Exhibit 1

Exhibit B

EXHIBIT B

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EXHIBIT B

Where obviousness is asserted, an explanation of why the prior art renders the asserted claim obvious, including examples of combinations of prior art showing obviousness, is set forth in claim charts A-1 to A-39, which identify specific examples of where each limitation of the asserted claims is found in the prior art references, or herein. The cited portions are only examples, and Google reserves the right to rely on un-cited portions of the prior art references.

Because discovery is ongoing and Google has not yet completed their investigation, discovery, or analysis of the issues raised by Rockstar's claims, Google reserves it right to supplement and amend its explanation of why the prior art renders the asserted claims obvious, including an identification of any combinations of prior art showing obviousness, as they receive additional information either through their own investigations or from Rockstar or third parties. In particular, Google's investigation and analysis is significantly impeded by the insufficiency and incompleteness of Rockstar's infringement contentions.

Table B1: Search References

To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B1, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B1 references listed below because: it would have yielded predictable results; using the techniques of the Table B1 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B1 references to improve primary or obviousness references would have yielded predictable results.

Reference	Disclosure
U.S. Patent No. 6,119,101 ("PECKOVER")	*See*, *e.g.*, PECKOVER, 11:20-26: Consumers can launch ongoing searches for products, and the searches can continue even when the consumer is not online. Consumers use search engines that have data that is more up-to-date. Consumers access search engines that are easier to use, especially for non-technical users. PECKOVER, 12:7-8: The system provides results faster than mobile or wandering agents. PECKOVER, 12:13-21: Referring to the fundamental problems of the flow of market information in electronic commerce, the fundamental objects of the system for consumers are: to assist consumers in gathering market information quickly and easily; to protect consumer identity and private information while gathering market information; and to assist consumers in performing ongoing searches. PECKOVER, 14:45-49: Consumers use Decision Agents to gather the information that helps consumers make purchasing and usage decisions. Decision Agents can search for ads meeting various criteria, and order the matching ads according to the consumer's fs. PECKOVER, 15:22-36: Referring to the left side of the figure, actions of Consumer 20 generate market data. Consumer 20 controls a Consumer Personal Agent 12 that represents the Consumer to the system. The Consumer Personal Agent is capable of creating a

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	Decision Agent 14 to carry out a search, within a Market 18, for products that satisfy certain constraints and preferences. For example, a Consumer might query for the local retailers that carry a certain brand of sports shoes. Decision Agent 14 gathers data without knowing, and therefore without revealing, the identity of the Consumer 20. Both Decision Agent 14 and Market 18 store data about the search. Decision Agent 14 returns a set of product recommendations, which Consumer Personal Agent 12 further filters and orders according to Consumer preferences before presenting to Consumer 20. PECKOVER, 19:65-20:5: Continuing to refer to FIG. 4B, a Decision Composer 74 assists the user in composing queries to be executed by Decision Agents. Decision Composer 74 retrieves a Product Template 174 (described later in conjunction with FIG. 9B) for a particular product from a Market 18 in which the user wishes to search, present instructions to the user for completing Product Template 174 to describe the object of the search, and produces the appropriate query. PECKOVER, 21:15-24 Referring to FIG. 6, a Decision Agent 14 comprises the functional components of: a Unique ID 98, a Personal Agent Reference 100, a Market Reference 102, an Expiry function 104, a Query 106, a Response Manager 108, and a Log function 110. PECKOVER, 21:57-61: A Query 106 describes the product or product category for which to search. Query 106 includes data from Product Template 174 completed by the consumer and relevant data from the consumer's preferences, as assembled by Decision Agent Factory 76 of the consumer's Personal Agent 12. PECKOVER, 21:63-64: A Response Manager 108 receives search results and returns them to the consumer's Personal Agent 12. PECKOVER, 24:3-6: An Immediate Agents function 156 keeps track of Decision Agents 14 that are performing an immediate search. An immediate search is a search that is to be performed and results returned as soon as practical. PECKOVER, 24:23-24: Results from an extended search may be returned periodically

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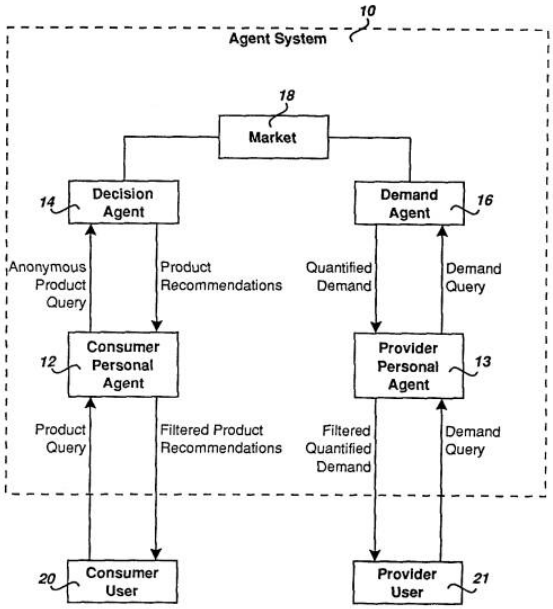
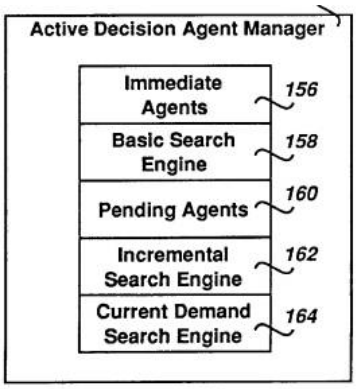
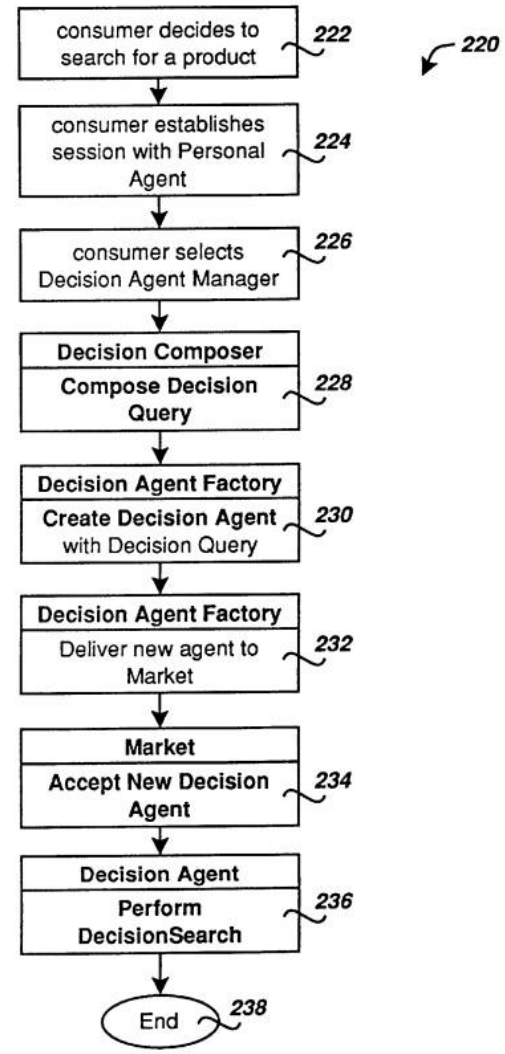
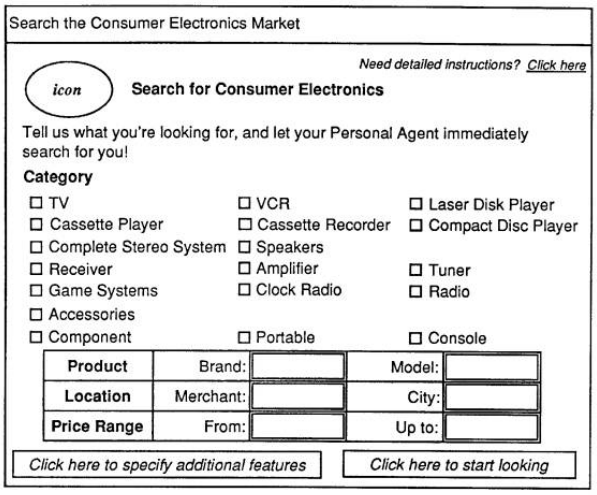
	during the time that the search remains active. PECKOVER, Fig. 1:  *Fig. 1* PECKOVER, Fig. 8C:  *Fig. 8C* PECKOVER, Fig. 11:

Reference	Disclosure
	Product Search Method  *Fig. 11* PECKOVER, Fig. 40:  Search the Consumer Electronics Market Need detailed instructions? Click here icon Search for Consumer Electronics Tell us what you're looking for, and let your Personal Agent immediately search for you! Category ☐ TV ☐ VCR ☐ Laser Disk Player ☐ Cassette Player ☐ Cassette Recorder ☐ Compact Disc Player ☐ Complete Stereo System ☐ Speakers ☐ Receiver ☐ Amplifier ☐ Tuner ☐ Game Systems ☐ Clock Radio ☐ Radio ☐ Accessories ☐ Component ☐ Portable ☐ Console Product Brand: Model: Location Merchant: City: Price Range From: Up to: Click here to specify additional features Click here to start looking *Fig. 40*

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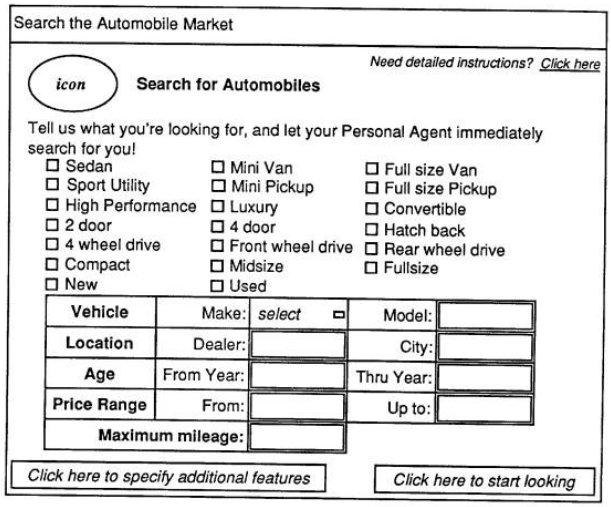
	PECKOVER, Fig. 41:  *Fig. 41*
Dow Jones Services References	*See*, *e.g. Dow Jones unveils new, unique knowledge indexing system* (April 17, 1997) ("Dow Jones Interactive Publishing today announced it has developed and implemented a sophisticated automated knowledge indexing system that will allow Dow Jones News/Retrieval(R) subscribers to get highly targeted results from one search in the services Publications Library, a compilation of more than 3,600 authoritative business sources."); *Personal Library Software Announces Release Of Dow Jones News/Retrieval Text Library* (June 12, 1995) ("Personal Library Software today announced that Dow Jones News/Retrieval(R) is the latest major online publisher to release a new service using the PLS search engine.")
U.S. Patent No. 5,710,884 ("DEDRICK PATENT")	DEDRICK PATENT, 11:22-34: In one embodiment, the software tools also provide an interactivity builder to allow the end user to interact with the electronic information. For example, the electronic information may be a content database that is analogous to the "yellow pages" of a phone book. The yellow page content database may contain a plurality of advertisements that can be viewed by the end user. The software tools may allow the publisher to build an object that allows the end user to search the contents of the content database. The software tools may also allow the publisher/advertiser to combine different types of information. For example, the publisher can combine video, audio, graphics, animation and text all within the same unit of electronic information provided to the end user.
U.S. Patent No. 6,374,237 ("REESE")	REESE, 1:22-30: Search engine servers have been developed to allow a user to transmit a request from a client to retrieve data. Search engines

