The Role of Expertise in Navigating Links of Influence

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In this essay, I focus on how the influence of links may be mediated by the skills and expertise associated with using the Internet both from the content producer's and the content viewer's perspective. My main argument is that while lots of factors influence how links are presented on the Web and how users' respond to the content that shows up on their screens, an important and understudied aspect of navigating links of influence concerns people's Internet user abilities. Both content creators and content users (readers, listeners, viewers) can benefit from a more in-depth understanding of how the Web works. Since such skills are not randomly distributed among the population, certain content providers and content users stand a better chance of benefiting from the medium than others. Relevant know-how will help producers attract attention to their materials. Savvy about the medium will assist users in sidestepping potentially misleading and malicious content.

Links matter on the Web, but their control over what people see is less of a factor in the online behavior of savvy users than it is with those who know less about the Internet. Knowledgeable users know how to interpret various types of links and are able to approach information seeking in a myriad of ways. That is, while some people are considerably dependent on what content is presented to them by aggregators and content providers, others can sidestep many supply-side decisions by turning to alternative ways of browsing the Web's vast landscape. Both provider and seeker have a potential role in the extent to which links matter to any particular user's experience with respect to any particular information-seeking incident and content. My main argument is that the weight of how

much of this relationship is influenced by the provider versus the user shifts based on the savvy of actors both at the supply and demand side of the equation.

I start the chapter by discussing why links matter and the main types of links that exist on the Web including a brief consideration of how the presentation of sponsored search engine results has changed over time. In this section, I also consider the types of manipulations that content presenters can employ for attracting more attention that would otherwise be the case. Then, I introduce the concept of user skill and through examples about what we know regarding people's Internet uses make the argument that expertise is an important component of how user attention is allocated to online content and how people navigate links of influence. I end by discussing what questions remain about predictors of user savvy and the type of research that would be helpful to answering them.

Why links matter

From the early days of the Web, hyperlinks have allowed users to move from one page to another finding content whether with intent or serendipity. While there are other ways of getting to material on the Web, links remain an important way for users to move around online, whether within a known site or venturing to new destinations. Links are important precisely because they allocate user attention. They can have both positive effects and negative ones. By driving much needed eyeballs to material, they can spread updates about important health matters, draw attention to significant political issues, encourage people to donate to a cause, or help small businesses and independent artists thrive through sales of items that would not otherwise have the chance of garnering attention were it not for the low cost of online presentation.

Conversely, links can also have negative consequences. For one, too much popularity can overwhelm a system and make the material at least temporarily inaccessible. More importantly, drawing audiences to unsubstantiated rumors can lead to harmful outcomes in people's lives. Links can compromise relationships, whether personal or professional. An article in the *Washington Post* reported on an incident that damaged a recent law school graduate's career advancement (Nakashima, 2007). Some negative comments left on a message board by anonymous commenters showed up prominently when users did a search on this candidate's name. Employers are turning to the Web to gather information

about applicants (Shea & Wesley, 2006) so having negative comments show up high on the result list in response to a search on someone's name can have repercussions.

To counter such incidents, one can now turn to a whole new set of professionals to help achieve desirable rankings on search engines. Search engine optimization (or SEO) experts work with both businesses and individuals to maximize the chances of a good position on search engine results pages. Interestingly, much advice given by such professionals is the type of information that a somewhat more nuanced understanding of how the Web works makes relatively simple to implement. This is one area where the importance of online skill comes into play from the perspective of content providers. Those who know more than others about how to achieve prominent exposure can respond to situations like the one described above relatively quickly and at low cost. The main point here, however, is that the mere existence of a new profession centered on the idea that organizations and individuals need help and are willing to pay to improve the positioning of links that pertain to them attests to the fact that links matter.

Link types and manipulation

Links matter in a broader sense, beyond direct issues of corporate or personal reputation. To understand how, it is important to highlight the many ways in which we can categorize links from their location on a page to their source, from attached financial incentives to design principles. Technically speaking, all hyperlinks are created equal. They can be easily inserted into any page with the simple code text or image. At the same time, the potential of links to influence users' actions differs based on the way they are actually used. Consequently, a discussion of how a particular type of link relates to content presentation and user activity is worth consideration.

Of course, there are several ways one can arrive at a Web page without clicking on a link such as using a bookmark/favorites listing or typing a URL in the location bar of the browser (Hargittai, 2004). A common form of moving from page-to-page, however, does involve clicking on a link. The simplest type of link is one that connects to additional information about a detail in some text that constitutes the main content on a page. There are also links whose main purpose is to facilitate navigation. That is, they are not part of core content on a page, rather, they exist solely to guide people to a destination. These links range from directory categories on large portal sites such as Yahoo to sidebar menus on Web

sites of all sizes and complexity. These two types of links share one feature: for the most part they are a relatively steady part of the site on which they are located. That is, while obviously pages can be edited easily and thus links may change, these have fairly stable positions and producers of these sites maintain a say over their specific placement.

In a substantively different category are links that show up on aggregator and recommender sites. These links are not based on one content producer's decisions. Rather, placement is determined by the popularity of the link among users. Sites such as Digg and Reddit are examples of this presentation and organization. Any registered user can submit a link that then gets added to the pool of sites made available for users to browse. If enough site members support the link and it gains popularity relative to other submissions, it makes it onto the cover page of the site and garners increasing amounts of attention. These links are not stable the way the previous set of links are. Rather, their position and potential to be clicked changes rapidly with input from users. That is, visiting Reddit one minute will yield a certain link list, but revisiting it a few minutes later will result in a different set of links.

Another category of links concerns the ones on search engine results pages. Here, the main purpose of the page is to redirect the user to content elsewhere. Such links depend on the proprietary algorithms used by search engine companies to rank pages. Results may be based on relevance and quality – these two concepts understood in whatever particular way –, but may also be dependent upon financial considerations. Search engines sometimes sell prominent placement on their results pages. Some search engine companies like Google and Yahoo also have systems set up where players large and small can bid for placement on their ad link section. Those links can usually be found on a sidebar next to the unsponsored ("organic") search results, although on occasion they are also included within the organic listings.

