11. Conclusion

11.1 Interface Design

The Oxford English Dictionary traces the origin of the word "interface" to a technical text from 1882 which states that "The term interface denotes a face of separation, plane or curved, between two contiguous portions of the same substance" [OED 71]. The modern sense of the word is traced back to an article in the Washington, DC *Evening Star* in 1962 which states that "Interface... seems to mean the liaison between two different agencies that may be working on the same problem"[1] [OED 87].

It is tempting to view a human-computer interface as an add-on -- something which is done when the program is completed to enable people who are not programmers to use the system. What the program actually does is viewed as its substance and the interface is window dressing. This traditional view has its roots in the history of computer science.[2]

Early computer systems used punch cards, then typewriter-like teletypes, and then simple text-only screens as input and output devices. Since one could not make very good interfaces with these technologies, it was natural to view the interface as separate from the program -- an unimportant add-on. Punch cards now exist only in museums, but attitudes about the interface they helped to generate persist.

The process of designing what The Electronic Scrapbook does and how this appears to the user were largely one. I found that it was much easier to make the computer perform a task than to create an interface that would give a non-programmer access to that feature. Interface coding was the most time-consuming part of the task. Furthermore, interface design was often the most challenging part.

As information systems become pervasive and are increasingly used for everyday life tasks, I believe that the design of the interface will become inextricable from the design of functionality.

---

[1]Current interest in the concept of "agency" makes this definition interesting beyond the author's intended meaning.

[2]One could also trace this idea back to traditional philosophy which sees rhetoric as mere window-dressing on the true content, or draw analogy to pre-twentieth century conceptions of the mind/body duality: that the body is a mere container for the soul. What these ideas have in common is the conception that outer form is an unimportant container for a true substance which lurks within. Contemporary philosophers would argue that outer form and inner form are and inextricable parts of a whole. A full exploration of this theme is beyond the scope of this thesis.

11.2 The Benefits of Knowledge Representation

I believe that the benefits of semantic knowledge representation increase as the *quantity* of data grows, but decrease as the *variety* of data grows. The first assertion was discussed in section 6.1.4. There is a simple cost/benefit relationship between the time it takes to do knowledge representation and the tasks the information allows one to perform. The more people exist in your video database, the more useful it is to be able to track their family relationships. On the other hand, if one needs to track not only their family tree but also their medical, legal, and financial records and their professional standing, then a semantic approach begins to break down. This assertion is discussed in the following two sections.

11.2.1 Multiple Models

While chapter 6 is called "A Suburban Ontology," it would perhaps be more appropriate to call it "A Suburban Taxonomy" [Sowa 91]. Ontology is defined as "the science or study of being"; whereas, taxonomy is a synonym for "classification" [OED 71]. In creating a computer representation of the world, it would be presumptuous to say that one is getting at the essence of being; rather, one is creating a classification that is appropriate to the task at hand.

An assumption of this thesis is that there are sufficient similarities between families that one taxonomy will be useful to a large number of people. It should be useful in particular to American, late twentieth century, middle-class families -- the type of people who are likely to own camcorders. The validity of this assumption has not yet been tested empirically with user trials.

One ontology will certainly not meet everyone's needs. It is desirable for a video logging system to have multiple models for different places, times, and purposes. At its simplest implementation, one might choose from a library of taxonomies: the east coast family model, the midwest family model, the Quebec family model, the Los Angeles corporate model, the Berlin corporate model, the Louisiana legal model, and the like. Ideally, models should be able to coexist and interact.

11.2.2 The Need for a Common Language

Even if one has multiple models, there is a further problem: it is fallacious to assume that one author's categories will make sense to another. What is one person's "dresser" is another person's "chest of drawers." The task of tracking such synonyms is non-trivial. For example, the 1991 edition of *Medical Subject Heading*s, which attempts to create a common language for medical

researchers, is 1,152 pages long and contains 16,131 entries [MeSH 91]. Seven people work full time maintaining MeSH -- three creating new headings and changing headings, one looking for global patterns in the information, one director, one administrator, and one systems support engineer. The 1992 edition of MeSH will contain 16,640 entries, which includes approximately 555 additions and 46 deletions [Schuyler 91]. Creating a common language is no small task.[3]

By having users select from lists, The Electronic Scrapbook reduces the likelihood that the same thing will be called two different names. However, this is decreasingly effective as the length of lists gets large -- from a ten item list, it is unlikely that someone will include both "dresser" and "chest-of-drawers"; from a 1000 item list, a user accustomed to the term "dresser" is unlikely to notice that "chest-of-drawers" is already included. This is not a surface problem, but a fundamental one which draws into question the utility of doing large amounts of knowledge representation.

The Electronic Scrapbook uses a small, special-purpose taxonomy which can be extended by the user. I believe that libraries of taxonomies for specific tasks will be useful. I do not believe that one could create a useful general-purpose ontology. In other words, I am doubtful that this approach will scale. However, it will be useful to accomplish a variety of practical applications.

[3]This standardized medical vocabulary is used to index articles from medical journals. However, individual physicians use their personal notation to write patients' records. The problem of standardizing medical records is analogous to creating a large video database. The personal notation used in creating a video log may not be meaningful to others trying to access that information in a database unless a standard language is agreed upon.