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	rely on a user formulated query to retrieve data. In this case, a client transmits a request to a search engine server to search content sites (e.g., other servers) on the Internet for information based on user-selected "keywords." The search engine searches the web and retrieves data that matches the keywords, then transmits the matching data to the client. REESE, 7:47-52: Next, in step 930, the matching server receives a search request that includes a user profile from a client. In step 940, the matching server compares the data in the aggregate database to the user profile supplied by the client. The matching server then delivers the matching data to the client in step 950.
Another Search Engine? Hotwired Introduces Hotbot, Powered By Inktomi, PR Newswire, May 20, 1996 ("ANOTHER SEARCH ENGINE")	*See*, *e.g.*, ANOTHER SEARCH ENGINE, p. 1: "HotWired Ventures, a premier Internet media company, today introduced HotBot (www.hotbot.com), a unique search engine that indexes and searches every word on the World Wide Web. Powered by Inktomi's advanced parallel-processing engine, HotBot will change the way people search for and retrieve information on the Internet." ANOTHER SEARCH ENGINE, p. 1: "'The rules of the search engine game have changed. Internet users thought they'd get what they needed from traditional search engines, but they found the result to be thin on content, rigid in context, and often totally irrelevant,' said Andrew Anker, president and CEO of HotWired Ventures. 'Our quest to find a better search engine led us to Inktomi. By combining the best technology, the most relevant searches, and an innovative interface, we created HotBot -- a bigger, better, smarter way to search the Web.'" ANOTHER SEARCH ENGINE, p. 1: "Most search engines aren't keeping up with the tremendous growth of the Web. HotBot's underlying Inktomi engine indexes more than 50 million full-text Web documents plus Usenet and mailing-list archives, and its scalable architecture can match the growth of the Web." ANOTHER SEARCH ENGINE, p. 2: "HotBot includes a number of unique features. Users can get the most current information quickly, efficiently view and use that information, and interact with the search engine in a personal manner. Daily Updates: The HotBot spider crawls the Web every day, offering users the most current information. Reliable and Fast: HotBot's fault-tolerant engine reliably delivers query results in seconds, without frequent downtime. Convenient Previews: HotBot allows users to preview documents without leaving the search page, reducing search time. Personal Searching: The HotBot interface allows users to personalize their search engine to fit their own surfing style." ANOTHER SEARCH ENGINE, p. 2: "HotBot identifies, customizes, and ranks millions of Web documents using an algorithm developed by a

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	team of the world's leading experts in information retrieval. HotBot recognizes that users desire varying levels of information detail, so it allows users to control the amount and type of information searched. The computing power available to HotBot enables the user to define a search query using a wide range of criteria in a way that is not possible with more traditional search engines." ANOTHER SEARCH ENGINE, p. 1: Users can perform advanced queries within an interface that closely mirrors the progressive look and feel of HotWired's site, recognized worldwide as one of the most engaging, innovative sites on the Web. ANOTHER SEARCH ENGINE, p. 2: "Reliable and Fast: HotBot's fault-tolerant engine reliably delivers query results in seconds, without frequent downtime." ANOTHER SEARCH ENGINE, p. 2: " The computing power available to HotBot enables the user to define a search query using a wide range of criteria in a way that is not possible with more traditional search engines."
The 'Hottest' Search Engine," Business Communications Co., Vol. 3, No. 3, June 1996	*See*, *e.g.*, THE 'HOTTEST' SEARCH ENGINE, p. 1: "HotWired Ventures (520 3rd St., San Francisco, CA 94107) has introduced HotBot (http://www.hotbot.com), a new search engine that indexes and searches every word on the World Wide Web, powered by Inktomi's advanced parallel-processing engine." THE 'HOTTEST' SEARCH ENGINE, p. 1: "HotBot is touted as 'a bigger, better, smarter way to search the Web.' It allows users to attain extremely fast, high quality search results without the need to learn complex query languages. HotBot's underlying Inktomi engine indexes more than 50 million full-text Web documents plus Usenet and mailing-list archives, and its scalable architecture can match the growth of the Web. The closest competitor, Alta Vista, currently indexes approximately 30 million Web pages and its traditional, single machine architecture is limiting their ability to grow." THE 'HOTTEST' SEARCH ENGINE, p. 1: "The computing power available to HotBot enables the user to define a search query using a wide range of criteria in a way that is not possible with more traditional search engines. HotBot can also be reached by clicking on the HotBot icon on HotWired (http://www.hotwired.com)." THE 'HOTTEST' SEARCH ENGINE, p. 1: "It allows users to attain extremely fast, high quality search results without the need to learn complex query languages."
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, 8:21-24: Messages are information provided by the user or the network and are used in fields defined within the constructs of an object, and are seen on the user's RS monitor 412, or are used for data processing at RS 400. FILEPP, 15:52-57:

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	Further, DIA provides common data structure between applications run at RS 400 units and applications that may be run on external computer networks; e.g. Dow Jones Services, accessed through gateway 210. As well, DIA provides support for utility sessions between backbone applications run within network 10. FILEPP, 20:59-21:18: The Jump command 296 as seen in FIG. 3a, can be selected, by the user from command bar 290. When Jump command 296 is selected, a window partition 275 is opened. In window 275, the user is presented and may select from a variety of displayed options that include among others, the Directory command, the Index command, and the Guide command, which when selected, have the effect noted above. Additionally, the user can select a command termed Viewpath which will presents the keywords that currently make up the list of keywords associated with the user's Path command, and from which list the user can select a desired keyword. Still further, and with reference FIG. 11, which shows the sequence where a user offers a term to identify a subject of interest, the user may enter a keyword at display field 270 within window partition 275 as a "best guess" of the mnemonic character string that is assigned to a partitioned application the user desires (e.g., the user may input such english words as "news," "pet food," "games," etcetera). Where the user enters a character string it is displayed in field 270, and then searched by RS 400 native code (discussed below) against the sequence sets above noted to identify the object-id for the appropriate table of keywords (not shown) that RS 400 may request from host 205. While as noted above, a table may include 10 to 20 keywords, in the preferred embodiment, for the sake of speed and convenience, a typical keyword table includes approximately 12 keywords. FILEPP, 21:35-49: If after selecting the Jump command, the user selects the Index command, RS 400 will retrieve the keyword table residing at RS 400, and will again build a page with initialized, cursorable fields of keywords. The table fetched upon invoking the Index command will be comprised of alphabetic keywords that occur within the range of the keywords associated with the page template object (PTO) from which the user invoked the Index command. As discussed above, the user may select to navigate to any of this range of PTOs by selecting the relevant keyword from the display. Alternatively, the user can, thereafter, select another range of alphabetical keywords by entering an appropriate character string in a screen field provided or move

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	forward or backward in the collection by selecting the corresponding option. FILEPP, 21:50-64: By selecting the Directory command, RS 400 can be caused to fetch a table of keywords, grouped by categories, to which the PTO of the current partitioned application (as specified by the object set field 630 of the current PEO) belongs. Particularly, by selecting the Directory command, RS 400, is causes to displays a series of screens each of which contains alphabetically arranged general subject categories from which the user may select. Following selection of a category, a series of keywords associated with the specified category are displayed in further screens together with descriptive statements about the application associated with the keywords. Thereafter, the user can, in the manner previously discussed with regard to the Index command, select from and navigate to the PTOs of keywords which are related to the present page set by subject. FILEPP, 21:65-22:21: The Guide command provides a navigation method related to a hierarchical organization of applications provided on network 10, and are described by a series of sequentially presented overlaying windows of a type known in the art, each of which presents an increasing degree of detail for a particular subject area, terminating in a final window that gives keywords associated with the relevant applications. The Guide command makes use of the keyword segment which describes the location of the PTO in a hierarchy (referred to, in the preferred embodiment, as the "BFD," or Building-Floor-Department) as well as an associated keyword character string. The BFD describes the set of menus that are to be displayed on the screen as the sequence of pop-up windows. The Guide command may be invoked by requesting it from the Jump window described above, or by selecting the Menu command on Command Bar 290. As noted above, in the case of the Guide command, the PTO and object-ids for the application entry screen are directly associated with the graphic of the keyword presented in the final pop-up window. This enables direct access of the application entry screen without need to access the sequence set and keyword table, and thus, reduces response time by reducing the number of objects that must be processed at RS 400. FILEPP, Fig. 3a:

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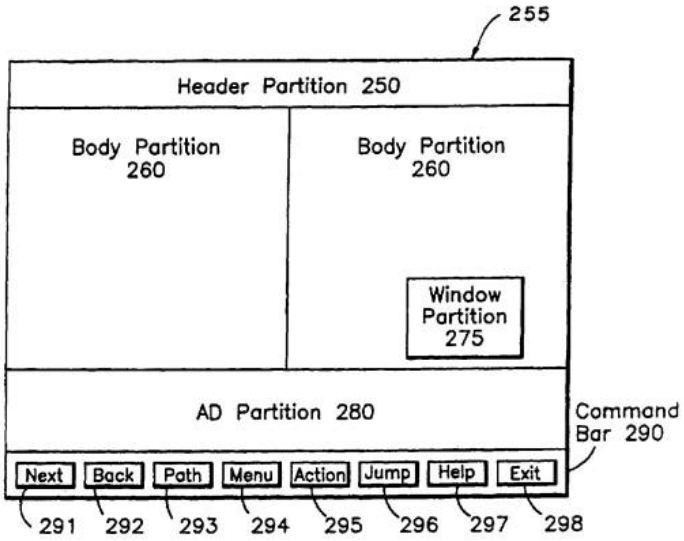
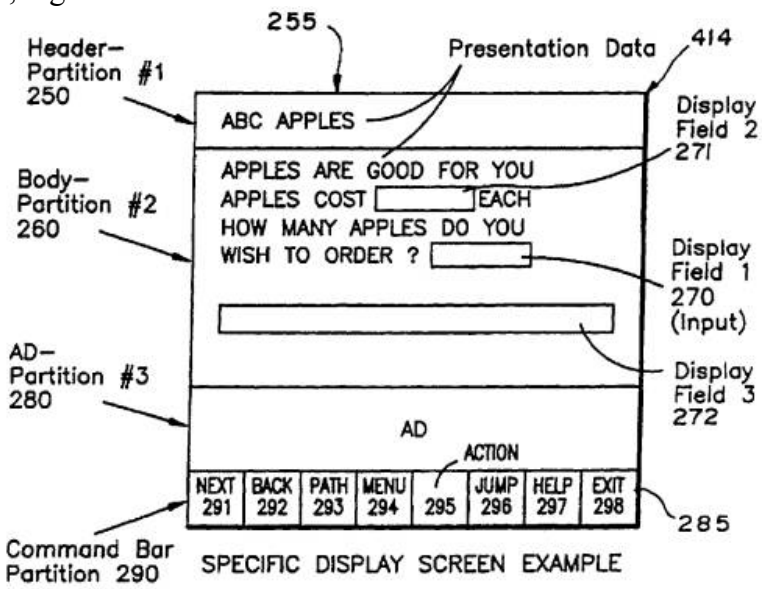
	 FIG. 3a FILEPP, Fig. 3b:  FIG. 3b
Knoblock, Craig; "Searching the World Wide Web," in IEEE	*See e.g.,* KNOBLOCK, "SEARCHING THE WORLD WIDE WEB," IEEE EXPERT[1], at 8 ("the Lycos search engine comprises the Lycos Catalog of the Internet and the Pursuit retrieval program); *id.* ("In July 1994, its developer added the Pursuit retrieval engine to allow user searching

[1] References to Knoblock are to Knoblock, Craig; "Searching the World Wide Web," in IEEE Expert.