Another form of sponsored links tied to search results shows up on a plethora of Web sites that have affiliations with ad placement programs offered by ad-serving companies like Google and Yahoo. These ad links appear on sites across the Web covering numerous topics targeted at diverse communities of users. There is no standard for where they are placed. They can be embedded within the main body of text on a page or on the sidebar depending on the preferences of the publisher of the page. It is customary for these ads to be accompanied by a note that identifies them as such, but this information is not always clearly visible.

Are such sponsored links ever effective in gaining users' attention? Evidence suggests that they are. One of the most successful Internet companies, Google, Inc., has launched numerous products over the years, only very few of which have been profitable to date. One of its most important products is the AdWords program that supplies links to affiliates. Each time someone clicks on such a link both the owner of the Web site and Google itself as ad system provider make money. Without people clicking on such links regularly, the company could not have achieved the revenue stream it has.

Whether users are clicking on these links because they are the most relevant for their needs is another matter. Layout and context of the links can, at times, be confusing or outright deceiving. Some sites display ads very clearly and mark them as such. Others are not as forthcoming about the source and reasons for the links. Take, for example, the case illustrated in Figure 1. The Web site featured in this illustration focuses on photo editing. In a prominent place on its welcome page are some smaller images with links right below them. The links are ads in this case from Yahoo's ad network. However, this is not immediately obvious. Looking at the rightmost picture one notices an image of dishes and the link below this picture states "San Francisco Dish". Clicking on the link, despite appearances, has nothing to do with the image of dishes displayed on the page. Rather, the link goes to an advertisement for an American Express program. The images are randomly rotated in what seems to be an effort to entice clicks despite little connection between the images and the links below them.

As suggested by the examples above, search engines play a special role in allocating user attention to links and thus online content given that they are some of the most popular destinations by users (Fallows, 2005). Over time, there has been a considerable amount of change in how links are included and presented on search engines. John Battelle does a nice job of tracing the history of changing search engine results pages (Battelle, 2005). Initially, search engines just brought up sites that included at least one of the search terms entered by the user. As the Web grew, the default Boolean operator "OR" was replaced by "AND" resulting in search engines now returning results that contain all terms in a user's query. Changes also occurred in the financial domain of searching. Goto.com was the first search engine to allow payment for search positioning. These practices of the service were quite explicit. The amount of money the featured link sponsor would pay upon a click by the user was made public and listed right next to the link. Figure 2 depicts a screen shot taken on

June 6, 2001 during the online browsing actions of a 41-year-old woman using Goto.com for searching (Hargittai, 2003a). Note the cent amounts next to the links. This example is for results to the search query: *lactose intolerance.* The top advertiser was willing to pay 30 cents per click. Then there is a sharp drop with the following link going for seven cents then six, five and four cents respectively. This explicit manipulation of search engine results caused considerable stir in the industry. Ironically, later manifestations of sponsored links have included even less explicit mention of what the advertisers may have done to achieve their products' ranking. Despite the initial resistance by many, this practice has become commonplace across search engines.

What determines which links feature prominently on results pages? Detailed information about search engine rankings is proprietary information so it is difficult to answer this question (Battelle, 2005). However, there are some generally understood factors that influence rankings and this is precisely the type of know-how upon which the search-engine- optimization industry has been built. At the most basic level, search engines rely on programs to crawl the Web to create an index of Web site content (Battelle, 2005 pp. 20-22.). When a query is submitted to a search engine, the service returns sites that include the requested terms and possibly considers whether the specified terms are in the title, in various tags (underlying information about the page file) and possibly with attention to their position on the page. Of course, in most cases there are numerous pages that meet these criteria. Search engines use additional information to rank results. An important factor, introduced in the late 1990s by Google founders Sergey Brin and Larry Page concerns the reputation of the page on the Web (Brin & Page, 1998).

To explain the basic idea behind this reputational system, I will draw on an analogy. Imagine a classroom full of students. Each student is liked by some people and each student, in turn, likes some other students. Let us assume that Brigid is the most popular student, because most people in the class like her. There are two students who are also liked by quite a few students: Sam and Jamie both get the affection of several classmates although not as many as Brigid. While Brigid is friends with Sam, Brigid does not care much for Jamie and this is widely known since she rarely socializes with Jamie. If an outsider came into the classroom and asked a student whether she should befriend Sam or Jamie, most students would likely suggest Sam. The reason is that although Sam and Jamie are liked by the exact same number of people, Sam is also liked by the most appreciated student in class,

Brigid. A vote of confidence from Brigid plays an important role in the evaluation of the students in the context of a larger group.

Now, let us replace students in this story with Web pages and the sentiment of liking a person with a link going from one page to another. Thus, translating the above story to Web pages and search engine rankings, the main idea is that having many links pointing to you and especially having ones from popular, established and well-regarded sites is valuable (these aspects of a site would, again, be determined based on some of the linking features of the site).

Search engine manipulations

Knowing that linking is important to search engines rankings, it is possible to engage in practices that may help boost a site's position on a results page. There are various ways in which content producers and distributors can influence the amount of attention their content manages to attract online. Many of these concern the manipulation of search engine rankings. The goal is to drive traffic to one's Web site and often this is done without any regard to the needs of users who may then end up on the page.

The term "Google bombing" refers to the practice of manipulating search engine results by aggressively targeting links to a specific site with the same anchor text where the anchor text refers to the text that links to another page. Several such movements have been documented over the years. Bar-Ilan (2007) analyzed some of the most popular ones and identified their sources to be varied ranging from personal motivation (for people whose names are common wanting to be the first result in response to one's name) to political (e.g. linking to a page denying the existence of "Arabian Gulf" despite the use of that name by some for the "Persian Gulf") or humorous (a search for *french political victories* yielding a link to a spoof search engine page on "french military defeats") in addition to financial incentives (Bar-Ilan, 2007). Users achieve surprisingly high rankings for specific sites in these cases by organizing a movement of people linking to a specified page using a particular term as the anchor text. If the Google bomb is successful then future searches on the anchor text will yield the page that was being targeted by this effort.

