Visual Cues for Local and Global Coherence in the WWW

P a u l   K a h n

The user of a hypermedia publication needs to be supported in two interrelated tasks: local and global navigation. Local navigation involves following hypertext connections between pairs of specific nodes. Global navigation involves movements within a collection of information that spans many nodes. Local and global navigation are directly related to the underlying concepts of local and global coherence, as defined in the article by Thüring et al. in this issue. To maintain a user's sense of orientation and facilitate navigation, the designer of a hypermedia publication must support both at the visual level.

The World-Wide Web (WWW), while providing a simple and effective form of creating and displaying links between nodes, challenges the author/designer to present any global context at all. There is no way to distinguish between local and global link structures in HTML, the markup language used to create WWW documents. The WWW browser provides three pieces of orientation information: (a) the title of the current document; (b) the Universal Resource Locator (URL) of the current document; and (c) the URL of a link destination. None of
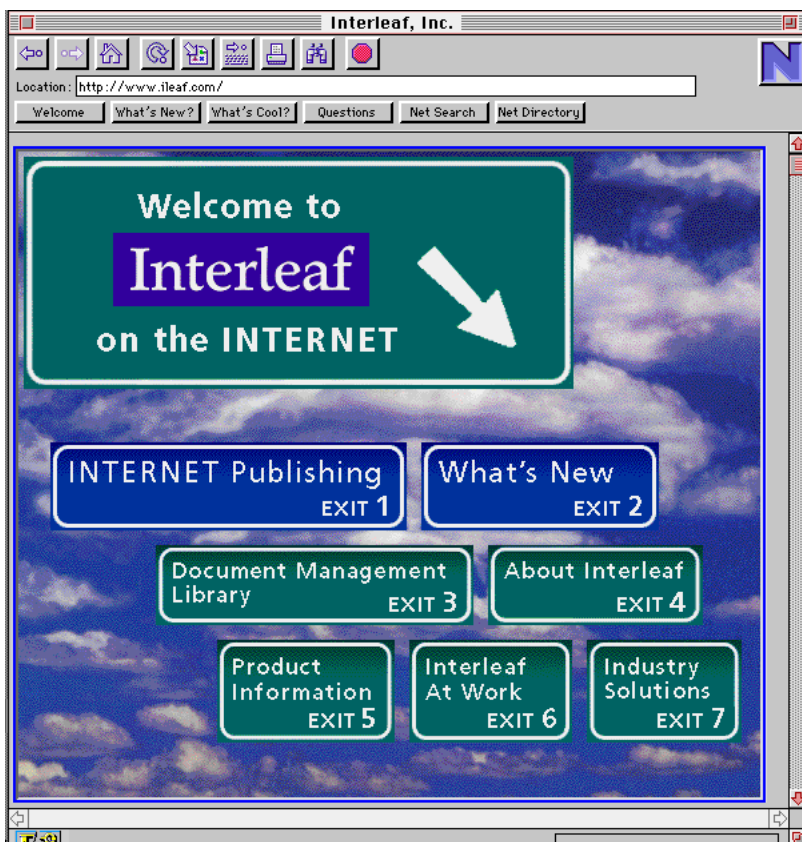

Figure 1. Home Page for the Interleaf WWW collection showing the division into seven sections. The sections titled Internet Publishing and What's New are emphasized by position and use of color. These were intended to be the most volatile sections.

these support the user's mental model of how the current node fits into a larger collection. A common strategy to overcome this systemic weakness is to establish a graphic set of symbols that will help guide the user's navigation and tie