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Expert. ("KNOBLOCK")	of the Lycos catalog."); *id.* at 10 ("the final step is to process queries from individual users and to return lists of links to matching documents.")
World Wide Searching for Dummies, by Brad Hill, IDG Books Worldwide, 1996. ("DUMMIES")	*See e.g.,* DUMMIES, CHAPTER 5 (describing how Yahoo!'s search engine operates); *id.*, p. 78 ("You can begin searching with Yahoo! with just three simple steps: 1. Go to the main Yahoo! Web page (see Figure 5-1) by entering this URL in your Web browser: http://www.Yahoo.com/ . . .2. Type a keyword, or more than one, in the Search form. 3. Click on the Search button next to the keyword form. . . . Within a second or two, a new page (called Search Results) appears on your screen, displaying (Surprise!) the search results. . . . Yahoo! deluges you with only 25 results per page."); *id.*, p. 85 ("The best place to begin a keyword search in Lycos is at the Lycos directory, called a2z (see Figure 6-1). To begin using Lycos keyword searches right away, you need to follow a few basic steps: 1. Direct your Web browser to the a2z page by using the URL shown previously. 2. Type a keyword, or more than one, in the Find box. Click on the Go Get It button."); *id.* ("After you click on the Go Get It button, Lycos searches the default database—the Lycos catalog database. In a few seconds, you see the results page, which displays links to all the sides that match your keywords."); *id.*, p. 99 ("Use more keywords. If you're looking for sites about cars, add the names of the actual automobile models, manufacturers, and years. Use the match all terms (AND) Search option. Combined with more keywords, this option narrows the results drastically."); *id.*, p. 101 ("Enter the Excite search engine, offering a blissful promise: Just tell it in plain English what you want, and it will find it for you."); *id.*, p. 102-103 ("The Excite home page is the starting point for concept-based Web searches. You get there by entering this URL into your Web browser: http://www.excite.com/. . . 1. Place your cursor in the keyword form and click once. 2. Type either a single keyword, more than one keyword, or a simple phrase describing what you want to find. . . 3. Click on the Search button, which is next to the keyword form."); *id.*, p. 102 ("A few seconds after you click on the Search button, you see the Query Results page, which lists your hits (see Figure 7-2). At this point, Excite has found Web sites that match any one (or more) of your keywords. Excite presents the sites that match your keywords in the order that the Excite search engine determines is most useful."); *id.*, p. 104 ("You can have Excite sort the Query Results page in two ways: Sort by confidence: This setting is the default. Your first search will sort the results this way, with the most confident links (presumably the most relevant and useful) at the top. What does *confidence* mean, exactly? Excite has a certain amount of confidence in the matches it gives you, based on how many of your keywords it matches, how many times each word is matched, and

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	other criteria known only to Excite. . . . Sort by site: When you choose this option, the confidence rating scheme is scrapped in favor of listing the matched Web sites in a directory style. Individual Web page links are grouped under the home page to which they belong (see Figure 7-3). In this fashion, you can see at a glance when multiple links all belong to a single, inclusive site."); *id.*, p. 106 ("Even though Excite features its ability to understand phrase concepts and search on them, it also accepts run-of-the-mill keywords. The default setting is to search by concept. Change this setting by clicking on the small arrow next to the second search option, and selecting the by keyword option. Excite will then take a more literal approach to the words you enter."); *id.*, p. 155-158 (describing how WebCrawler's search engine operates.); *id.,* p. 155-156: "Above the keyword search form are two other forms that give you some choice in how the results are presented: . . .Summaries or titles . . . Number of hits. . .")
WO9721183to Naqvi ("NAQVI WO")	*See*, *e.g.*, NAQVI WO[2] at Abstract - "The advertisements on the server are not tied to any particular page containing information on the network, but rather, are retrieved in response to a query entered by the user (17)" NAQVI WO, p. 2 – "That is, when a user uses certain search engines for conducting a search, the user will be shown advertisements while doing the searching." NAQVI WO, p. 4 – "The present invention provides a new process and system for online advertising. This new process will be referred to throughout this application as query-based advertising ("QBA"). In the QBA process, advertisements are primarily triggered by user queries. User queries, as 15 used herein, refer to requests from an information consumer for one or more pages of information from a computer network. As a result of a query, a user is exposed to advertisements with the present invention, i.e., the query triggers advertisements." NAQVI WO, p. 5 - "When the user requests a certain page or a certain topic of information, the relevant pages are retrieved from the computer network and shown to the user. The present invention, upon receiving the user's request, retrieves advertisements that are related to the user's action, dynamically mixes the advertisements with the content of the pages according to a particular layout, and displays

[2] References to "NAQVI WO" are to WO9721183 to Naqvi et al. .

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	the pages with focused, targeted advertisements as a part of the page. The advertisements can be made to satisfy a set of constraints requested by the advertiser, as well as the constraints of the publisher of the page, as further discussed below. The advertisement triggering mechanism of the present invention is not random or coincidental, but rather, is prespecified in advance. This specification will be referred to in this application as a contract. A contract specifies the marketing rules that link advertisements with 20 specific queries. For example, a diet soft drink advertisement may be shown when a user asks for a page about exercising equipment. These rules are specified by advertisers implementing the concept of "focus" or "relevance" of advertisements and help the advertisers to 25 target a specific audience. Owners of pages specify the focus content of their pages through special tags within a page. These tags are not displayed to the information consumer; the tags are used to decide what advertisement can be shown when the page is requested by a consumer." NAQVI WO, p. 15-16 – "Initially, a user requests a particular piece of information through one of the clients 17. The user's 10 request is given to the WWW Daemon 16, which passes the information to the gate 15. The gate 15 at this point decides what piece of information is being requested by the user and finds other relevant pieces of information that can be commingled with what the user has asked. The user, 15 for example, might ask the system to see certain car dealers, to find a phone number of a car dealer, or to get a page of a particular magazine. The gate 15 at this point gives the request to the matching rule engine 18 ("MRE"). The purpose of the MRE 18 20 is to look at the content of the user's query and to find a category within its active index SIC 19 that matches the same type. If the user has asked for car dealers, the MRE 18 invokes its rules to determine that car dealers are part of a class of things relating to transportation. Based on 25 the classification determined by the MRE 18, the system now knows that the user is asking about cars or about transportation or about whatever else that the user might be interested in. The MRE 18 at this point then returns to the gate 15 30 the category index of the user's query. If the user had asked about cars or about family sedans or about sports cars, at this point the MRE 18 would have figured out that the user's interest falls into a certain category. Based

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	on the user's interest category, the system then retrieves the advertisements that are relevant to that category. Thus, the purpose of the MRE 18 is to figure out what the 5 user requested, to place the user's request in a category of a classification system (i.e., the active index SIC 19) and, based on that classification, to retrieve relevant advertisements." NAQVI WO, p. 21-22 – "The information brokers or content providers shown in Fig. 1 include a home page dispatcher 25, a search engine 5 INFORMIX 26, and a generic HTML 27. For purposes of the present invention, it is assumed that there are three broad classes of publishers that can utilize the advertising features of the present invention. A "publisher" can include virtually anyone that provides content to the 10 network. For example, anyone who is a home page owner is a publisher in the category shown as Generic HTML 27. A second kind of publisher is the search engine publisher 26, which includes phone company yellow page providers, such as NYNEX. And a third kind of publisher is the so-called home 15 page dispatchers, which include traditional magazines and newspapers, such as Business Week. … The second kind of publisher that the present invention is used with is the search engine publisher 26. Currently, there are many companies on the WWW that permit 30 users to query their database and then return a set of answers from the database to the user. For example, a telephone company may have a site that allows a user to obtain a set of phone numbers and business names for a particular type of business (i.e., a yellow page directory) . For purposes of the present invention, the search 5 engine publisher 26 is distinguished from the home page dispatcher 25 in the sense that the content returned by the search engine publisher 26 does not contain any special tags or meta comments put in by the publisher to define the layout of the content and the ads. In this case, the 10 layout manager 10 of the present invention computes the optimum layout based upon the rules and layout templates, as described above. The final result, therefore, is that output is taken from the search engine publisher 26,

Reference	Disclosure
	adorned with certain relevant advertisements, and then shown to the users." NAQVI WO, p. 34 – "To start (step 80), the user enters a query. For example, the user may enter restaurants or cars as a query. The query has a focus, as described above. The system determines what the focus is and, as described above, the system provides the user with a list of categories that relate to the query. For example, if the user requests restaurants, the user might be shown a list of restaurant types, such as Chinese, American, French, Italian, and so forth. The query entered by the user is evaluated by a query form manager (step 81) to determine the focus of the query." NAQVI WO at Claims 1, 2, 4 Figures 1, 2, 7, 8B, 10, 11 (and associated text)
U.S. Patent No. 5,901,287 to Bull et al. ("BULL")	BULL at Col. 3 - "The user is presented with a variety of search, display and output options. The search options include: 1) Search using keywords or combinations; 2) Use of complex software text search agents that have been predefined by the information aggregation and synthesization system site operators. These agents take advantage of the expansive subject matter expertise in understanding which search parameters will best serve the user's search needs; 3) Use of search patterns and agents from this user's previous sessions, perhaps expanded by available specials and promotions; 4) Natural Language Query; and 5) Some combination of 1), 2), 3) and 4). During a user session or when a user completes a session, the user's looking activity is analyzed for patterns, preferences and trends and the proile annotated or updated so that when they next use the information aggregation and synthesization system, the nominated searches will be custom ized to their individual desires." BULL at Col. 6 – "A theme or definition of a class of information (e.g., central California travel and tourism or new automobiles) is identified. Data sources (Local DataStores (500 . . . N) and Network Accessible DataStores (300 . . . N)) are screened for relevance, quality of information and appropriateness (or may be included de facto based on their title or description). These are indexed using a text indexing software tool 2981 and the indices stored on the system index DataStore 220. An initial set of Preestablished Software Text Agents are

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	defined. These agents are words or combinations of words that form a word based search pattern. This initial set of agents is relevant to the searches that might be performed against the class of information that was indexed. (i.e., Agents about automobiles would be developed to search a class of indexed information about new cars). These are stored in the Preestablished Software Text Agent DataStore 231. The System 200 uses any multipurpose computer central processing units with the ability to handle multiple inputs and outputs with the necessary hard disk storage and to run World Wide Web (WWW) or other network server software." BULL at Col. 7-8 – "The user is also presented with browsing options based on: activity from a previous session in the browsing activity datastore 240; predeveloped software text agents and personalized software text agents (developed in the Post Session Activity) stored in the Personal Search Text Agent DataStore 232; or combinations of all as well as situational opportunities developed by the user greeting subsystem 291. The user selects the search options to be used (or simply enters search criteria directly). This search criteria is used to search the index datastore 220 and a list of data sources is presented to the user for selection. The user indicates the information to be viewed. The user will also be presented with options to refine his search through the altering of search agent criteria (Search Reduction System 293)." BULL at Col. 12 – "Certain criteria will be entered which delineates a pattern that is requested to be monitored. When this pattern is seen (or is in close match) in the user's WWW activity, the insertion mechanism is activated. If a certain web page is requested, the present invention will display a particular advertisement. The ad will be inserted based on the content of the existing web page being read. An analysis of the text stream of the user's interactive session will be performed online. When certain text patterns are observed (or close matches are observed), an advertisement is inserted into the display. The advertising may be static or connected to the adver tiser's computer datastore which designates specific ads or coupons based on the pattern match and other conditions which may be required. The software agent criteria is entered by the merchant in the agent data store 230 which delineates a pattern that needs to be monitored. As an example, if the user accesses web pages for

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	"Holiday Inns on the West Coast", the insertion mechanism Would be established to automatically insert ads for "Hilton Inns on the West Coast.""" BULL at Figs. 1 - 7 (and associated text)
HealthGate	BUSINESS WIRE at 2 - "After entering a query, HealthGate's search engine will display to users the most relevant titles of articles."
InfoSeek	QUINT[3] at 1: Identifying InfoSeek as a search engine. QUINT at 1: "InfoSeek Search, introduced in February 1995, offers subscribers full-text searching of over 400,000 pages on the World Wide Web (WWW), the last four weeks of over 10,000 Usenet newsgroups, articles from over 100 computer publications, and articles from the major wire services. InfoSeek also has databases of health articles, book and movie reviews, and technical support information." QUINT at 3: "Kirsch: We have several databases, one in each subject area. We do that for reasons of usability, speed, and superior precision/recall. Our WWW collection contains 1.5 bytes of data and it's currently the largest collection of WWW pages on the Net. Our Usenet collection has over 4,000,000 articles and it's also the largest single collection of searchable information about the Internet and computer-related topics." PRNEWS [4] at 1: "Major engines—including Alta Vista, Excite, Infoseek, Lycos, Yahoo! and WebCrawler—use a dataset indexed by the spider to provide a set of related sites." FROOK[5] at 1: "These advertisements work by delivering a sales pitch along with the results of a key-word search on a search engine. For example, a user searching under the subject "cars" might receive a Web ad for Genetal Motors Corp. or Chrysler Corp., while a search for

[3] References to QUINT are to Barbara Quint, "An Internet 'virtual library' builder: Steve Kirsch, president, CEO, InfoSeek Corporation," Business & Company Resource Center (July-Aug 1995).

