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The Design and Maintenance of the Andrew Help System:

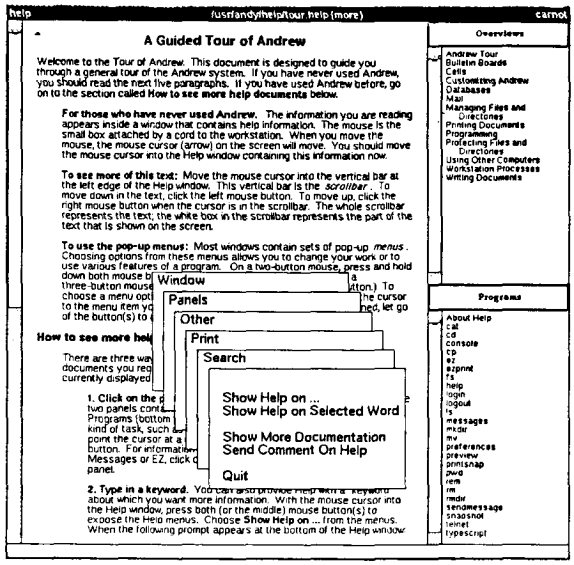
Providing a Large Set of Information to a Large Community of Users

Design Issues

In developing the Andrew Help System, we considered the following design goals:

- The Help System must access a very large set of information quickly and easily
  - The Help System must be flexible and accomodate all levels of users
    The system must be easy to use for beginners
    The system must be robust enough for experts
  - The Help System must display multiple document formats on different terminal types
    - The Help System must be hypermedia-based, with links, cross-references, and multiple windows, displaying both text and graphics

The Andrew Help System



General Characteristics

- Displays complete documents
- Unix-based; runs as a separate process in a resizable window
- Unlimited number of files can be added to the system
- Accomodates all types of media (text, graphics, animation, sound)
- Compatible with other application programs on system
- Document access via:
  Overview and Program panels (mouse click)
  Menus
  Cross-reference and Links

The interface design allows complete novices to start using the system immediately

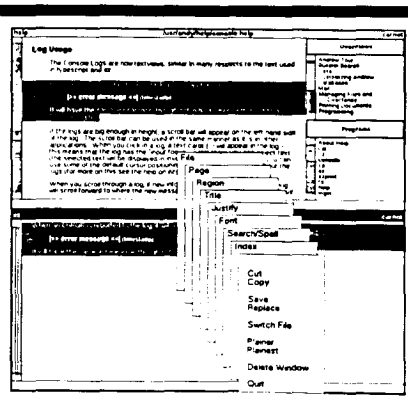
User-defined preferences allow experts to "tailor" their own system

Both simple and advanced search methods and user-definable configurations are available to accomodate both experts and novices

Consistent and Compatible Interface

Andrew Help is consistent and compatible with other application programs on the Andrew system:

- Users can Copy and Paste from Andrew Help windows to any other Andrew application (e.g. copy from Help into EZ, the Andrew editor)
- Like all other Andrew applications, Andrew Help provides Set Printer and Print functions so users can obtain hard copies of files
- Andrew Help works with the Andrew Messages program to provide a "Send Comment" facility for users; users can send messages with questions and comments directly from the Help program

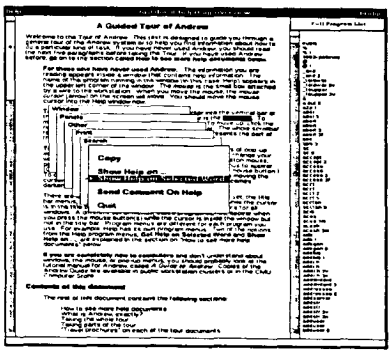


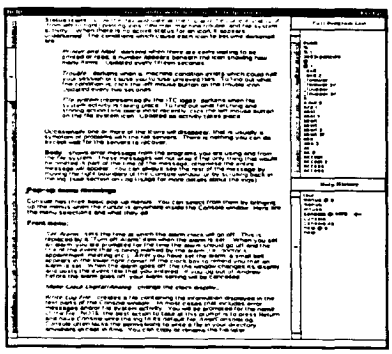
Flexibility of the Andrew Help System

Maneuverability

Navigation from document to document via menu options
- Show Help on <Keyword>
- Show Help on Selected Word
- Show More Documentation
- Show Tutorial

