

# Improving and Optimizing Navigation on the Web with the help of Social Tagging

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**Abstract** - Social tagging on online(web) portals has become a trend these days. It has become an interesting approach to improve searching and navigation on the Web, since it aggregates the tags added by different users to the same resource in a collaborative way. We examine the use of different social bookmarking services to understand how social navigation is supported. Social bookmarking sites like [del.icio.us](http://del.icio.us) and [StumbleUpon](http://StumbleUpon) have been growing rapidly. Both now have millions of users. These services combine personal tagging of information sources with browsing, which allows for improved social navigation.

**Keywords**— Tagging, social navigation, search, bookmarks, social bookmarking, tag-cloud.

## The Web and the problem of search

People look up to the Internet frequently to gain information of any kind. Users of the web may only possess deficient prior knowledge and may lack proper view of relevant aspects. A user's knowledge may be critical for the search process and the information displayed on the Web. The Web offers heterogeneous information and products, and each user will have the option to select from different links and keywords for finding relevant resources. The mass and the diversity of resources available on the Web has the risk that people might select suboptimal information. In this paper we address how social tags, a new way of emerging collective information, can affect the individual process of navigation.

## Introduction

Social navigation is generally used to describe navigation that is “**driven by the actions from one or more advice providers**”. Social tagging is an interesting method to improve search and navigation over the actual Web. The success of many social bookmarking websites to name a few like Delicious and StumbleUpon has shown the usefulness of social tags to simplify the subsequent information retrieval and navigation.

At the individual level, tagging helps users to structure, arrange and find their own stored Web resources. Tags gives the opportunity to use other users' navigation links for search processes. Also social tagging systems can aggregate the tags of individual users.

When users share content and add their own tags with that content, it is possible they would be interested in additional content described by similar tags. The advantage of using social tags is that there is no need for users to create or update their profiles

## Why do we need tags?

Two main reasons why people tag:-

1. People want to find information which is valueable at a later point in time
2. People want to share resources with each other.

If we take the example of Wikipedia(free encyclopedia), it provides the following navigation methods:-

1) **Search engine**: The search engine allows to search articles by using keywords, like in any search engine, example Google. This is a good approach to look for an unknown information or article. But the lack of many words in article may be difficult for retrieval.

2) **Category-driven:** Wikipedia allows to browse articles having the same category, and allows going through parent and child categories. Though this is very interesting to organize all the content, a taxonomy is always limited to the categories defined on the page and, on the other side, an article may only be present or but may not be in a category.

3) **Link-driven:** Wikipedia's articles has many links that provides exposure to good information. These links provide the way to navigate through related articles. Anyway, navigating this way depends on link availability, and the reality of not finding the desired article could make us think it does not exist.

There exists multiple ways to navigate Wikipedia and find desired resource, but could social tagging improve article search and optimize retrieval? We lay down some important points in this paper.

## Social Bookmarking

If you have ever emailed a friend / family member and sent them a link to a website, you have participated in social bookmarking. Social Bookmarking is basically tagging a website and saving it on Web for future use. You can easily share them with anyone. You can look what other people's interest are and also explore some new sources of information. Instead of using a search engine, you can quickly narrow down the things to what you are looking for.

You might search for "education" and come up with two articles: one with 50 votes and one with 4 votes. It would be easy to predict that article with 50 votes will be the best choice. And it is a lot easier than putting "education" in a search engine and navigating many pages which may not even be useful.

## Social Tags

Social tagging is the job of annotating digital resources, e.g. bookmarks, pictures or products, with keywords, the so called "tags". For most of the applications each user can choose individual tags for stored resources. A tagging system becomes social when these tags are visible to everyone, and profitable for anyone. A user could take advantage of tags described by others to retrieve a resource, e.g., a web site.

For example, a user could tag Wikipedia as free, encyclopedia whereas another user could use collaborative and information tags to annotate it.

### A) Two types of tagging:-

- **Simple tagging:** Only the owners of the resource add tags to it. For instance, in Flickr 3 only the user uploading an image/photo tags it

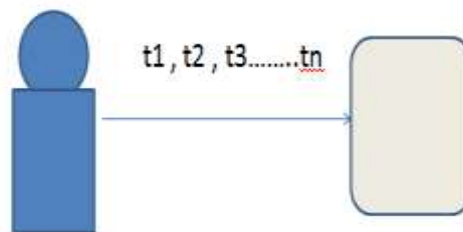
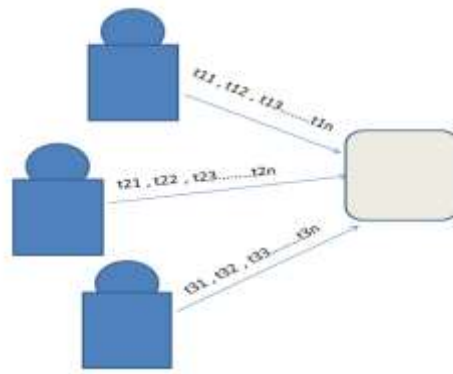


Figure 1: Simple Tagging

- **Collaborative tagging:** Not all a author but all the users can tag a resource. Generally, tags are defined by users on any resource, and as a result of many users tagging the same thing, a weighted set of tags is available for each resource. For example, Delicious, as a social bookmarking site, is a collaborative tagging system, where each resource (URL-Uniform Resource Locator) could be annotated (tagged) by a numerous users.