[4] References to PRNews are to PRNews, "Make Sure Search Engines Find Your Site," May 6, 1996.

[5] References to Frook are to John Evan Frook, "Web marketing push," Communications Week (Oct. 9, 1995)

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	modems might delivervan ad for online computer superstore NECX Direct.
Open Text Index	CNET[6] - "Open Text is offering to help those publishers by allowing them premium slots in its search engine without requiring them to buy more expensive advertising banners. Under the company's Preferred Listing [http://www.opentext.com/omw/preferred_c.html] service, a merchant that sells personal computers online, for example, could ensure that its Web site appears as the top listing in searches for the terms *PC* and *computer.*" FAIN[7] - "Paid search reconciled this dilemma by tying the search engine's revenue to the act of transferring the user to an advertiser's site. In 1996, the search engine Open Text briefly offered ***preferred listings,*** in which sites would pay to be inserted into the search result set for particular keywords." WWW SEARCHING FOR DUMMIES[8] at 109-118 – The Open Text Web searching site is aptly named, because it treats the entire World Wide Web like a gigantic cauldron of words. With the Open Text tools, you can search the Web for keywords as if it were a single immense text file. Open Text also shows that it has some smarts: It allows you to refine your search by narrowing it to certain portions of Web sites, such as the summaries, titles, or URLs. That feature may seem like Nobel-quality intelligence, but it sure comes in handy when you're trying to find the perfect *Star Trek* site (which is a big concern for most Nobel laureates). Power and friendliness are nicely blended in Open Text. You can use keyword operators, but you don't have to know much about them -- the system makes it all clear with drop-down lists that are built into its Web page. All in all, Open Text has emerged as a major searching service. Just keep reading along to find out how to use it. . . "
"Make Sure Search	PR NEWS at 1: "a Web user looking for Time Warner Inc.'s home page

[6] CNET refers to "Engine sells results, draws fire," CNET (June 21, 1996)

[7] Fain refers to Daniel C. Fain and Jan O. Pedersen, "Sponsored Search: A Brief History," Bulletin of the American Society for Information Science and Technology (Dec./Jan. 2006

[8] WWW Searching for Dummies shall refer to Brad Hill, "World Wide Web Searching for Dummies," IDG Books Worldwide, Inc. (1996)

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Engines Find Your Site," PR News, May 6, 1996 ("PR NEWS")	by entering the query term 'Time Warner' in a search engine may find the right site buried beneath many other sites" *Id*. at 1: "Time Warner could thus ensure that anyone who enters the term 'Time Warner' will see its home page or ad at the top of the search results." *See also, e.g.* PRNEWS ("Major engines—including Alta Vista, Excite, Infoseek, Lycos, Yahoo! and WebCrawler—use a dataset indexed by the spider to provide a set of related sites."); *id.*, ("…users must learn more about query techniques to define a search. Alta Vista and WebCrawler offer their users tips on searching."); *id.* ("[S]earch engines like WebCrawler and InfoSeek use 'spiders' or 'robots' to index the Web. These programs automatically search the Web by indexing one page and then indexing all documents that are hyperlinked to it.")
"Ubiquitous Advertising on the WWW: Merging Advertisement on the Browser," *Computer Networks and ISDN Systems*, Vol. 28, Nos. 7-11, pp. 1493-1499 (May 1996), *available at* http://www.ra.ethz.ch/CDStore/www5/www370/overview.htm ("KOHDA '96")	KOHDA '96, §1: "An advertising agent is placed between the advertisers and the users. Advertisements fetched from advertisers' Web servers are merged with Web pages from ordinary Web servers by the agent, and the merged pages are displayed on the users' Web browser. Thus, the users see advertisements on any server around on the Internet. Moreover the agent has chances to deliver appropriate advertisements which suit each user's taste." *Id*., §2.2: "When a user clicks an anchor on a page displayed on the browser, the browser contacts the Web server and returns a Web page designated by the anchor. Simultaneously, the browser contacts the advertising agent's Web server. The agent's Web server returns a Web page of one of its advertisements. Then the browser merges those returned Web pages, and displays a composite page on the screen." *Id*., §3.1: "At invocation, environment information is passed to each filter program as invocation parameters. The environment information includes at least the identity of the user and information about the selected anchor. The contents of a Web page designated by the anchor are input into the pipe of filters, and the output from the pipe is displayed on the browser's window as an HTML document." *Id*., §3.2: "The filter keeps in memory the contact path (URL) to the agent's Web server. When it is invoked, it forwards the invocation parameters passed from the browser to the agent's Web server, and waits for a reply."

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Kohda U.S. Patent No. 7,136,853 to Kohda et al. ("KOHDA '853")	KOHDA '853 at 4:32-42: "The information providing method according to the present invention is used to provide information through an information communications network, and comprises the steps of receiving the first information from a contract user through the information communications network; selecting a piece of advertising information from among plural pieces of stored advertising information according to the first information; and transmitting the selected advertising information to the user through the information communications network." *Id*. at 15:30-45: "In response to the [user] request, the information retrieving server 101, which is a WWW server, retrieves its own information and transmits the retrieved information 106 specified by the information retrieving apparatus 100 to the information retrieving apparatus 100 in the format of an HTML document. ... Then, after a request to obtain the above described retrieved information, the advertising function 104 in the information retrieving apparatus 100 requests the information server 102 specified by the information server specifying unit 42 to retrieve the additional information specified by the additional information specifying unit 42." KOHDA '853 at 6:37-42: "When retrieved information acquisition data is input to an input/output unit 1 in the information retrieving apparatus 100, the retrieved information obtaining unit 3 obtains object retrieved information from an information retrieving server according to corresponding retrieved information acquisition data." KOHDA '853 at 6:56 to 7:3: "The user inputs data for use in obtaining requested retrieved information (for example, articles from a newspaper relating to a specified item) through the input/output unit 1. Then, the information retrieving apparatus 100 obtains the retrieved information from the information retrieving server through the retrieved information obtaining unit 3, automatically obtains additional information such as advertising information from the information server through the additional information obtaining unit 4, incorporates the obtained information into the retrieved information obtained from the information converting unit 2, and outputs the result on a display unit." *Id*. at 9:19-42: "The retrieval condition input unit 11 is used to input data when the user requests to retrieve data and obtains retrieved information. ... The retrieval conditioning input unit 11 can be a text input devices such as a keyboard, etc. In this case, the user inputs the data to the retrieval condition input unit 11 by directly inputting the data using a keyboard, etc."

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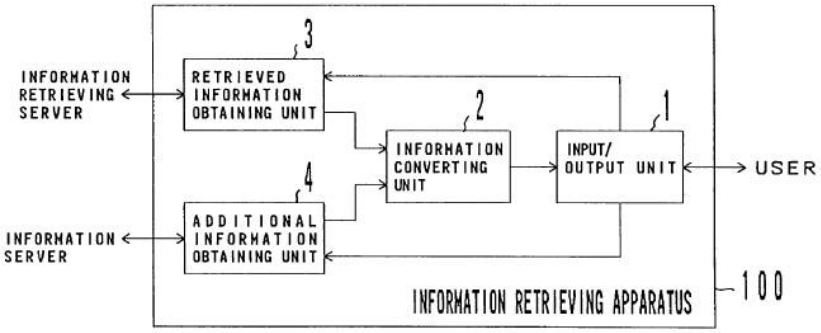
	Id. at 6:56 to 7:3: "The user inputs data for use in obtaining requested retrieved information (for example, articles from a newspaper relating to a specified item) through the input/output unit 1. Then, the information retrieving apparatus 100 obtains the retrieved information from the information retrieving server through the retrieved information obtaining unit 3, automatically obtains additional information such as advertising information from the information server through the additional information obtaining unit 4, incorporates the obtained information into the retrieved information obtained from the information converting unit 2, and outputs the result on a display unit." Fig. 1:  FIG. 1
Fox, et al., "Users, User Interfaces, and Objects: Envision, a Digital Library," *Journal of the American Society for Information Science*, 44(8):480-491, 1993 ("FOX 1993")	FOX 1993, p. 484 ("The Envision user interface will run as a client process on a user's desktop computer, communicating with the Envision retrieval system via network."); *id.*, ("Our interface specification calls for separate windows or groups of windows for each of the major phases or types of interaction with the Envision system. These include: Query window (with four query fields and a query history); Search Results Windows (Graphic View, Item Summary, Item Preview); and Browsers."); *id.*, p. 484-85: "The Query Window has two categories of use: New queries are created and searches performed from this window."); *id.*, p. 485 "The Query Window offers a user three ways to create new queries: By entering document descriptors in four new query fields for authors, title words, words related to content, and words found in other parts of the document as specified by a pop-up menu labeled 'Special Query.' By editing earlier queries. By combining results of previously completed searches, using set operations."); *id.*, p. 485 ("When creating a new query or editing an old one, the user may make changes in addition to or instead of simply editing the text in the four fields. Other options

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	include changing the matching types (explained further below) used for each field, changing the relationship among fields, and changing filters that restrict search results."); *id.*, p. 487 ("Central to the search results display design is the concept of viewing each document (item) as a node within the Envision database graph and representing the document graphically as an icon. Results of a search are presented in a Graphic View Window as a scatterplot of icons.")
Fox, Chen, and France, "Integrating Search and Retrieval with Hypertext", 1991. ("FOX 1991")	*See e.g.*, FOX 1991, p. 333 ("In the area of library information retrieval, the Z39.50 standard has been developed so that a user of one library system can cause that system to have a query processed on another system, and then indirectly receive the search results."); *id.*, p. 339 ("Many people are familiar with keyword-based search approaches . . . , in which the reader searches for a particular string of characters in a database or uses entries from a *controlled* vocabulary for searching.")
"Short History of Early Search Engines," available at www.thehistoryofseo.com/The-Industry/Short_History_of_Early_Search_Engines.aspx. (SHORT HISTORY)	*See e.g.,* SHORT HISTORY (identifying search engines)
Pinkerton, "Finding What People Want: Experiences with the WebCrawler", Second International WWW Conference, 1994. (PINKERTON)	PINKERTON, ABSTRACT ("The WebCrawler indexes both document titles and document content using a vector space model. Users can issue queries directly to the pre-computed index or to a search program that explores new documents in real time. The database the WebCrawler builds is available through a search page on the Web."); *id.*, p. 2 ("Users . . . can run the WebCrawler client itself, automatically searching the Web on their own"); *id.*, p. 4 ("To find an initial list of similar documents, the WebCrawler runs the user's query against its index."); *id.*, p. 5 ("Users enter keywords as their query, and the titles and URLs of documents containing some or all of those words are retrieved from the index and presented to the user as an ordered list sorted by relevance.")
"Search-Engine Advertising; Web Marketing Push" by John Evan Frook in *Communications Week*, October 9, 1995. (FROOK)	*See e.g.*, FROOK, p. IA11 (describing Yahoo! as a search engine.); *id.* ("Yahoo Corp. unveiled an alliance with Open Text Corp. to add search functions to its Internet directory.")
"What Hath Yahoo Wrought," by John W.	*See e.g.*, VERITY (identifying search engines)