Via panel item selection
- Mouse click on topics of interest in the panel lists
- Panels organized into "Overview" and "Programs" lists
- "History" panel list (optional)



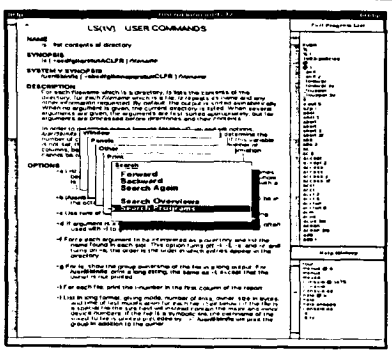


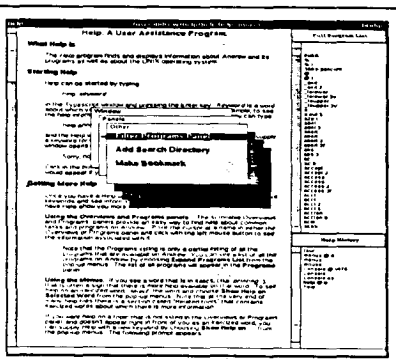
Tailorability

Users of the Andrew Help System can easily tailor the program to suit their needs at any particular time:
- Hide or show all or any subset or combination of panels
- Set panel preferences during run-time or for start-up with a "preferences" file
- Add additional or user-created help file directories
- Select either "tutorial" or "reference" versions of a Help file

Searching and browsing

The following are the different ways in which information can be searched or browsed in the Andrew Help System:
- Browsing within a text (scrollbar or key commands)
- Searching within a text (menu or key commands)
- Searching/browsing among documents via Overview or Program panels
- Using "Related Tools" links to search/browse documents of related interest
- Narrowing field of search (Filter Program List)
- Tracking a search (History)
- Going back to previous document or selection of a document (Bookmark in the history panel)



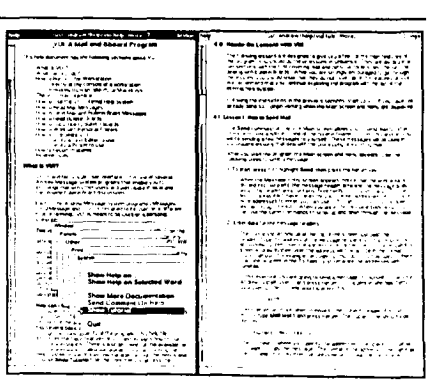


Multiple types

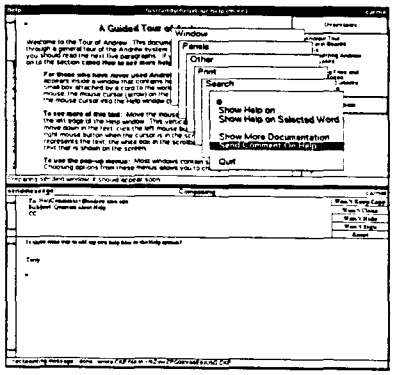
Multiple document types:
- Andrew Tutorial and Andrew Help files (most useful for novices)
- Unix man page files (for the more advanced users)

Multiple machine types:
- Campus machines (IBM, DEC, and Sun workstations, IBM PC's)
- Terminals via modem link
- Users are presented machine-specific Help files automatically

Multiple window types:
- No window system
- WM (a tiled window system)
- X (an overlapping window system)



Maintenance and Authoring



A number of features were incorporated into the Andrew Help System to aid authoring and maintenance of the system:

