Consider the following examples of online information sharing and reuse:

- A scientist needs to locate some procedures and results from an experiment conducted by another researcher in his lab.
- A student learning the open-source, command-line statistical computing environment R needs to find out how to calculate the mode of her dataset.
- A new member of a design team needs to review requirements analysis activities that took place before he joined the team.
- An intelligence analyst needs to consult information collected by other agencies to assess a potential threat.

Finding the information one needs under circumstances like these is not straightforward. The scientist looking through someone else's experiment procedures and data is faced with information that may not be fully documented for consumption by others. The student learning R becomes frustrated when her search for the statistical mode function fails; while a function called "mode" exists, it doesn't actually calculate the mode[1]. The new design team member must navigate many documents and objects generated through the requirements-gathering process, some of which may be incomplete or outdated, making it difficult to identify what might be useful. And the intelligence analyst must solve an information puzzle, with pieces scattered across agencies having differing priorities and protocols, and using different vocabulary for the same kinds of things.

There are four consistent elements across each of these situations. First, an *information consumer* must discover and reuse information that someone else—an *information producer*—created and shared online. Second, *sharing* in this context means posting information objects to a shared blog, contributing to a wiki, or uploading a file to a shared folder; the information is made available to others online without specifying an intended recipient. Third, the information that is shared is *explicit*: it has already been captured or documented in some external, concrete way. And fourth, when information producers contribute to an information sharing system they must *package*, or encapsulate and structure that information for others' consumption; said another way, packaging is the "culling, cleaning and polishing, structuring, formatting, or indexing" [2] that information producers do which enables the information consumer to both find and understand the information. Effective packaging is not easy; it requires that information producers consider both their own ideas and assumptions related to the information objects, and what they know about the information needs and context of whomever might want to find and access the information.

Information producers have difficulty packaging for others' reuse. Tags in social bookmarking are chosen for personal information management purposes, not according to social consensus [4]. Users of shared file repositories can't conform to conventions for naming and organizing, even when it is an explicit goal to do so [1]. And, users can overlook important information they never knew was available, because they do not encounter it during their normal use of a group information repository [3]. I argue that to better understand and improve the process of packaging information for reuse by others, we must reconceptualize it as a form of asynchronous communication between information producer and consumer. The information sharing system mediates this communication; it links users through the contents of the information objects, the way the information objects are organized and structured in the system, and through the kinds of interactions supported by the particular system.

Information sharing systems are often viewed as storage media, rather than social media; by shifting this focus I am able to draw upon what is already known about how people reach common understanding and shared meaning in other kinds of circumstances. For example, the "social" perspective highlights language use as important, because words are chosen to serve as a *handle or*

[1] `http://tolstoy.newcastle.edu.au/R/e6/help/09/01/2475.html`

identifier for the information. Language comprises the infrastructure by which information in a given system is found and accessed. Deciding what to name a file and what folder to put it in are packaging decisions, and they are also choices that constrain others' future use of that file as the information structure grows and evolves over time [3].

In my research, I focus on understanding social processes that affect information sharing online—people sharing files, blog posts, photos, tags, updates, tweets, etc., without a specific intended recipient. My recent work has investigated whether social processes might affect the development of shared meaning in two different types of information sharing systems. In one project, we interviewed users of http://delicious.com about their tagging practices, and were surprised that many users cited personal, rather than social motivations for tagging (Wash and Rader, 2007). These results inspired an analysis of bookmark and tag data scraped from delicious. Despite assumptions to the contrary in the literature, our logistic regression analysis and computer modeling results suggest that tags are chosen for personal information management reasons, not as a result of imitation of other users (Rader and Wash, 2008). In another project, I conducted a field experiment to find out whether audience design might impact labeling, organizing, and finding shared files. The results of a poisson regression allowed me to conclude that under certain conditions, audience design can have a significant impact on finding behavior. Taken together, these projects present an interesting contradiction; when and how do social processes affect information sharing online?

Interfaces for systems like del.icio.us and Facebook have already begun to allow users to do more "conversational" kinds of packaging, like including a comment when posting a link, or choosing tags suggested by the interface, that others have used to refer to similar things. Do these new forms of packaging really work? And, millions of people still use more traditional enterprise systems for file sharing that employ the file-and-folder desktop metaphor for manually organizing shared information objects into some kind of structure. How might these systems be re-conceptualized, from "storage" to "social"?

References

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