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Verity, *Bloomberg Businessweek*, February 11, 1996 (VERITY)	
Sullivan, "Where Are They Now? Search Engines We've Known and Loved," available at http://searchenginewatch.com/article/2064954/Where-Are-They-Now-Search_Engines-Wev.. (SULLIVAN)	*See e.g.*, SULLIVAN (identifying search engines)
The Internet Advertising Report, Mary Meeker, Morgan Stanley, December 1996 ("MEEKER")	MEEKER at 6-6: "Search engines, by definition, use text input by users to conduct searches of relevant content on the Web. Since advertisements are displayed along with the search results, these companies allow advertisers to buy "key words," which display the advertiser's banner when a user searches for the word purchased. It follows that the word or words purchased are generally related in some way to the advertiser's products or services. Infoseek and Yahoo! charge $1,000 per month per keyword, and based on a target of 20,000 impressions, this would yield a CPM of $50. For example, Figure 6-3 shows how the results of a search for the word "router" yielded a typical list of sites but also netted an advertisement for Cabletron Systems (a maker of switches, considered an alternative to routers). In fact, any time this word was searched for, the same ad came up. A search for "hub" consistently resulted in a different ad for the same company. (Yes, we searched for "beer," and each time we got a Miller Genuine Draft ad)."
Rick Dedrick, *Interactive Electronic Advertising*, IEEE 1994 ("DEDRICK 1994")	*See e.g.*, DEDRICK 1994, p. 59 ("All consumers having access to the local electronic yellow pages can search these yellow pages . . ."); *id.*, p. 60: "Other included data may include key words and other variables used by consumption agents to go out on the network and find both electronic content and electronic advertisements that have a certain "hit-rate" when matched against a consumer's profile."); *id.* ("Acting upon the consumer's personal profile data, an agent might send out queries to electronic yellow pages service providers, either locally or with a wider scope of interest.")
Rick Dedrick, *A Consumption Model for Targeted Electronic Advertising*, IEEE 1995 ("DEDRICK 1995")	*See e.g.*, DEDRICK 1995, p. 44 ("All consumers having access to the local electronic yellow pages can search these yellow pages . . ."); *id.*, p. 46 ("Acting upon the consumer's personal profile data, an agent might send out queries to electronic yellow pages service providers, either locally or with a wider scope of interest.")
Katherine Gallagher and Jeffrey Parsons, *A*	*See e.g.,* GALLAGHER, p. 2 ("In this paper, we restrict our discussion to banner advertising that appears in the course of users' browsing and

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Framework for Targeting Banner Advertising on the Internet, Proceedings of the Thirtieth Annual Hawwaii International Conference on System Sciences, 1997 IEEE ("GALLAGHER")	searching activities on information services, such as Yahoo! (http://www.yahoo.com) and Excite (http://www.yahoo.com), that provide an entry point to Internet resources.")

Table B2: Searching Another Database for Advertisements.

To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B2, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B2 references listed below because: it would have yielded predictable results; using the techniques of the Table B2 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B2 references to improve primary or obviousness references would have yielded predictable results.

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U.S. Patent No. 6,119,101 ("PECKOVER")	*See*, *e.g.*, PECKOVER, 11:23-24: Consumers use search engines that have data that is more up-to-date. PECKOVER, 12:11-12: Information used by both consumers and providers is more up-to-date. PECKOVER, 17:6-10: Various specialized agents are described in conjunction with other Figures. Agents and other components operating in Agent Marketplace 28 have access to a Product Database (Product DB or PDB) 32. PECKOVER, 21:57-61: A Query 106 describes the product or product category for which to search. Query 106 includes data from Product Template 174 completed by the consumer and relevant data from the consumer's preferences, as assembled by Decision Agent Factory 76 of the consumer's Personal Agent 12. PECKOVER, 23:17-20: A Product Listing function 124 maintains a list of the products that can be advertised in this market. Each product references detailed product data that is kept in a Product Database (PDB) 32 described in conjunction with FIG. 9A. PECKOVER, 23:43-47:61: An Active Ads function 146 maintains the ads that are currently active. As each new add is accepted by Active Ads function 146, an Active Decision Agent Manager 152 (see below) is notified so that pending searches can be matched against the new advertisement. PECKOVER, 24:53-61:

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	A Template Dispenser function 134 retrieves the Product Template 174 for a particular product. Product Template 174 describes the data that is available within the system about the particular product. Personal Agents 12 or 13 use the Template Dispenser 134 when consumers or providers are constructing ads or product search queries. Template Dispenser 134 consults the Product Template Manager 170 in a Product Database 32 (described in conjunction with FIG. 9A) to collect the template data. PECKOVER, 25:10-36: A Remote Database Adaptor 140 provides communication and session management services to connect to a database (a "remote database", not shown) belonging to a manufacturer or a provider. Remote Database Adaptor 140 also provides translation services to translate between the data formats used by a remote database and the data formats used by PDB 32. Remote Database Adaptor 140 allows a provider to submit ads directly from the provider's remote database into Market 18. Remote Database Adaptor 140 also allows access "by reference" to advertisement data that remains stored in a remote database; that is, the data is not copied into Agent System 10, but is accessed as needed. Market 18 includes a Remote Database Adaptor 140 for each provider that chooses to supply ads in this manner; alternatively, a provider uses various functional components accessed via provider's Personal Agent 13 to place ads manually. PECKOVER, 25:36-57: Referring to FIG. 9A, a Product Database 32 (PDB) comprises functional components: a Database Administration function 166, a Product Data Storage function 168, a Product Template Manager function 170, and, (optionally) some number of Remote Database Adaptors 172. PDB 32 maintains generic data about products, to be referenced by ads placed by providers. Although PDB 32 is illustrated here as a single database (with several internal components) for ease of understanding, the contemplated PDB 32 will be split across several processors 38, as illustrated previously in FIG. 3A. Referring to FIG. 9A, a Database Administration function 166 provides conventional add, delete, update, query, and backup access for a System Administrator user to the other components of PDB 32. A Product Data Storage function 168 stores data about

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	different products, for example, product name, product model number, manufacturer's suggested retail price for product, etc.
U.S. PATENT NO. 5,999,912 ("WODARZ")	*See*, *e.g.*, WODARZ, 3:17-37: The invention also makes use of a list or database of ads that are candidates for insertion at each ad location specified by ad tags. Following is an example of a table of ads that could be used to fill positions defined by ad tags: TABLE 1 Ad Number | Advertiser | Type | Image | Link A | Tracer | 0 | tracer.gif | http://www.tracer.com/ B | Netscape | 0 | ns.gif | http://www.netscape.coml C | Budweiser | 0 | bog.gif | http://www.bud.weiser.corn/ D | Tracer | 1 | huf.gif | http://www.tracer.com/ Type 0 = banner, type 1 = button, and type 2 = special. In the preferred embodiment, a second table is used to associate ad tag locations with ads. The table may be, for example, a simple two-dimensional matrix where ad tag locations are matched to acceptable ads. However, other means of linking ad tag locations to ads can be used, such as be expanding TABLE 1 to include a column of associated ad tag locations.
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, 1:17-32: This invention relates generally to a distributed processing, interactive computer network intended to provide very large numbers of simultaneous users; e. g. millions, access to an interactive service having large numbers; e.g., thousands, of applications which include pre-created, interactive text/graphic sessions; and more particularly, to a method for presenting advertising to service users during interactive sessions, the method featuring steps for presenting advertising concurrently with applications, the advertising being organized as data which is stored for presentation and replenished at the user sites so as to minimize interference with retrieval and presentation of application data; the method also featuring steps for individualizing the advertising presented based on user characterizations defined by service interaction and/or other data such as user demographics and geographical location. FILEPP, 10:7-27: Individualized queues of advertising object ids are constructed based upon data collected on the partitioned applications that were accessed by a user, and upon events the user generated in response to applications. The data are collected and reported by RS 400 to a data collection co-application in file server 205 for later transmission to business system 130. In addition to application access and use characteristics, a variety of other

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	parameters, such as user demographics or postal ZIP code, may be used as targeting criteria. From such data, queues of advertising object ids are constructed that are targeted to either individual users or to sets of users who fall into certain groups according to such parameters. Stated otherwise, the advertising presented is individualized to the respective users based on characterizations of the respective users as defined by the interaction history with the service and such other information as user demographics and locale. As will be appreciated by those skilled in the art, conventional marketing analysis techniques can be employed to establish the user characterizations based on the collected application usage data above noted and other information.
Another Search Engine? Hotwired Introduces Hotbot, Powered By Inktomi, PR Newswire, May 20, 1996 ("ANOTHER SEARCH ENGINE")	*See*, *e.g.*, ANOTHER SEARCH ENGINE, p. 1: "HotWired Ventures, a premier Internet media company, today introduced HotBot (www.hotbot.com), a unique search engine that indexes and searches every word on the World Wide Web. Powered by Inktomi's advanced parallel-processing engine, HotBot will change the way people search for and retrieve information on the Internet." ANOTHER SEARCH ENGINE, p. 1: "'The rules of the search engine game have changed. Internet users thought they'd get what they needed from traditional search engines, but they found the result to be thin on content, rigid in context, and often totally irrelevant,' said Andrew Anker, president and CEO of HotWired Ventures. 'Our quest to find a better search engine led us to Inktomi. By combining the best technology, the most relevant searches, and an innovative interface, we created HotBot -- a bigger, better, smarter way to search the Web.'" ANOTHER SEARCH ENGINE, p. 1: "Most search engines aren't keeping up with the tremendous growth of the Web. HotBot's underlying Inktomi engine indexes more than 50 million full-text Web documents plus Usenet and mailing-list archives, and its scalable architecture can match the growth of the Web." ANOTHER SEARCH ENGINE, p. 2: "HotBot includes a number of unique features. Users can get the most current information quickly, efficiently view and use that information, and interact with the search engine in a personal manner. Daily Updates: The HotBot spider crawls the Web every day, offering users the most current information. Reliable and Fast: HotBot's fault-tolerant engine reliably delivers query results in seconds, without frequent downtime. Convenient Previews: HotBot allows users to preview documents without leaving the search page, reducing search time. Personal Searching: The

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	HotBot interface allows users to personalize their search engine to fit their own surfing style." ANOTHER SEARCH ENGINE, p. 2: "HotBot identifies, customizes, and ranks millions of Web documents using an algorithm developed by a team of the world's leading experts in information retrieval. HotBot recognizes that users desire varying levels of information detail, so it allows users to control the amount and type of information searched. The computing power available to HotBot enables the user to define a search query using a wide range of criteria in a way that is not possible with more traditional search engines."
https://web.archive.org/web/19961106235936/http://www.inktomi.com/	The first commercial application of Inktomi's innovative technology is the HotBot™ search engine service, offered in conjunction with HotWired, Wired magazine's electronic sibling. By leveraging this scalable technology, HotBot was the first search engine to index and search the entire World Wide Web, and represents the only search engine technology in existence that can expand to match the Web's growth as it doubles and doubles again.
https://web.archive.org/web/19961107001258/http://www.inktomi.com/whitepap.html	*See*, *e.g.*, Database access. Audience1 comes with Dynamic tags that can access a DBMS for arbitrary persistent information and customize the HTML tracking, using either cookies or fat URLs. Unlike other offerings, while Audience1 supports SQL, it does not require publishers to know SQL to access the database. This allows Inktomi servers to store and recall a user's preferences for user interface and query results presentation. More generally, Audience1 is ideal for allowing servers to access pre-existing databases such as products, inventory, etc. Browser targeting. Audience1 allows publishers to exploit leading-edge HTML features (such as Netscape's frames and Java, and Microsoft's font changes and embedded audio tags), without frustrating users who do not have those features. Audience1's browser targeting can be performed at various levels of detail, ranging from tags that are easy to use, but don't provide a lot of publishing control, to exposing the raw browser capabilities to the publisher. For example, advertisers on HotBot are shown as progressive JPEG if the client browser supports it, otherwise they are shown as JPEGs or GIFs for less-capable browsers. This allows Inktomi to make the most of each browser, rather than resorting to a least-common denominator. Access to high performance, scalable services. Dynamic Tags make it possible for publishers to introduce new, high performance, scalable services, without requiring the publisher to understand the intricacies of computing programming. For example, access to the Inktomi search engine is encapsulated into a single Dynamic Tag, hiding the complexity of interfacing to a parallel program such as Inktomi. In addition, Dynamic Tags can be multi-threaded, interleaving long-latency operations such as Inktomi queries and customized content