While many Google bombs have a larger social or political purpose some are much less controversial and simply target the popularization of a private individual's ranking on the search engine. For example, freelance journalist and photographer David Gallagher decided

in 2002 that he wanted his site to have the top spot in the results listings in response to a search on his name (Gallagher, 2002). This was not a trivial goal given that many people share his name including a Hollywood actor. Nonetheless, in a few months he achieved his goal and remained in the top spot for three years (Bar-Ilan, 2007) occupying the second position as of this writing.

Mobilizing many people to help out with a Google bomb requires a convincing story to motivate participants. Political or humorous motives seem to work well, commercial ones from which only a handful of people or entities benefit are less likely to gain wide popularity. In such a case, boosting a site's rankings is left to the actions of a just a few people. This is where sites like splogs come in. Splogs are "spam blogs" or Web sites that include nothing but links with one of two purposes. Either they are filled with revenue-generating links or they feature links to a site with the same goal as the links described above in the Google bombing scenario. The sole purpose of these sites is to come up high on search engine results and then make money by getting people to click on revenue-generating links.

Search engines have been vulnerable to such practices. Google often lists splogs prominently on its results pages, including in the top ten results. For example, at the time of this writing, a search on the words *origami tulip* yields a link to http://www.origamitulip.com in the top ten results on Google, but on none of the other three engines. Curiously, however, there is no material on this Web site that directly addresses tulip paper-folding. Instead, the page is completely made up of links that point off-site. This is precisely the type of site that has no original content (again, at the time of this writing) and simply contains links pointing elsewhere.

Staying ahead of such empty and confusing content is a cat-and-mouse game between spammers and search engines. However, while search engines catch up with the imaginative ever-evolving approaches of spammers, users are caught in the middle having to deal with the resulting confusion. One example of this is setting up for-profit sites by mimicking government sites with a .com (rather than .gov) suffix —whitehouse.com instead of whitehouse.gov, for example. Many users do not understand the distinction between different top-level domain names (e.g. .com versus .gov) and thus are vulnerable to clicking on the wrong link when faced with several seemingly interchangeable options. Analyzing the methods by which users find tax forms, I found that many are derailed and confused by

profit-making ventures that claim to assist with tax forms, but in the end do not include relevant information (Hargittai, 2003b).

Whether splogs and other such sites continue to mislead users is a question of how well search engines and other aggregators can stay ahead of such malicious practices in addition to what extent users understand such practices. A paper looking at the source of spam redirection content found that just a few sites are responsible for a large portion of spam content (Wang, Ma, Niu, & Chen, 2007). Ironically, the Google-owned free blog-hosting site Blogspot appears to be one of the most spam-infested sites hosting thousands of splogs. In a related realm, people (or often likely automated robots or programs) leave strategic comments on blogs to drive traffic and rankings to their sites. When a user leaves a comment on a blog, the username is often linked to a site specified by the user. In this case, the spammer includes a link to the site that is being promoted. Many of the splogs mentioned above gain popularity precisely through this practice. Once a splog is set up, the next step is to create links to it by leaving comments on legitimate blogs with good search engine rankings so as to boost the splog's reputation.

User Expertise with Links

Whether vying for people's attention as the provider of information or looking for the most relevant material to meet one's needs as a user, links are at the forefront of how user attention is allocated to content on the Web. Consequently, exploring how users interpret and approach them is crucial for a better understanding of how attention is allocated online, why some content gets audiences while other content does not, and why some people are better than others at finding content of interest to them. This is an area that has only begun to be investigated. My research and studies by others suggest that users differ with respect to their know-how about the Internet, the sources of various links, and the motivations behind their placements. To get a feel for the nature and importance of what people do and do not know about hyperliking, it is useful to explore the topic through three categories: general user savvy, users' understanding of search engine rankings, and users' understanding of links in emails.

General user savvy

Based on data I have gathered over the years, it is clear that people differ considerably in their understanding of various Internet-related terms and activities, and these abilities are not randomly distributed across the population. Here, I will draw on various studies to illustrate these differences. Based on surveys administered to hundreds of mostly first-year college students at a diverse urban public research university in the winters of 2006 and 2007, I found that even members of the wired generation are not necessarily savvy about terms that are important for informed Internet use and understanding links in particular (Hargittai, In press). While most students exhibit a relatively high level of familiarity with mainstream terms such as spam and bookmark, know-how is much lower when it comes to terms relating to more recent Web developments such as widget and malware. Moreover, this knowledge is not randomly distributed. Students who scored higher on their college entrance exam (measured by their reported American College Testing score) and students whose parents have higher educational levels reported a higher level familiarity with both mainstream and more advanced Internet-related terms (Hargittai, In press).

Surveying such a highly connected population is especially relevant, because students represent the wired generation so we can control for exposure to and experience with the medium. The fact that despite high levels of connectivity and frequent usage some people are not necessarily knowledgeable about Internet-related terms and activities suggests that mere exposure to and use of the medium does not result in savvy users. As per the findings cited above, students' socio-economic background is related to their online know-how. This suggests that those in more privileged positions are more likely to understand their online actions well and thus are less likely to be derailed by confusing content presentation.

Knowing how to interpret URLs is an important part of user abilities. Understanding how a user can tell whether a site is secure is an essential part of staying secure when submitting certain types of information to sites such as financially sensitive data. In a questionnaire administered to hundreds of undergraduate students in the winter of 2007, I gathered information about a related know-how. First, it is important to note that this is truly the wired generation. On average, respondents in this study had been online for over six years and the majority (88 percent) reported using the Internet more than once a

day. When asked on a five-point scale ranging from "strongly disagree" to "strongly agree" how confident they feel about "knowing the difference between http and https" – the latter of which signals to users that they are on a secure site –, only eighteen percent agreed with the statement. Over half (57 percent) disagreed (over a quarter of the full sample strongly) suggesting that many young adults even among the wired generation are not fully aware of how to be really safe in their online actions since it is not clear that they could tell when they are on a secure site. While the relationship is not large, there is a statistically significant positive correlation between parents' education and reported level of know-how concerning "https", and we observe a similar relationship with college entrance exam scores.