- Standardized Help templates assures consistency of Help files
- Control of Help file ordering is achieved by filename extensions; Overviews appear before Help files which appear before man pages, etc. automatically
- Aliasing allows maintainers to accomodate "fuzzy matching"; multiple aliases exist for any given keyword
- Automatic collection of user statistics allow maintainers to keep track of what users are looking for; maintainers can modify aliasing accordingly
- Send Comment feature allows users to quickly and easily communicate comments and questions to maintainers
- Flexibility of system allows maintainers to control where the system looks for files and what appears in various panels in the program
- Indexing and aliasing can also be used to control where and how the program accesses files

Hypertext and Hypermedia

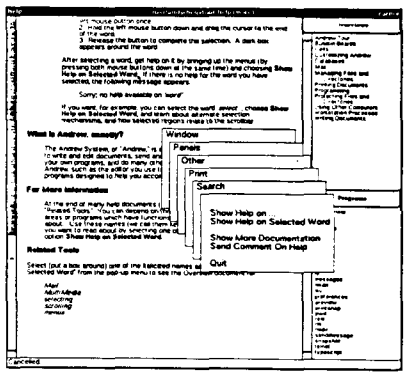
The Andrew Help System design incorporates a number of hypertext and hypermedia features. For example:

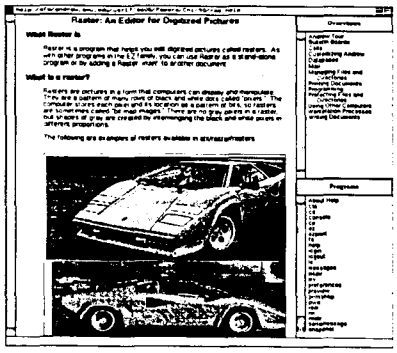
Users can navigate from document to document via pre-programmed links on items in various panels, or links within the documents.

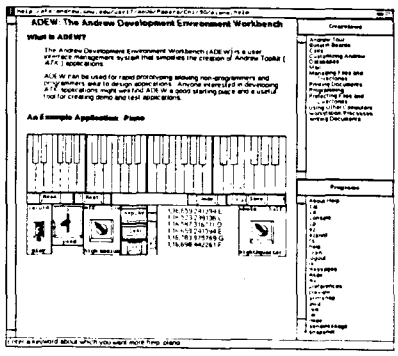
- Some links allow users to see more documentation about a particular subject (Show More Documentation)
- Some links allow users to see documents of related interest (Related Tools/Show Help on Selected Word)
- Some links are set to show a tutorial version of a document (Show Tutorial)

Andrew Help can also access documents with objects other than text such as:

- Diagrams, Graphics, and Figures
- Raster Pictures
- Animations and Sound Objects







Future Improvements

The following are some ideas for future improvements to the Andrew Help System:

- More support for user navigation of links: Help should provide information on what's on the other end of the link so users can make better decisions on how to move from node to node
- Some documents accessed by the system are very large; need more "chunking" of documents or a "Document Examiner" – like browsing program
- More pre-preprogrammed links need to be added
- Need more support for authoring: automatic indexing and cross-referencing, an author or maintainer's toolkit, etc.
- More advanced search techniques can be incorporated: fuzzy matching, natural language search specification, etc.

Ayami Ogura

Ayami Ogura is the Documentation Coordinator at the Information Technology Center at Carnegie Mellon University. Her research interests include design issues in hypertext and hypermedia help systems, documentation usability, and cross-cultural documentation and interface design. She has presented papers at a number of writing, education, and computing conferences including AERA, SIGDOC, CCCC, and AI and Education.

Terilyn Gillespie

Terilyn Gillespie is the Documentation Coordinator for Academic Computing at Carnegie Mellon. Her interests include user interface design issues, end-user documentation as an integral part of the user interface, and the use of hypertext systems to deliver large sets of information to a variety of users. She is a member of SIGCHI and STC.