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	selection (i.e. targeted advertisements). We know of no other Web-based publishing system with this capability and ease-of-use. Publishing support hides the complexity of creating and managing sites of dynamic Web pages, allowing sites with large amounts of content to control the publishing process. Unlike the CGI-based tools that are emerging, Audience1's publishing support is fault tolerant, high performance and scales to millions of users and millions of hits per day. In summary, Audience1 and Dynamic Tags allow a customizable and sophisticated user-interface to Web services such as search engine. HotBot's interface, including saved searches, personalization, and browser targeting, would have been nearly impossible without the simplification provided by the Audience1 toolset."
U.S. Patent Nos. 5,948,061 ("MERRIMAN I") and 7,844,488 ("MERRIMAN II")	*See*, *e.g.*, MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 2:59-3:4: The basic architecture of the network 10 comprises at least one affiliate web site 12, an advertisement (ad) server web site 19 and one or more individual advertiser's web sites 18. Affiliates are one or more entities that generally for a fee contract with the entity providing the advertisement server permit third party advertisements to be displayed on their web sites. When a user using a browser accesses or "visits" a web site of an affiliate, an advertisement provided by the advertisement server 19 will be superimposed on the display of the affiliate's web page displayed by the user's browser. Examples of appropriate affiliates include locator services, service providers, and entities that have popular web sites such as museums, movie studios, etc. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:5-23: The basic operation of the system is as follows in the preferred embodiment. When a user browsing on the Internet accesses an affiliate's web site 12, the user's browser generates an HTTP message 20 to get the information for the desired web page. The affiliate's web site in response to the message 20 transmits one or more messages back 22 containing the information to be displayed by the user's browser. In addition, an advertising server process 19 will provide additional information comprising one or more objects such as banner advertisements to be displayed with the information provided from the affiliate web site. Normally, the computers supporting the browser, the affiliate web site and the advertising server process will be at entirely different nodes on the Internet. Upon clicking through or otherwise selecting the advertisement object, which may be an image such as an advertisement

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	banner, an icon, or a video or an audio clip, the browser ends up being connected to the advertiser's server or web site 18 for that advertisement object. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:24-63: In FIG. 1, a user operates a web browser, such as Netscape or Microsoft Internet Explorer, on a computer or PDA or other Internet capable device 16 to generate through the hypertext transfer protocol (HTTP) 14 a request 20 to any one of preferably a plurality of affiliate web sites 12. The affiliate web site sends one or more messages back 22 using the same protocol. Those messages 22 preferably contain all of the information available at the particular web site 12 for the requested page to be displayed by the user's browser 16 except for one or more advertising objects such as banner advertisements. These objects preferably do not reside on the affiliate's web server. Instead, the affiliate's web server sends back a link including an IP address for a node running an advertiser server process 19 as well as information about the page on which the advertisement will be displayed. The link by way of example may be a hypertext markup language (HTML) <img> tag, referring to, for example, an inline image such as a banner. The user's browser 16 then transmits a message 23 using the received IP address to access such an object indicated by the HTML tag from the advertisement server 19. Included in each message 23 typically to the advertising server 19 are: the user's IP address, (ii) a cookie if the browser 16 is cookie enabled and stores cookie information, (iii) a substring key indicating the page in which the advertisement to be provided from the server is to be embedded, and (iv) MIME header information indicating the browser type and version, the operating system of the computer on which the browser is operating and the proxy server type. Upon receiving the request in the message 23, the advertising server process 19 determines which advertisement or other object to provide to user's browser and transmits the messages 24 containing the object such as a banner advertisement to the user's browser 16 using the HTTP protocol. Preferably contained within the HTTP message is a unique identifier for the advertiser's web page appropriate for the advertisement. That advertisement object is then displayed on the image created by the web user's browser as a composite of the received affiliate's web page plus the object transmitted back by the advertising web server. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), Fig. 1:

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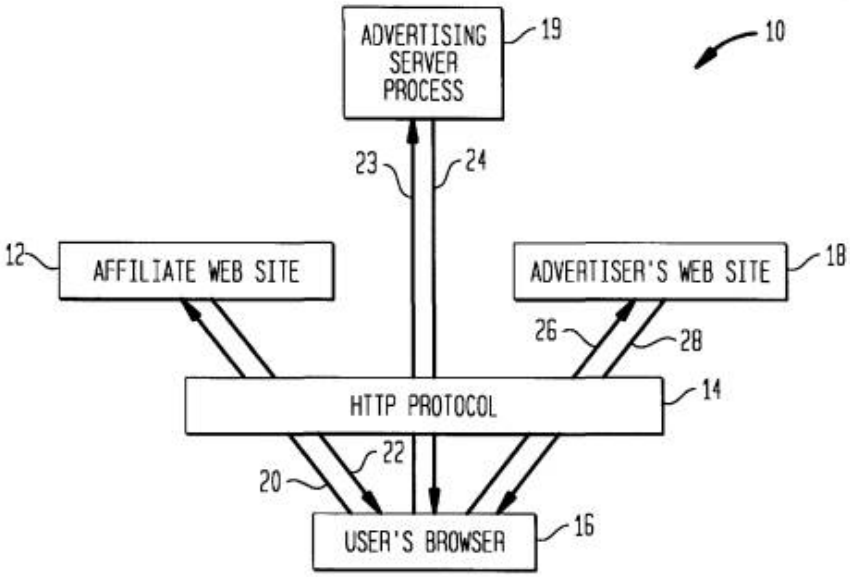
	FIG. 1  MERRIMAN II (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 9:38-41: 2. The method of claim 1, wherein selecting an advertisement based upon stored information about said user node comprises selecting an advertisement based upon a prior content request sent from said user node to an affiliate node.
PRNEWS	*See e.g.,* PRNEWS at 1 ("WebCrawler, Lycos and InfoSeek offer advertisement banner links . . ."); *id.* ("It is possible for a company to buy its own name or an ad to ensure it is listed at the top of a search results page.").
KNOBLOCK	*See e.g.,* KNOBLOCK, "SEARCHING THE WORLD WIDE WEB," IEEE EXPERT, at 10 ("The Lycos service, like many other Interest search services generates income mainly through advertising, both targeted and generic. For targeted advertising, the service checks the user's query terms against a list of keywords that have been sold at a premium to the advertisers. For example, if the user queries for 'cars,' an automobile advertisement can be shown.")
"Search-Engine Advertising; Web Marketing Push" by John Evan Frook in *Communications Week*, October 9, 1995. ("FROOK")	*See e.g.,* FROOK, p. IA11 ("Lycos Inc. . . . announced the launch of search-engine ads in recent weeks.); *id.*, p. IA11 ("These advertisements work by delivering a sales pitch along with the results of a key-word search on a search engine. For example, a user searching under the subject 'cars' might receive a Web ad for General Motors Corp. or Chrysler Corp., while a search for models might deliver an ad for online computer superstore NECX Direct. . . . Yahoo executives have confirmed to *Interactive Age* that advertising sales will be made against the new search function as early as next

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	month."); *id.*, p. IA15 ("Tim Brady, marketing director at Mountain View, Calif .-based Yahoo, said advertisers debuting on the Yahoo site, at http://www.yahoo.com, next month also will be featured in Yahoo's search-engine . . . areas.")
Search Engines Take a Risky Step: Porn Banners Yahoo!, Excite and Lycos Test Keyword Sales to Adult Sites, by Kim Cleland, adage.com, December 16, 1996. ("CLELAND")	*See e.g.,* CLELAND, p. 1 ("Yahoo!, Excite, Lycos and HotWired's HotBot have all recently begun to sell banners to a handful of pornographic Web sites. Although the banners only appear when certain profane keywords are searched, some in the industry are questioning the practice.")
"Lycos signs key advertisers for popular Internet catalog; Microsoft, AT&T and NECX charter sponsors on leading Web Index," Business Wire, September 18, 1995. ("BUSINESSWIRE")	*See e.g.*, BUSINESSWIRE (Lycos provides keyword search advertising, which links advertisements to Lycos' search engine. When linked keywords are selected in a user's search, the company's advertisement will appear on the Lycos results page above the results listing. This enables an advertiser to purchase keywords related to its business and to have its ad appear whenever a search is conducted using that keyword."); ("Users may return back to that advertisers' sites, enabling users to access information from Lycos from an individual advertiser's site. Users may then return back to that advertiser's site via a hotlinked button – usually the advertiser's logo appearing on the Lycos home page. Backlinking provides the advertiser's site with a readily available Internet search option.")
NAQVI WO	NAQVI WO discloses correlating the received search argument to a particular advertisement in a second database having advertisement related information. *See, e.g.:* NAQVI WO at Abstract - "The advertisements on the server are not tied to any particular page containing information on the network, but rather, are retrieved in response to a query entered by the user (17) and dynamically mixed with the content of the pages returned in response to the query (16)." NAQVI WO at Abstract – "The system uses contracts (21) to specify the marketing rules (18) that link ads with specific queries, to permit advertisers to target a specific audience, and to guarantee a certain amount of exposure of the advertisement in prime advertising space." NAQVI WO, p. 2 - "That is, when a user uses certain search engines for conducting a search, the user will be shown advertisements while doing the searching. These advertisements are sometimes referred to as "banner" advertisements because they simulate a banner that the user sees as the user is traveling down a "road" on the computer network. These advertisements are typically tied to a

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	particular search page that the user encounters during the search. The current state of the art is such that when the user uses a search engine, a randomly selected advertisement is shown as if it is part of the search page. For example, the user may enter a search request to see a home page on cooking and, as a part of that page, the existing systems might display an advertisement about cars. This is a problem, of course, because there is no connection made between the content of the advertisements or the message of the advertisements and what the user is actually searching." NAQVI WO, p. 3 – "It is a further object of the present invention to provide a method and system for advertising on a computer network in which advertisements are more focused and targeted, for example, by user queries and user profiles, including the past history of the user's interactions with the system." NAQVI WO, p. 4 – "The present invention provides a new process and system for online advertising. This new process will be referred to throughout this application as query-based advertising ("QBA"). In the QBA process, advertisements are primarily triggered by user queries. User queries, as 15 used herein, refer to requests from an information consumer for one or more pages of information from a computer network. As a result of a query, a user is exposed to advertisements with the present invention, i.e., the query triggers advertisements." NAQVI WO, p. 4-5 - "The advertisements on the server are not tied to any particular page containing information on the computer network. Rather, the advertisements are contained on the server, distinct from the pages that may or may not later carry the advertisements. The pages by themselves have no advertisements. Thus, the pages are analogous to a newspaper or magazine devoid of any advertisements. When the user requests a certain page or a certain topic of information, the relevant pages are retrieved from the computer network and shown to the user. The present invention, upon receiving the user's request, retrieves advertisements that are related to the user's action, dynamically mixes the advertisements with the content of the pages according to a particular layout, and displays the pages with focused, targeted advertisements as a part of the page. The advertisements can be made to satisfy a set of constraints requested by the advertiser, as well as the constraints of the publisher