Understanding search engine rankings

Regarding the special case of understanding how search engines make decisions about what content to display, some surveys have collected data on users' understanding of the practice of sponsored versus paid search results. Findings from these studies suggest that people are not particularly savvy about the behind-the-scenes of search engines. For example, when asked in one study whether they were aware of the distinction between paid and unpaid results, the majority of adults interviewed (62 percent) indicated that they were not (Fallows, 2005). These findings were mirrored by another study asking similar questions where 56 percent of adult respondents did not know the difference between the two types of results (iCrossing, 2005). Moreover, findings suggested that this know-how is not randomly distributed among users with men and younger adults claiming to be more informed about this aspect of search engines than women and older users. Howard and Massanari (2007) also found that more experienced users were considerably more confident in their ability to tell apart paid and unpaid content on search engines.

How do members of the wired generation respond to similar questions? I asked about related issues in a study I conducted in the winter of 2006 on a group of 150 undergraduate students at a private research university. These students had been, on average, Internet users for over seven years and 98 percent of them claimed going online several times a day signifying that the Internet is very much a part of their everyday lives. Among them, over 37 percent claimed never having heard about the fact that "search engines [are] paid to list some sites more prominently than others in their search results." Following up, all of the students in the sample were asked, on a four-point scale, how

important they think it is that search engines tell users "about this practice in the search results or on an easy-to-find page on the site." Less than a quarter (24 percent) found this to be "very important" with an additional 46 percent considering this practice "important". Over 24 percent, however, thought this was "not too important" and a remaining five percent found it to be "not at all important".

There are limitations to what we can learn through surveys so use of other methodologies applied to these questions can be helpful. Follow-up observations can help shed some light on the extent to which students understand links. Drawing on data from a study conducted in 2007, Figure 3 shows the action of a first-year female college student at an urban public research university in response to a search query looking for options to get an HIV test in the city of Chicago. The respondent entered *HIV testing in Chicago* into the search box at google.com and was presented with a list of results including a highlighted and explicitly designated "Sponsored Link" and numerous ad links on the right side of the screen. She clicked on the "Sponsored Link" on top of the page right below the query box. This page did not yield the desired information.

When asked, later, to explain her choice here, she stated the following: "I know that the ones that are in here [points to Sponsored Link section], they're the most relevant to what I'm looking for." There was no mention of sponsorship in her response. Later, with the hopes of seeing whether she would say more about this, she was asked to recount how she learns what she knows about search engines. She stated that it comes "from using it frequently for school and for when you have to do homework". This response was fairly generic and suggests no external validation by other sources (whether people from her social networks or other resources) of her assumptions. In the end, there is no basis for her assertion that the highlighted link is the most relevant result. It may be on occasion, but it is not always. Certainly in this case it was not as it led to a confusing site that did not include information on what she was seeking. Overall, it seems that this user does not have a good grasp of how search engines make decisions about what results to display. This user seems to put quite a bit of trust in Google's rankings regardless of outcome, a finding that has been shown to be true for other student users of this service as well (Pan et al., 2007).

Links in emails

When we think about links, we tend to think about clickable words or images on Web sites. In addition to these, links in email messages are increasingly common as well and pose a set of their own unique challenges. It can be convenient to receive a link in an email message, but it can also be dangerous. The medium of email is especially vulnerable to exploitation, because some people when seeing the name of a trusted source in the From line of the message automatically assume that it contains legitimate content.

The term "phishing" refers to the practice of directing a user to a Web site other than what the link and surrounding message context seem to suggest with the goal of extracting sensitive information from the user. For example, many users receive messages claiming to be from a bank (e.g. Chase) or an online commerce-related Web site (e.g. Ebay or Paypal) (Huffman, 2007). These messages ask users to follow the enclosed link and then the instructions on the Web site to which the link leads. The instructions often ask users to enter their username and password into a form secretly monitored by the malicious originators of the message. Once users have shared their login data, they may be exposed to fraudulent activity by the scammers.

Given technological advances, it is relatively easy to configure an email message so it seems to be sent from a source other than the actual sender resulting in what seems like a legitimate note to the recipient. However, once the user clicks on the included link, it may well lead to a malicious Web site. How many users are aware of these malevolent practices? In my surveys of a diverse group of undergraduate students, I asked respondents to indicate their level of understanding about the term "phishing". (This question was part of a longer item on the survey asking about a myriad of terms, an item validated in earlier work as a good measure of people's actual online skills (Hargittai, 2005)). In both 2006 and 2007, the reported level of understanding was extremely low: 1.6 and 1.7 respectively, on a scale of 1-5. Placing this term in the context of other terms is also revealing. From among over 25 items administered to the student sample in both years, phishing was one of the least understood. The survey included other items from the widely understood (e.g. spam and bookmarks) to the less recognized (e.g. tagging and tabbed browsing) and largely cryptic (e.g. torrent and widget). Nonetheless, all of these were claimed to be better understood by students than the term phishing. Similarly to other types of Internet know-how, understanding phishing

exhibits a statistically significant positive relationship with a student's college entrance exam score.

The above findings are mirrored by data collected on people's understanding of Internet-related terms by the Pew Internet and American Life Project (Rainie, 2005). That organization's survey of a national sample of Internet user adults found that 15 percent had never heard of the term "phishing" and 55 percent were "not really sure" what it meant (that survey only allowed three answer options so the results of these studies – mine and Pew's – are not directly comparable). Of course, it may be that people understand the malicious practice and simply do not know the term that is used to describe it. It is possible to test this using a more nuanced method.

To examine the extent to which people are cautious about messages they receive, I have been presenting some college student study participants with hypothetical email scenarios. Respondents are asked to read supposed email messages and indicate how they would respond to them. Answer options include anything from reporting the message as fraudulent to IT support, to following the instructions outlined within and forwarding the note to friends or family. There is also the option of choosing "Other" and explaining what one might do such as click on the link and check where it leads. Respondents are requested to check all of the actions in which they would engage upon receipt of the email.