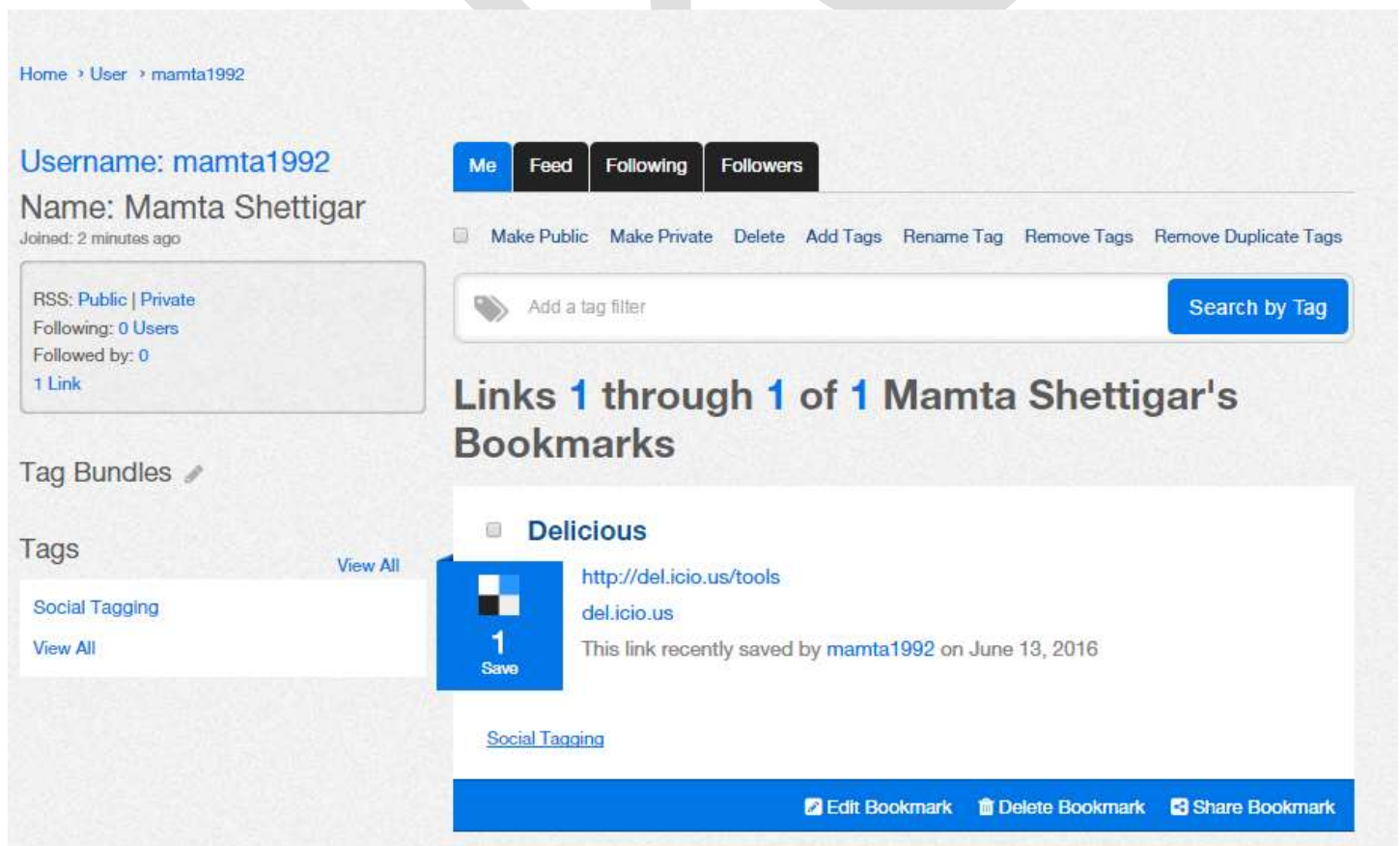
**Figure 2: Collaborative tagging**

### ***B) Using a Social Bookmarking Website.***

Delicious is the one of the world's largest social bookmarking site. Just like a usual bookmark, it allows you to save the address of a web page so that you can find it later whenever you need no matter where you had saved those bookmarks. Tags act like folders in which you can click on one tag and see all of the sites you have saved that have that tag. But you can put multiple tags to each site based on what categories it fits into.

Delicious also allows you connect with your friends. You can create a enormous network and see what bookmarks people in your network find interesting.

Another cool feature is that you can find websites that other people have tagged. If I am interested in websites about sports, I can type in "sports". I will get the most well liked websites tagged with "sports" by other Delicious users.