Figure 3. A cutaway of the top and bottom of a long document containing a story in the What's New section. The graphic at the top of the document is specific to the document content, serving a local function. The graphics at the bottom are for orientation, labeling this story as being in the What's New section, and for navigation, providing links back to the section page and home page, serving a global function.
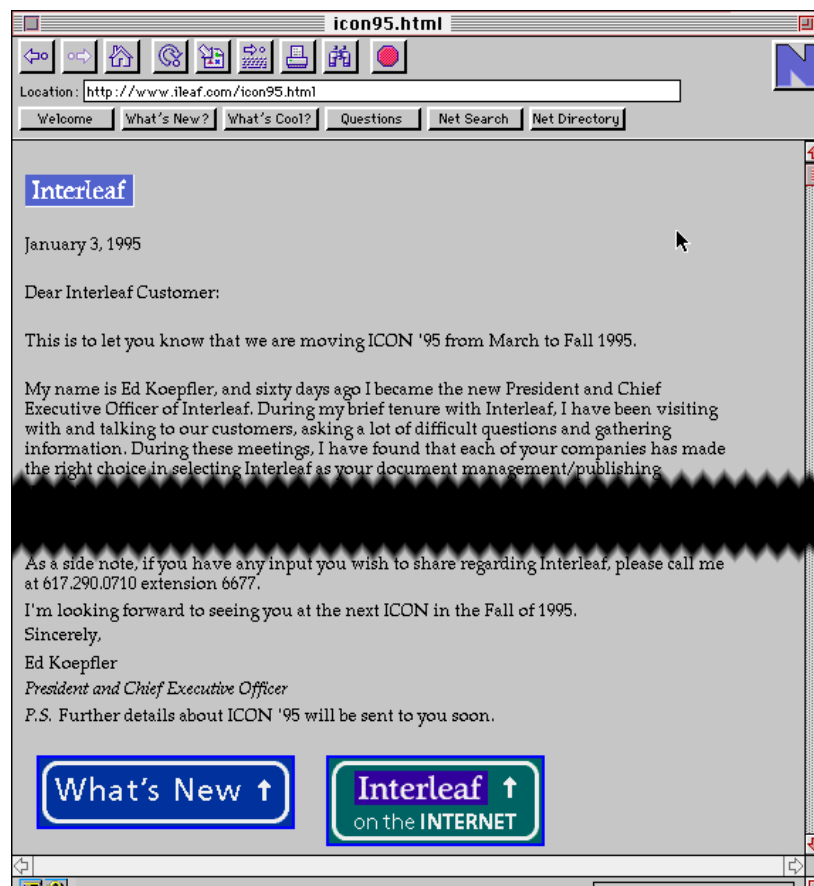
together the collection as a whole. This unsupported task must be accomplished through the ingenuity of the author and/or designer.

Local coherence is addressed at the node level, which in WWW is represented by a document. The designer must help the user answer questions such as: Where are the link anchors in the document? When I follow this link, where am I going? Why am I going there? Local coherence can be controlled at the semantic level in HTML documents. Links anchored at words, phrases, and graphics are expressed in all WWW browsers by use of color and/or underlining. The author/designer has limited control over font, size, or color, but can assume that the reader will see some visual distinction between link and non-link areas in the document. The semantic relationship of the link can be expressed by the anchor content: a meaningful phrase or bitmap symbolizing a link type. The concept of a link explainer, information about a link destination that would appear before following a link, found in many the hypertext systems (e.g., HyperTies, StorySpace, Intermedia) is not supported. The single-window design of the WWW browser precludes the preservation of visual context through the display of both anchor and destination, as provided in the SPI browser (see Thüring et al.'s discussion in the "Coherence" section of their article appearing in this issue). This lack of support for local context makes the need for supporting global context even more acute. The designer must help the user answer questions such as: What collection am I in? What part of the collection does this document represent?

In August 1994, Dynamic Diagrams was asked to join the team designing the WWW server at Interleaf, Inc. (http://www.ileaf.com), a leading vendor of publication software in the technical documentation market. To orient the reader, we designed a graphical table of contents in the form of a collection of highway signs set against a blue sky (see Figure 1), the result of a collaborative design process involving Dynamic Diagrams designers with members of the Interleaf marketing, programming, technical writing, and design staff. This basic design was then extended to create header graphics for each chapter in the collection, and footer graphics to link back to the top of each chapter and the main table of contents.

These graphics are designed to support local and global navigation by establishing visual coherence within the collection. Each highway sign represents a link or destination in global structure of the collection. The user selecting a sign, such as "What's New" on the main screen (Figure 1), arrives at a document that begins with a sign marking its relation to the global structure of the collection (Figure 2). Links from text within the documents present local links that connect individual documents within the same or different chapters. Thus selecting any of the underlined text in Figure 2 will lead to a document related to that chapter. While the header of the destination document need not repeat the visual identifier of the chapter, the footer area is reserved for visual links to the chapter document and the main page of the collection (Figure 3). This both helps the reader navigate the global structure and place the current document in a global context. Our approach to this problem is certainly not unique. There are many WWW designs using a similar strategy to emphasize global structure, such as the public information about Compaq Computer (http://www.compaq.com).

In this most popular of hypermedia systems, however, designers must struggle with, rather than be supported by, the mechanisms of the system itself. We and others have shown that it is possible to create global structure in a WWW collection largely through the application of inventive graphic design.

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