There are three messages in the study, one of which is made to look just like the emails students on this campus receive from the university through its official announcement list including the appropriate sender and subject line conventions. The email instructs recipients to log into a site and type in their username and password. The specified site address looks like a page on the university's Web site (i.e. http://www.university.edu/admin/additionalcharacters). The way this experiment is set up, the message is not clickable so it is not possible for students to verify to what Web page the link actually leads. They are asked to indicate what they would do if they received this email in their mailbox by marking off all possible actions. Interestingly, very few suggest that they would contact technical support or verify where the link leads and based on 26 cases, no one mentioned checking the address of the destination Web site. Over half of the students indicated that they would follow the instructions in the message and would click on the link and do what the destination page instructed, although a few did add that they would concurrently contact the IT department for more information.

Even when links are labeled as sponsored, users do not realize that they may not be the most relevant (of course, on occasion, they may be). Take the case of a 37-year-old woman who has been using the Internet for eleven years and is constantly online and participated in a study conducted on average adult users in the spring of 2006 in a suburban town. While searching for information on lactose intolerance, she clicked on a sponsored result that showed up on top of the search engine results pages (see Figure 4). This link led her to a site that did not include the information of interest to her. She then returned to the original results pages and proceeded to click on another result (this time the top result under the "Web results" heading of the AOL search results pages). She was directed to a page with the necessary information.

As a next step, she was asked to look for recipes that are acceptable for lactose intolerant people. She clicked on a link that was listed on the bottom of the previous page she had been viewing. This link was located under the heading "Sponsored Links". The link led to a page with the following statement in the midst of lots of graphics (Figure 5) : "We're sorry, the page you were looking for was not found." Below this statement were several links clearly sponsored ones to the trained eye, but not so clearly identifiable as such to this user. She clicked on one of them and proceeded off-site to a page that no longer had anything to do with her original intent of finding a recipe that is suitable for lactose-intolerant people. Based on her comments about the resulting page, however, it was clear that she did not realize this. She seemed to assume she was still on the original site where she had started out her exploration and so was confident that the recipe she had found was acceptable for lactose intolerant people when in reality it was not. This is an example of the limited extent to which people understand where links lead them and when they are being sent from one site to a completely different one, often due to strategically placed sponsored links that do not address the user's intent and may be interpreted as something other than what they really are.

Discussion

Relying on data collected using various methods, the empirical evidence presented in this chapter suggests that many users are not particularly familiar with the behind-the-scenes of Web content organization and presentation, issues related to how they may be navigating links of influence. Internet users differ considerably regarding their online savvy and an

understanding of link navigation in particular. This know-how is not randomly distributed as we observed socio-economic status variables exhibiting a statistically significant relationship with online savvy. Take, for example, the young woman who expressed considerable confidence in the relevance of a sponsored link on a search results page. She is a first-generation college student with parents who have no more than a high school education. This relationship between parental education and Internet skill seems to be consistent across several studies.

Despite some statistically significant relationships between user attributes and skill measures, it is safe to say that not enough work has been done in this domain for us to understand in depth what processes contribute to people's online abilities. We know from earlier work and findings discussed in this piece that information-seeking abilities and spelling mistakes are related to socio-economic status (Hargittai, 2002, , 2006), but we know much less about link savvy in particular. We need better measures of this concept, especially survey items that can be administered to larger numbers of users for statistical analyses and generalizable results. Also, we need to go past individual user attributes to explore the role of users' social surroundings in their online behavior.

Links play a crucial role in how attention is allocated to material online, in what content becomes popular and what information is seen only by a few people. Links help users meet their everyday needs from the trivial to the profound. Given that people vary in their abilities to understand the sources of different links and their relevance and given that these skills are not randomly distributed, some users are better positioned to use the medium efficiently and to their benefit while others are more likely to be misguided and possibly even fall into malicious traps. Links are important, but their potential influence on users is mediated by the level of expertise people bring to their online pursuits. Since those in more privileged positions seem to exhibit higher level savvy, the Internet may be contributing to social inequalities rather than alleviating them despite the many opportunities it makes available, theoretically, to everyone.

Figure 1. Example of ad links presented in a confusing manner at www.worth1000.com, 2007

