

Johannes Akse

November 3, 2015

Contents

1	Design of a user interface	1
2	Syntactic level of design: interaction styles	1
3	Command language	2
4	Menu	2
5	Natural language	2
6	Graphical user interface	2
7	User interface management systems	2
	Bibliography	3

1 Design of a user interface

Design of a user interface begins with the task analysis — an understanding of the user’s underlying tasks and the problem domain (Shneiderman 1992), 1992**. The user interface should be designed in terms of the users’ terminology and conception of their jobs, rather than the programmer’s (Shneiderman 1983)(Hutchins, Hollan, and Norman 1986; Stephenson 1999),.

2 Syntactic level of design: interaction styles

The principal classes of user interfaces currently in use are command languages, menus, forms, natural language, direct manipulation, virtual reality, and combinations of these **Hartson, 1989**. Each interaction style has its merits for particular user communities or set of tasks **Myers,1995**.

3 Command language

Command language interfaces (CLIs) use artificial languages, much like programming languages. They are concise and unambiguous, but they are often difficult for a novice to learn and remember **Stephenson, 1999**.

4 Menu

Menu based user interfaces explicitly present the options available to a user at each point in a dialog **Stephenson, 1999 and Hutchins, 1986**.

5 Natural language

The principal benefit of natural languages is, of course, that the user already knows the language **Foley, 1987**.

6 Graphical user interface

In a graphical user interface (GUI), a set of objects called icons is presented on a screen, and the user has a repertoire of manipulations that can be performed on any of them **Jacob, 1986 and Foley, 1990 and Johnson, 1989**. This means that the user has no command language to remember beyond the standard set of manipulations, few cognitive changes of mode, and a reminder of the available objects and their states shown continuously on the display.

7 User interface management systems

A user interface management system (UIMS) is a software component that is separate from the application program that performs the underlying task **Olsen, 1992**.

Bibliography

Books

- Copernicus, Nicolaus (1543). *De Revolutionibus Orbium Coelestium*. apud. Ioh. Petreium. <http://ads.harvard.edu/books/1543droc.book> (visited on 01/13/2014).
- Foley, James David (1990). *Computer graphics: principles and practice*. Reading, Mass.: Addison-Wesley.
- Kopka, Helmut and Patrick W. Daly (1995). *A guide to L^AT_EX2 ϵ : document preparation for beginners and advanced users*. 2nd ed. Addison-Wesley.
- (2004). *Guide to L^AT_EX: tools and techniques for computer typesetting*. 4th ed. Addison-Wesley.
- Norman, Donald A. and Stephen W. Draper, eds. (1986). *User centered system design: new perspectives on human-computer interaction*. Hillsdale, N.J.: Lawrence Erlbaum.
- Olsen, D.R. (1992). *User interface management systems: models and algorithms*. San Francisco: Morgan Kaufmann.
- Shneiderman, Ben (1992). *Designing the user interface: strategies for effective human-computer interaction*. Reading, Mass.: Addison-Wesley (cit. on p. 1).
- Stephenson, Neal (1999). *In the beginning ...was the command line*. New York: Avon Books (cit. on p. 1).
- Syropoulos, Apostolos, Antonis Tsolomitis, and Nick Sofroniou (2002). *Digital typography using L^AT_EX*. Springer.

Articles

- Foley, James David (1987). “Interfaces for advanced computing”. In: *Scientific American* 257.4, pp. 127–135.
- Hartson, H. Rex and Deborah Hix (1989). “Human-computer interface development: concepts and systems for its management”. In: *ACM Computing Surveys* 21.1, pp. 5–92.
- Jacob, Robert J. K. (1986). “A specification language for direct-manipulation user interfaces”. In: *ACM Transactions on Graphics* 5.4, pp. 283–317.
- Johnson, J. et al. (1989). “The Xerox Star: a retrospective”. In: *Computer* 22.9, pp. 28–29.
- Myers, Brad A. (1995). “User interface software tools”. In: *ACM Transactions on Computer-Human Interaction* 2.1, pp. 64–103.
- Shneiderman, Ben (1983). “Direct Manipulation: A Step Beyond Programming Languages”. In: *Computer* 16.8, pp. 57–69 (cit. on p. 1).

Manuals

- Langmyhr, Dag F. (2008). *Lokal guide til BibTeX*. <http://www.ifi.uio.no/~dag/latex-links/bibtex-guide.pdf> (visited on 01/13/2014).
- Langmyhr, Dag F. and Knut Hegna (2013). *Local Guide to BibLaTeX*. <http://dag.at.ifi.uio.no/latex-links/biblatex-guide.pdf> (visited on 01/13/2014).
- Lehman, Philipp (2013). *The biblatex package*. 2.8a. <http://mirrors.ctan.org/macros/latex/contrib/biblatex/doc/biblatex.pdf> (visited on 01/13/2014).
- Rahtz, Sebastian and Heiko Oberdiek (2012). *Hypertext marks in L^AT_EX : a manual for hyperref*. <http://www.ctan.org/tex-archive/macros/latex/contrib/hyperref/doc/manual.pdf> (visited on 01/13/2014).
- Dominik, Carsten (2009). *RefTeX user manual*. 4.34. <http://www.gnu.org/software/auctex/manual/reftex.pdf> (visited on 01/13/2014).

Other documents

- Achilles, Alf-Christian and Paul Ortyl (2014). “The Collection of Computer Science Bibliographies”. <http://liinwww.ira.uka.de/bibliography/index.html> (visited on 01/13/2014).
- Hartson, H. Rex and Kevin A. Mayo (1993). *Synthesis-Oriented Situational Analysis as an Alternative to Analytic Evaluation for Iterative User Interface Design*. Technical Report TR-93-09. Virginia Polytechnic Inst. and State University.
- Hutchins, E. L., J. D. Hollan, and Donald A. Norman (1986). “Direct manipulation interfaces”. In: *User centered system design: new perspectives on human-computer interaction*. Ed. by Donald A. Norman and Stephen W. Draper. Hillsdale: Lawrence Erlbaum, pp. 87–124 (cit. on p. 1).
- Jacob, Robert J. K. (2000). “User interface”. In: *Encyclopedia of computer science*. Ed. by Anthony Ralston, Edwin D. Reilly, and David Hemmendinger. 4th ed. Nature publishing Group, pp. 1821–1826.
- Ko, Andrew J. and Brad A. Myers (2006). “Barista: An implementation framework for enabling new tools, interaction techniques and views in code editors”. In: *Proceedings of the SIGCHI conference on Human Factors in computing systems*. 1124831, 387–396. Montreal, Quebec, Canada: ACM Press.
- LaTeX/Bibliography Management* (2012). Webpage. http://en.wikibooks.org/wiki/LaTeX/Bibliography_Management (visited on 01/13/2014).