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	of the page, as further discussed below." NAQVI WO, p. 5-6 – "The advertisement triggering mechanism of the present invention is not random or coincidental, but rather, is prespecified in advance. This specification will be referred to in this application as a contract. A contract specifies the marketing rules that link advertisements with specific queries. For example, a diet soft drink advertisement may be shown when a user asks for a page about exercising equipment. These rules are specified by advertisers implementing the concept of "focus" or "relevance" of advertisements and help the advertisers to target a specific audience. Owners of pages specify the focus content of their pages through special tags within a page. These tags are not displayed to the information consumer; the tags are used to decide what advertisement can be shown when the page is requested by a consumer. The notion of a contract, however, goes well beyond just marketing rules. First of all, the advertising space on the online medium, although technically unlimited, is severely restricted by the user's attention span. Placing advertisements on the first page which constitutes the answer to a query gives the advertisements much higher probability to be seen than on later pages of the answer." NAQVI WO, p. 7-8 – "A consequence of QBA is that ads cannot be placed on pages a priori because it is the query that determines what ads are to be placed on a page. This is referred to as dynamic advertising. The query asks for a page that has a 30 focus. Ads that are resident in the system are checked to determine which ads can potentially be placed on the page in question. This decision is based on matching the focus of a page with the focus of the ad. When not all matching ads can be placed on a page because of space limitations, the contract enforcement feature of the present invention ensures that the ads that are placed on the page are 5 consistent with the contracts signed by the system with the advertiser." NAQVI WO, p. 9 – "In summary, the present invention provides a system and method for advertising on a computer network, comprising a server containing a plurality of advertisements, means for electronically connecting the server to a computer network, and means for selecting and 15 retrieving an advertisement from the server in response to a query entered on the network. The selecting means

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	comprises means for ensuring that a selected advertisement is relevant to the query. A mixer means is provided for combining a retrieved advertisement with a content page 20 returned by the computer network in response to the query. The mixer means comprises a layout manager means for computing an optimum layout of a combined page containing the retrieved advertisement and the content page. The mixer means also comprises a typography manager means for 25 detecting special tags and HTML rules in the content page and for determining which part of the content page the selected advertisement can be displayed on. The content page is provided by a home page dispatcher, a search engine, or a generic HTML content provider in response to 30 the query." NAQVI WO, p. 24-25 – "In using a yellow page publisher there are two broad 20 distinctions for a query. A client may be asking for a certain category of listings, or the client may be asking for a particular vendor. For example, the user could ask for car dealers in Morristown, NJ (i.e., a category of listings), or the user could ask for Morristown BMW located 25 on South Street in Morristown, NJ (i.e., a particular vendor) . The system determines which of the two types of queries or searches the user has made, as illustrated by box 32 in Fig. 2. If the query is for a certain category, the process will go to the left hand side of the flow chart 30 of Fig. 2, and if the query is for a certain vendor, the process will go to the right hand side of the flow chart of Fig. 2. The left hand side of the flow chart will be explained first. After determining the type of query, the category search engine 33 next determines which category best fits 5 the user's request. The user may have asked for "car," but the category in the yellow page provider's index may in fact say "automobile." Or, the user may have asked for "spectacles," and the category in the yellow page provider may be called "optician." The matching of these variations 10 of terms is performed by the category search engine 33. Once it has been determined which category the user's request falls into, the advertisement selection process comes into play with the ad selector 34. The ad selector 34 determines what advertisements are best suited to be 15 mixed in with what the user has requested. The content

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	from the category search engine 33 and the ad(s) from the ad selector 34 are then given to a mixer 35. The mixer 35 functions to mix the content coming from the search engine with the ad(s) selected by the ad selector 34. The result 20 is the creation of a page that is of interest to the user." NAQVI WO, p. 32-33 – "Referring to Fig. 6, a process flow of the mixer and ad selector will be described. The purpose of the mixer 35 (as previously described in reference to Fig. 2) is to take publishers' content and advertisements and combine them 15 together so that the content and the advertisements are mixed on the same page. In Fig. 6, the mixer 35 is shown receiving two inputs from the publishers: data 50 (which is the content) and EHTML 61 (which contains the special tags). The layout 20 manager 10 and parser 60 both form a part of the mixer 35. The data 50 is input to the layout manager 10, and the E_HTML 61 is input to the E_HTML parser 60, as previously discussed. Both of these sub-modules then determine where the advertisements can be placed on the publisher's page. 25 The advertisement list is then input from the ad selector 34. The ad selector 34 receives a focus input 43, retrieves relevant ads (step 70), and creates the advertisement list using the prime space manager 20 (step 71). These advertisements are then placed in the parser 60 30 and the layout manager 10 (step 72), as described above. The mixer 35 then logs all the essential billing and other user information (step 73) for keeping track of the system's placement of an advertiser's ad. At this point, a refresh tag is inserted (step 74) and the system outputs an HTML page (step 75)." NAQVI WO, p. 39-40 - "Referring to Fig. 10, the flow of an ad placement process 110 according to the present invention will be described. The purpose of ad placement is to allow advertisers to enter their advertisements into the system. For entering an ad, the system provides a screen that is shown to the user asking whether the user wants to enter an ad. If the user indicates yes by clicking on that 20 particular choice, the system enters the start 111 of the ad placement mode. At this point the system asks the user for the focus (step 112). The advertiser may say, for example, that he is in the car business, the car washing

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	business, or that he is a physician, a lawyer or whatever 25 other category name that he wants to give. The user is also asked for an advertisement name at step 112. This is just a name for future reference. The purpose of the focus in step 112, as discussed above, is to prevent an advertisement from being shown that 30 is not relevant to the query at hand. The system of the present invention always shows advertisements that are relevant to what the user has asked for. Therefore, it is of paramount importance that the system know the context of the ad. Thus, when the advertiser places an ad, the system establishes the focus." NAQVI WO at Claims 1, 2, 8 Figures 1, 2, 7, 8A, 8B, 10, 11 (and associated text)
BULL	BULL at Col. 4 - "Along with displays, including those for data entry, searches, search results, information retrieval, the user will be presented with advertisements and/or coupons based on criteria entered by advertisers. This criteria may take the form of simple logic, linking an ad/coupon with a display or be derived from complex software text search agents that analyze one or more of the following: The user's looking pattern, the user's psychographic profile, the user's personal profile, the availability of the advertiser's/couponer's goods or services at the instant in time that the criteria is being exercised. The placement of the ad/coupon will be logged along with user profile information and provided to the advertiser/couponer in some form of report." BULL at Col. 4 - "III. Software Agent Advertising Insertion. Currently, advertisements in WWW pages are tightly tied to each page, are inserted based on keywords or on a psychographic profile of the user. Certain criteria will be entered which delineates a pattern that is requested to be monitored. When this pattern is seen or is in close match) in the user's WWW activity, the insertion mechanism is activated. If a certain web page is requested, the present invention will display a particular advertisement. The ad will be inserted based on the content of the existing web page being read. An analysis of the text stream of the user's interactive session will be performed on-line. For instance, if the user accesses web pages for Holiday Inns on the West Coast, the insertion mechanism could be established to automatically insert ads for Hilton

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	Inns on the West Coast." BULL at Cols. 6-7 – "Initial Setup for Advertisers and Lead Generation Advertisers: Advertisers, using a user access system 100 enter criteria that should met for an advertisement/coupon placement. These criteria are in the form of the complex software text search agents described above. This includes a match "threshold." When this threshold is met or exceeded, an ad/coupon will be appended to a system session. Statistical analysis known as clustering is used to evaluate the data. The ad/coupon may be resident on the user access system 100, an advertiser's computer system (400 . . . N) or stored in the Advertising DataStore 250. Additionally, the Advertiser may include conditional criteria for ad/coupon place ment (available inventory, in stock levels, excess capacity, etc.). This criteria is referenced when the "threshold" is met and if satisfactory, the ad/coupon is appended. This criteria may be tested against data input through the user access system 100, data on the advertising datastore 250 or data on the advertiser's computer system (400 . . . N). Additionally, advertisers can input World Wide Web referential information (hot links) to be displayed with ads/coupons or on geographic map displays. These are stored on the adver tising datastore 250" BULL at Col. 8 – "Ad/Coupon Insertion: During the session, ads/coupons are inserted alongside displayed data (text, picture or index displays) from the ad datastore 250, based on ad/coupon insertion agents 233 and inserted by the session management system 292. A Record of Insertion along With appropriate user information (may be general or precise to the name of the user) is stored in the advertising activity datastore 260." BULL at Col. 10 – "233 Ad/Coupon Insertion Agents These are complex software text search patterns that when matched within the text being reviewed within a given session, cause an advertisement/coupon to be added into the display. These can be direct insertion or conditioned from criteria on the Advertiser's Computer Systems (400 . . . N) and/or the user's profile from the user profile datastore 210" BULL at Col. 13 - "III. Software Agent Advertising Information Advertising is provided which benefits the user while optimizing the advertiser's expenditure by only presenting

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	ads or coupons (or ads and coupons in a rotation if multiple ads/coupons qualify) that are pertinent to that particular user." BULL at Col. 11 - "250 Advertising DataStore This is the storehouse of ads to be presented When a match is made by the Ad/Coupon Insertion Agent 233" BULL at Col. 12 – "296 Ad/Coupon Insertion System This looks at the current display requested by the user with a Ad/Coupon Insertion Agent 233, determines which ads should be placed (or rotated) and makes the placement (or establishes the rotation). . . 400 Advertiser's Computer Systems 401 . . . N These are DataStores established by advertisers to store ads/coupons to be presented or to set additional conditions for display." BULL at Col. 12 – "Certain criteria will be entered which delineates a pattern that is requested to be monitored. When this pattern is seen (or is in close match) in the user's WWW activity, the insertion mechanism is activated. If a certain web page is requested, the present invention will display a particular advertisement. The ad will be inserted based on the content of the existing web page being read. An analysis of the text stream of the user's interactive session will be performed online. When certain text patterns are observed (or close matches are observed), an advertisement is inserted into the display. The advertising may be static or connected to the adver tiser's computer datastore which designates specific ads or coupons based on the pattern match and other conditions which may be required. The software agent criteria is entered by the merchant in the agent data store 230 which delineates a pattern that needs to be monitored. As an example, if the user accesses web pages for "Holiday Inns on the West Coast", the insertion mechanism Would be established to automatically insert ads for "Hilton Inns on the West Coast."" BULL at Figs. 1 - 7 (and associated text)

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SUBMIT-IT	TECHCRUNCH[9] at 2-3 - "But we weren't the first to appreciate the true value of search. Submit-It, founded a few years earlier in a dorm room by Scott Banister, helped website owners submit their URLs to multiple search engines and directories. Banister saw how badly his customers wanted to secure placement on search results. In 1996, he brilliantly conceived an idea he called "Keywords": to sell search listings based on pay-for-placement bidding – more or less the same as today's AdWords. Banister began pitching the idea to anybody who would listen to him, including, among others, Bill Gross of IdeaLab, and the principals of LinkExchange: Tony Hsieh, Sanjay Madan, and me."
HEALTHGATE	HEALTHGATE.COM[10] - "Due to our aggressive pricing and volume discount plans, the actual cost per thousand (CPM) impressions may vary. Our Keyword Plan gives you the ability to ensure that your ad will be displayed whenever a user enters your pre-defined keyword."
INFOSEEK	PRNEWS at 1: "It is possible for a company to buy its own name or an ad to ensure it is listed at the top of a search results page." PRNEWS at 1: "Advertisements that appear only with the results of a specific key word search are a minimum of $1,000 for a four-week period. WebCrawler, Lycos, and Infoseek offer advertisement banner links, however Alta Vista's product is still in beta-test." FROOK at 1: "These advertisements work by delivering a sales pitch along with the results of a key-word search on a search engine. For example, a user searching under the subject "cars" might receive a Web ad for Genetal Motors Corp. or Chrysler Corp., while a search for modems might delivervan ad for online computer superstore NECX Direct. lnfoSeek Corp. introduced the first search-engine ads in March, but imponant developments in recent weeks point toward increased use of the technique on the Web."
OPEN TEXT INDEX	CNET - "Open Text is offering to help those publishers by allowing

[9] TechCrunch shall refer to Ali Partovi, "Bubble Blinders: The Untold Story of the Search Business Model," posted Aug. 29, 2010

[10] HEALTHGATE.COM will refer to the HealthGate.com website at the webpage currently available at https://web.archive.org/web/19961105192255/http:/www.healthgate.com/HealthGate/product/sponsorship.html