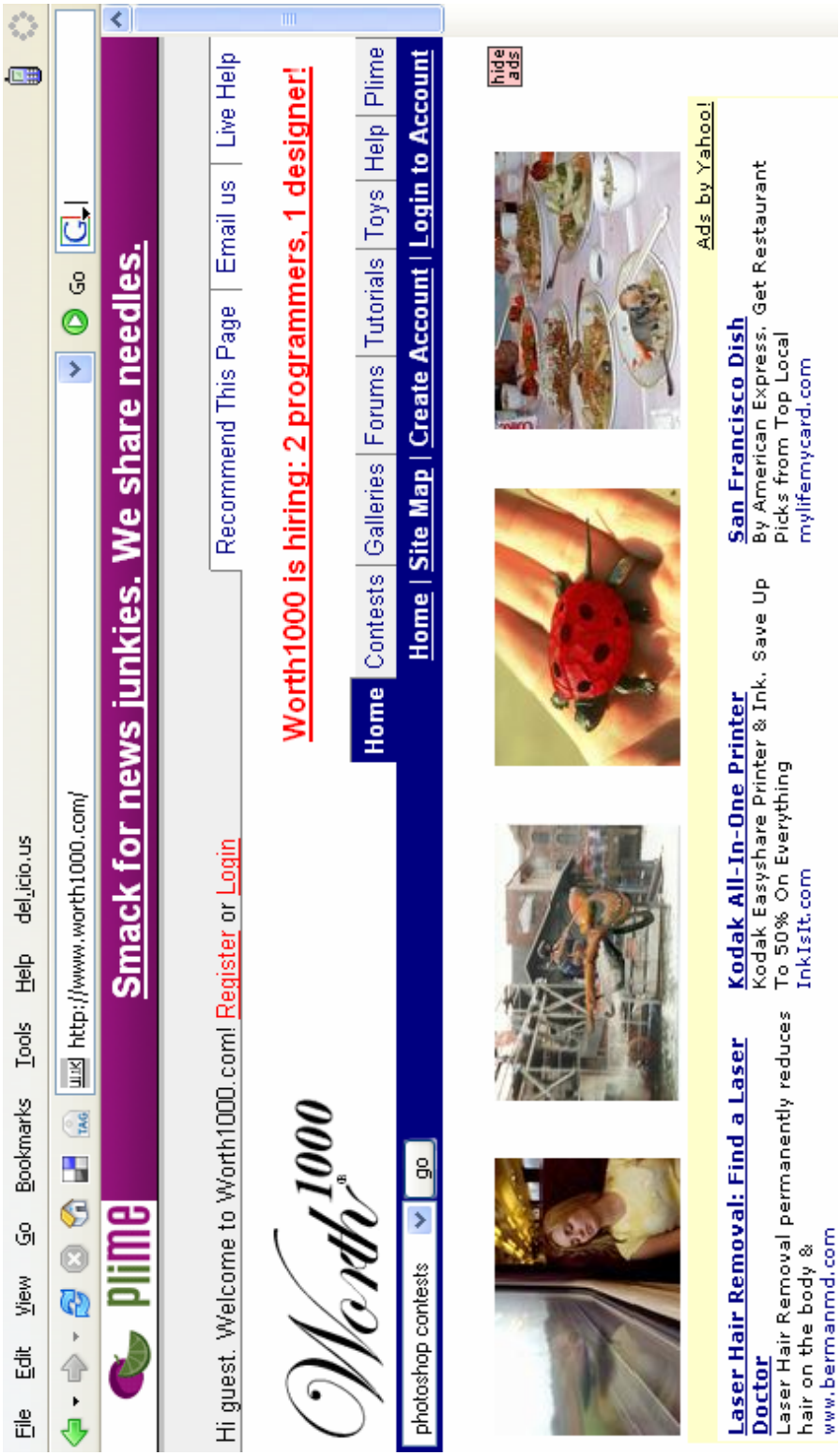


Figure 2. Screen shot of a Goto.com search engine results page, 2001

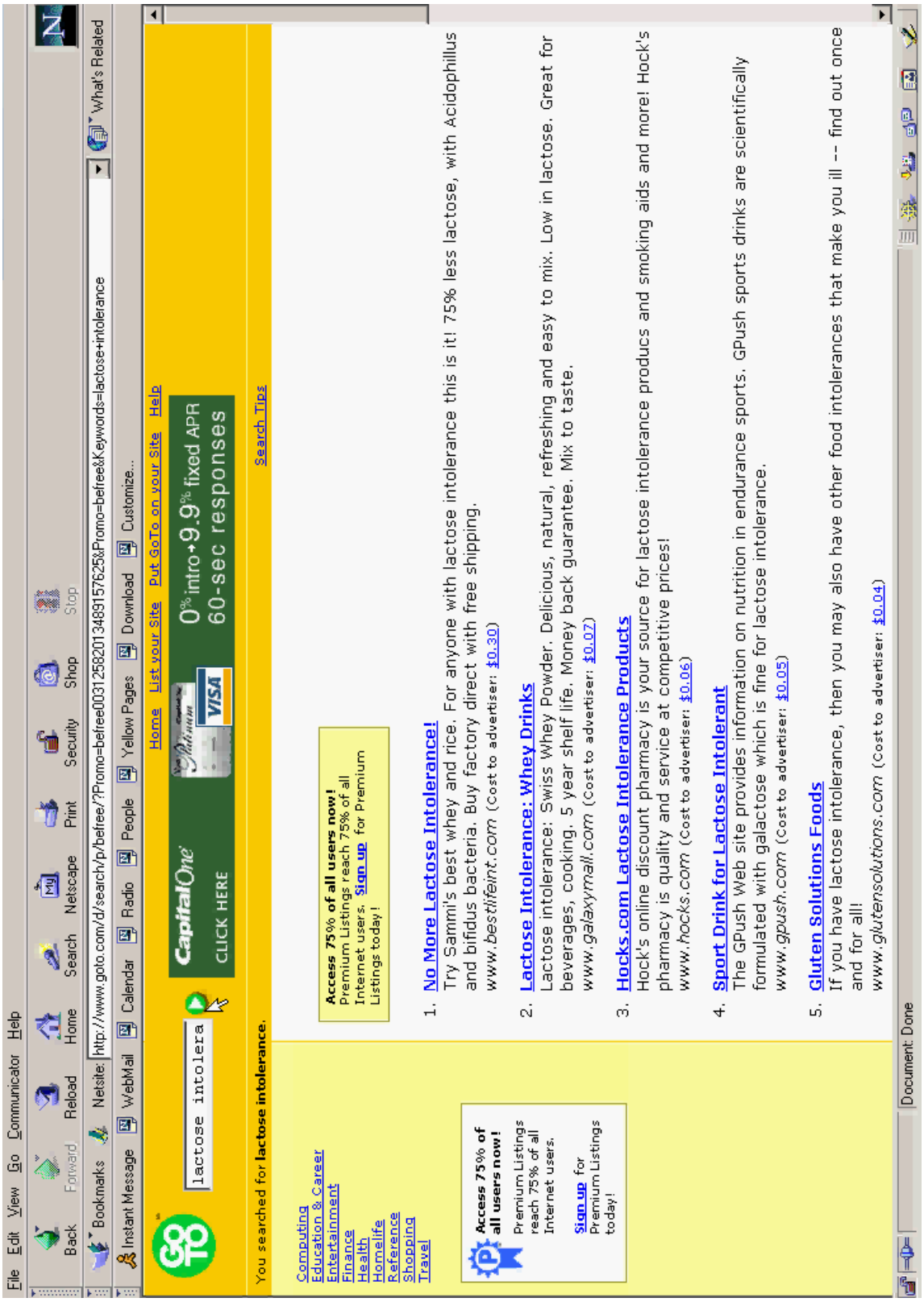


Figure 3. Screen shot of study participant's selection of Sponsored Link result, 2007

