design itself are notorious for having little or no text—they are simply compendia of full-page designs.” Joseph Giovannini, “A Zero Degree of Graphics,” in Mildred Friedman, ed., *Graphic Design in America: A Visual Language History* (Minneapolis, 1989), 204.
In addition to organizing information by means of analogies to television scripts, bureaucratic structures, software decision-trees, and music television, interface designers have used a metaphor of the book, with viewers flipping through electronic pages. On the screen below, however, the metaphor has become the interface. Only 18% of the space depicts substantive information (photographers and their work), an astonishing 82% of the screen is devoted to computer administrative debris or to nothing at all. In a contrast symbolizing the priority of apparatus over information, compare the elaborately crafted system icons (why won’t just the words do?) with the distinctly clunky typography for the content, the names of the photographers. This spread from the book-parody shows only 53 typographic characters (last names and dates); real books display between 1,000 and 50,000 characters on a double-page spread.26

These quantitative measurements of the interface indicate how much the design itself has systematically reduced the already inherently low resolution of the 1990s computer screen (a resolution approximately

26 The book metaphor used for this interface attracts unfortunate attention to the distorted and inconsistently rendered letterforms on the computer screen, so unlike the typography of well-designed books. Down the left part of the image, we have stamped-embossed sans serif, then stamped-embossed serif, and, finally, a quirky system font—with an oversized x-height (presumably to improve legibility on the screen) resulting in cramped ascenders and descenders as well as a grotesque Y:

Yearbook
An eternal confection

The first confection to leave the solar system was engraved on a 15 by 23 cm (6 by 9 in) gold-anodized aluminum plaque aboard the Pioneer 10 and 11 spacecraft launched in 1972 and 1973. After observing planets for 20 years, both Pioneer spacecraft have now left our solar system and have headed for the stars beyond, each carrying the plaque:

- Hyperfine transition of neutral hydrogen, a basic unit of time and distance throughout the physical universe.
- A map of 14 pulsars locating the sun relative to pulsars and center of our galaxy. On the lines, binary digits denote pulse-times (deducible from their 10-decimal precision, an unlikely accuracy for stellar distances). With the hydrogen time-unit, an extraterrestrial analyst should realize that the times are about 0.1 second, a typical pulsar period. Since these periods decrease at known rates, pulsars serve as galactic clocks. Thus an advanced civilization could review its galactic database and identify the origin and time of launch, even if Pioneer is not discovered until several billion years from now.

Binary equivalent of decimal 8, between tick marks indicating human heights. The hydrogen wavelength (21.11 cm) multiplied by 8 yields the woman's height (169 cm or 66 in).

Planets of solar system (note Saturn's rings), binary relative distances, and path indicating origin of Pioneer (which points back toward Earth).
This intensely quantified assembly brings together maps of pulsars and planets, scales for measuring time and distance through many orders of magnitude from atoms to galaxies, and outline drawings of humans and the spacecraft itself. In one to ten billion years from now, perhaps long after our solar system has returned to dust, the Pioneer and its confection “may pass through the planetary system of a remote stellar neighbor, one of whose planets may have evolved intelligent life. If the spacecraft is detected and then inspected, Pioneer’s message will reach across the cons” and light-years of time and space, an eternal confection, a surviving memory of our Ocean of the Streams of Story.

The development of perspective by Florentine architects during the 15th-century Italian Renaissance was a special gift to the world of visual thinking, for now people could see diverse objects located in a geometrically correct context. Confectionary designs are a similar gift to understanding. Like perspective, confections give the mind an eye. Confections place selected, diverse images into the narrative context of a coherent argument. And, by virtue of the architecture of their arguments, confections make reading and seeing and thinking identical.