**Figure 3 Screenshot of del.icio.us social bookmarking website**

### ***C) Tag Mess***

On the other hand, a tagging structure also has its disadvantages. The fact of depending on an open vocabulary could also be a drawback if it is not handled as it should. A user could use a tag like “science-fiction”, while other users could tag as “sci-fi”. If there was a system is able to merge all of these tags, and consider them as if they were the same, the results would be better

## Social Tagging Analysis

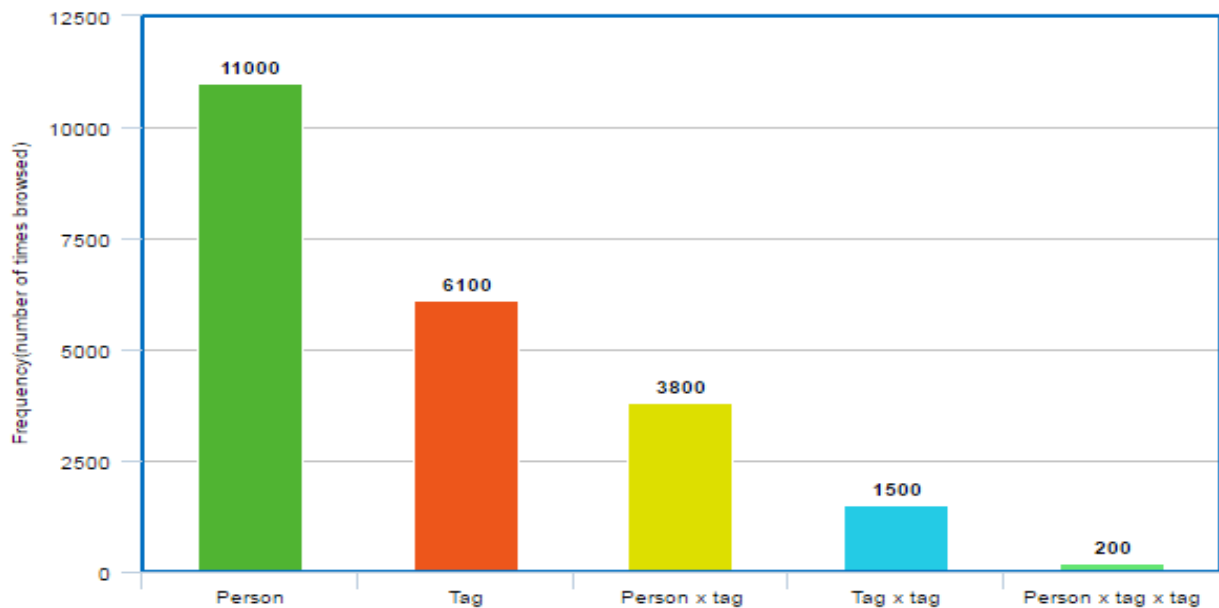
Social navigation means users browse by means of tag-clouds-collection of keywords assigned to different online resources by different users. Tag clouds presents a visualization to show tags used for a resource. More frequently used tags are shown in larger font. If you select any of the tags, you can find all resources related with the selected tab



**Figure 4 Example of a tag cloud**

The occurrences of the tags present in the articles will vary depending on the number of tags that particular article has. The occurrence of a tag can be checked in an article’s content, also in the category names where the article is classified or even within the entire document. It was also seen that a lot of new terms occurred for each article, simply by using social tags.

According to studies, the years 2005, 2006 and 2007 had been taken into consideration and 20 most frequently assigned tags were found. There were some tags like science, games, technology that appeared among the top 20 tags for 2005 but were not seen in the top 20 tags of 2006 and 2007. New tags like webdesign, free and open source were introduced in 2007 pointing to the emergence of new trends. The tags introduced in 2006 and 2007 showed a great interest in free or open source resources. The effect of tags on navigation can be proved by the fact by the number of times individuals looked at the bookmark collection of other people’s collections. According to a survey, 2545 of users using dogear service were found who looked at the bookmark collection of others.



**Figure 5 Number of times browsed by type**

The above figure shows the number of times people looked at the bookmark of others as well as users who browsed in each particular manner. These results suggest widespread curiosity about what other people are doing. A search engine needs to do two things:- 1) Find pages according to the query 2) Rank them accordingly to some criteria. Tags might be able to help a search engine if tags can be matched to a user's query.

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#### CONCLUSION

The use of social tagging plays a key role in finding useful information and also exploring new sources of information. It appears that every user who used a bookmark service clicked someone else's bookmark to look for more information. We suggest three main activities that are important for effective navigation systems: creating tags, using your own tags, and navigating other people's tags.

- **Creating tags:-**  
Use natural language to identify with the resource as close as possible.
- **Navigating your own tags:-**  
Tagging helps you to return to a resource later at any point in time.
- **Navigating other people's tags:-**  
You can explore current trends and topics in the navigation

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