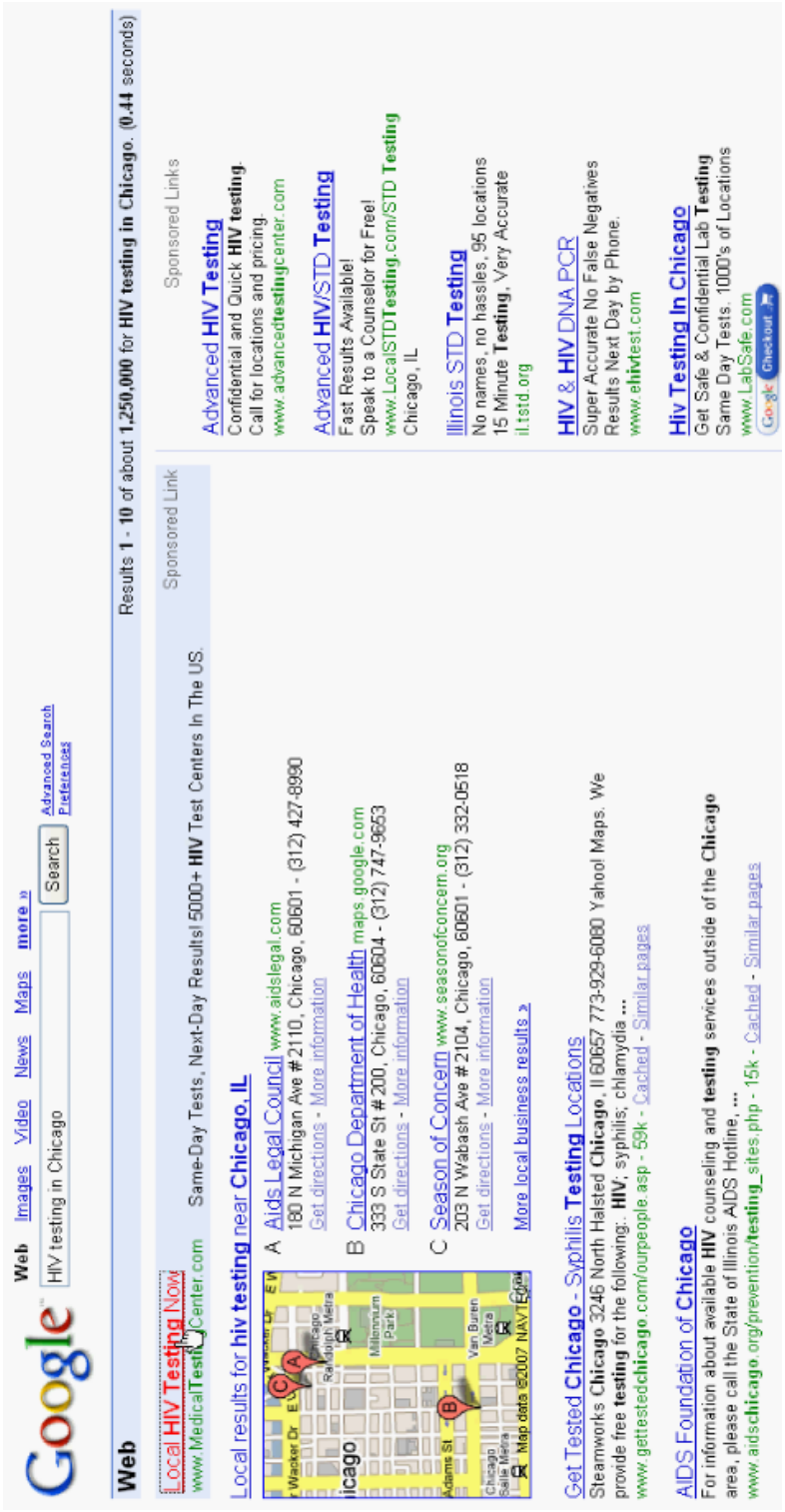


Figure 4. User clicks on sponsored link, 2006

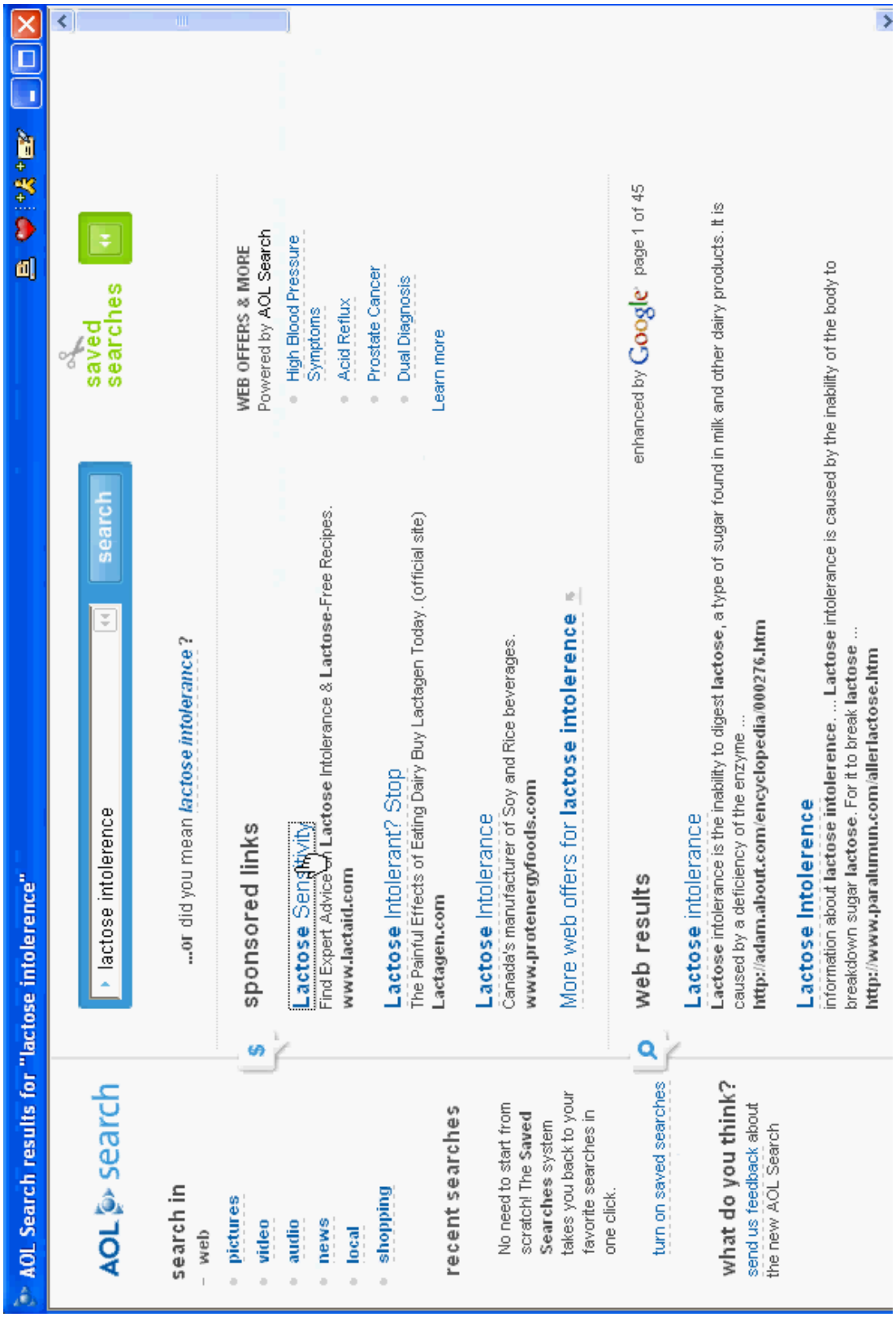
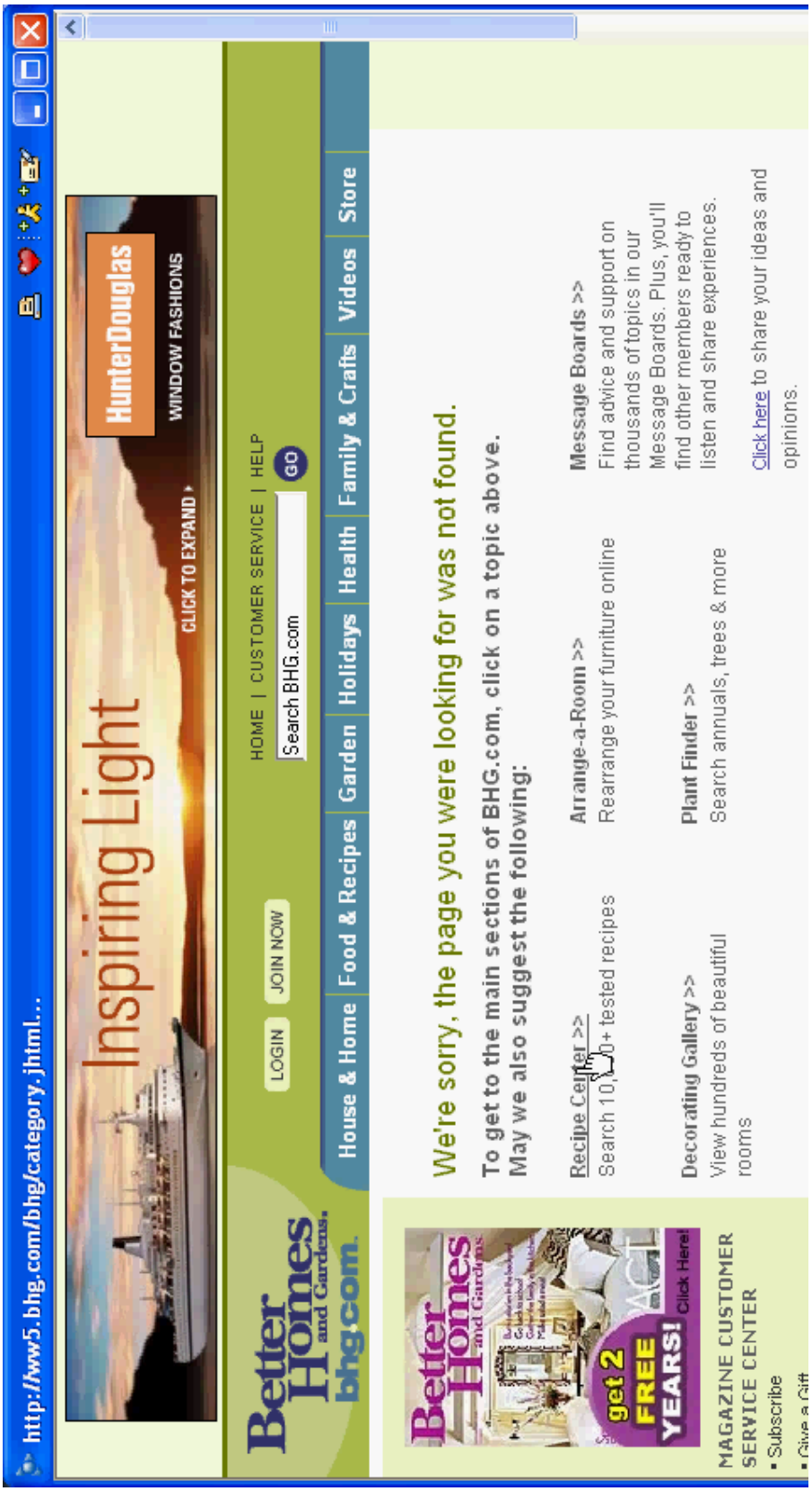


Figure 5. Strategically placed sponsored links, 2006



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