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	them premium slots in its search engine without requiring them to buy more expensive advertising banners. Under the company's Preferred Listing [http://www.opentext.com/omw/preferred_c.html] service, a merchant that sells personal computers online, for example, could ensure that its Web site appears as the top listing in searches for the terms *PC* and *computer.*" FAIN - "Paid search reconciled this dilemma by tying the search engine's revenue to the act of transferring the user to an advertiser's site. In 1996, the search engine Open Text briefly offered ***preferred listings,*** in which sites would pay to be inserted into the search result set for particular keywords."
PR NEWS	PR NEWS at 1: "The general solution to avoid getting buried by others' words is to buy a 'search word,' an option introduced last year by several search engines. For example, it is possible for a company to buy its own name or an ad to ensure it is listed at the top of the search results. Time Warner could thus ensure that anyone who enters the term 'Time Warner' will see its home page or ad at the top of the search results. Charges for banner ads in search engines vary, but tend to be expensive, according to Beth Lanahan, spokesperson for one of the Web's more popular search engines, InfoSeek. Depending on Impression and specific topic, advertisements that rotate through directories range from $7,500 to $73,000 for a four-week period. Advertisements that appear only with the results of a specific key word search are a minimum of $1,000 for a four-week period. WebCrawler, Lycos and Infoseek offer advertisement banner links, however Alta Vista's product is still in beta-test."
KOHDA '96	KOHDA '96, §1: "An advertising agent is placed between the advertisers and the users. Advertisements fetched from advertisers' Web servers are merged with Web pages from ordinary Web servers by the agent, and the merged pages are displayed on the users' Web browser. Thus, the users see advertisements on any server around on the Internet. Moreover the agent has chances to deliver appropriate advertisements which suit each user's taste." *Id*., §2.1: "First of all, the advertising agent company makes a contract with advertiser companies. Remark that ordinary users can become advertisers or advertising agents if they are ready to pay for it, but we

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	use the word, company, to make the explanation brief. The agent company is responsible for delivering advertisements to users. The advertisements are stored on the agent's Web server." *Id*., §2.2: "When a user clicks an anchor on a page displayed on the browser, the browser contacts the Web server and returns a Web page designated by the anchor. Simultaneously, the browser contacts the advertising agent's Web server. The agent's Web server returns a Web page of one of its advertisements. Then the browser merges those returned Web pages, and displays a composite page on the screen." *Id*., §2.2: "Note that the agent is aware of the identity of the user and which page the user is about to read on the browser, so the advertising agent can tailor advertisements for *individuals and their current interests*. Thus it prevents the user from having to see advertisements that are unrelated to their current interests." *Id*., §3.2: "The filter keeps in memory the contact path (URL) to the agent's Web server. When it is invoked, it forwards the invocation parameters passed from the browser to the agent's Web server, and waits for a reply. Then, the agent's Web server returns one of its advertisements or other useful information. The filter merges the reply from the agent's Web server before the input from the pipe, i.e., Web pages from other Web servers." Fig. 2:

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	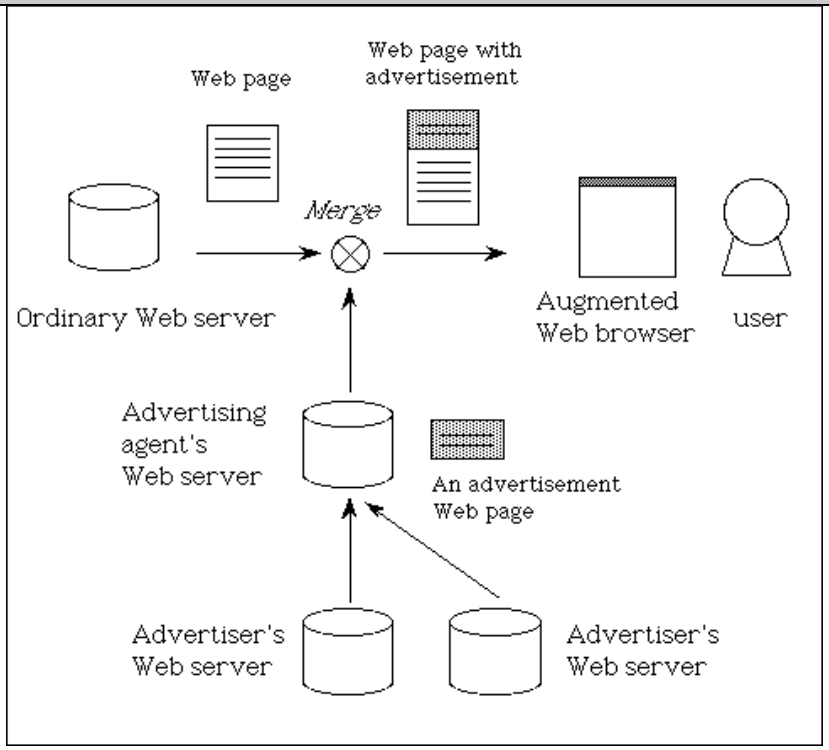
	

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KOHDA '853	KOHDA '853 at 38:30-35: "the advertising information server provides the advertising information automatically based upon the retrieval condition data, wherein another predetermined tag is added to the provided condition data to retrieve advertising information, and is derived from the retrieval information." *Id*. at 23:60 to 24:7: "When the user is obtaining the information about the sales conditions of the latest automobiles, the information server 100 to obtains and analyzes the retrieval information to be obtained by the user, and recognizes that the information relates to the sales conditions of the latest automobiles.... Then, the information server 102 selects the advertising information about, for example, sports cars from a large volume of advertising information relating to automobiles, and transmits the selected information to the information retrieving apparatus 100. As a result, the advertising information in which the user may be interested can be transmitted to the user, thereby enhancing the advertising effect."
A Framework for Targeting Banner Advertising on the Internet, by Katherine Gallagher and Jeffrey Parsons, Proceedings of the Thirtieth Annual Hawaii International Conference on System Sciences, 1997 IEEE. ("GALLAGHER")	*See e.g.,* GALLAGHER, p. 1 ("In this paper, we address the challenge of attracting a defined target audience to a Web site via *banner advertising*. We propose a framework for effectively targeting banner advertising in an electronic marketplace in a manner that benefits both advertisers and consumers."); *id.*, p. 2 ("In this paper, we restrict our discussion to banner advertising that appears in the course of users' browsing and searching activities on information services, such as Yahoo! (http://www.yahoo.com) and Excite (http://www.yahoo.com), that provide an entry point to Internet resources.")
For advertisers, Web offers wide audience, pinpoint accuracy, The Boston Globe (May 5, 1996) ("BRAY")	*See e.g.,* BRAY, p. 1 ("DoubleClick has assembled a network of about 30 Internet sites, including the Excite search engine, the SportsLine sports news service and the Travelocity travel-planning service. The members sell ad space to major companies such as Microsoft, Intel and Bank of America. But instead of displaying the ads to all comers, DoubleClick targets them to particular viewers.")
Poppe Tyson Partners With Atlanta Software Leader To Form Doubleclick -- The First Advertising Network For The Internet, PR Newswire (Feb. 6, 1996). ("POPPE TYSON")	*See e.g.,* POPPE TYSON, p. 1 ("DoubleClick's network, which is currently live on a number of major sites as part of a beta test, is anticipated to have in excess of 200 quality Web sites by the end of the year. The network will go live in early April. Currently, DoubleClick represents two leading Web sites, Netscape and Excite!. In addition, the DoubleClick network will offer advertisers a unique ability to customize and target ads to specific users and to measure results.")

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	See e.g., BOSTON GLOBE, p. 1 ("Try this experiment: go to Yahoo (www.yahoo.com) and enter in the search term, sex. On the results page, you'll see a banner ad at the top for 'Amateur Hardcore, the Net's only XXX search engine.' Yahoo has taken the liberty of identifying you as a dirty trenchcoat type, and served up an ad aimed at your kind.")
"Start-Ups Plot to Make the Web Comfortable for Advertisers," *The New York Times CyberTimes*, February 13, 1996. (FLYNN)	*See e.g.*, FLYNN, p. 2 ("Yahoo!, for example, uses [NetGravity's] AdServer . . . AdServer offers Yahoo! several features for targeting ads to specific visitors. For starters, when a visitor to the Yahoo! site conducts a search by inputting a keyword, advertising related to that keyword appear on the screen. A visitor might, for example, conduct a search for Web pages related to cars. The server would then display an ad related to cars when it displays the results of the query."
"NetGravity Launches AdServer, the Premier Advertising Management System Software for World Wide Web Publishers," dated January 31, 1996. (NETGRAVITY LAUNCHES ADSERVER)	*See e.g.*, NETGRAVITY LAUNCHES ADSERVER, p. 1 ("Yahoo!, the first web site to use NetGravity's ad management software, is now able to schedule, deliver and track its advertising with maximum effectiveness and efficiency using NetGravity AdServer."); *id.* ("AdServer provides Web sites the means to sell targeted ad displays by delivering ads on the context of a search or a news feed.")
ABOUT NETGRAVITY ADSERVER	*See e.g.*, ABOUT NETGRAVITY ADSERVER, Targeting Ads, p. 1 ("When a browser connects to your content server, it announces its identify, including its type and version, domain, and platform. AdServer receives and interprets this announcement, and uses that information to *target* an ad and show it only to someone matching criteria that you specify."); *id.,* p. 2("By targeting ads, you can offer your advertisers a vastly more efficient way to reach their desired audience. instead of showing an ad to a mass audience, you can show the ad to those few people most likely to respond to it. AdServer is preconfigured to support targeting based on browser type and version, domain, platform, and time of day. In addition, you can modify the supported values for these criteria, or introduce your own criteria on which to target ads."); Scheduling Ads, p. 1 ("Rotating multiple ads through a single space allows you to: . . . provide your site visitors with changing ad content."); *id.*, Working With Space Groups, p. 1 ("A group also has a *rotation period*. This specifies how often the ads that are currently running in the group will rotate through the spaces in the group."); *id.* ("Rotating multiple ads through a single space allows you to: sell a single ad space to more than one advertiser, give a single advertiser the ability to show a variety of ads, provide your site visitors with changing ad content.")
NETGRAVITY	*See e.g.*, NETGRAVITY ADSERVER HELP, Installing the Redirection

Reference	Disclosure
ADSERVER HELP	Utility ("When a visitor to your site clicks on an ad, AdServer redirects them to the advertiser's site."); *id.*, What is an Advertiser? ("An *advertiser* is an entity that requests the placement of one or more ads. The advertiser typically provides you with the ad that should appear in an ad space, along with a URL to which a user is sent when they click on the ad."); *id.*, Working with Advertisers, p. 1 ("An *advertiser* is an entity that requests the placement of one or more ads. The advertiser typically provides you with the ad that should appear in an ad space, along with a URL to which a user is sent when they click on the ad."); *id.*, Rotating Multiple Ads Through a Single Space ("To place multiple ads into a space, create an ad family that contains those ads. When you place the family into a space, the ads in the family rotate through the space according to the family's Rotation Period setting.")
MEEKER	MEEKER at 6-6: "Search engines, by definition, use text input by users to conduct searches of relevant content on the Web. Since advertisements are displayed along with the search results, these companies allow advertisers to buy "key words," which display the advertiser's banner when a user searches for the word purchased. It follows that the word or words purchased are generally related in some way to the advertiser's products or services. Infoseek and Yahoo! charge $1,000 per month per keyword, and based on a target of 20,000 impressions, this would yield a CPM of $50. For example, Figure 6-3 shows how the results of a search for the word "router" yielded a typical list of sites but also netted an advertisement for Cabletron Systems (a maker of switches, considered an alternative to routers). In fact, any time this word was searched for, the same ad came up. A search for "hub" consistently resulted in a different ad for the same company. (Yes, we searched for "beer," and each time we got a Miller Genuine Draft ad)."
"Study: Search Engine Vendors Adopt New Strategies," *Phillips Business Information's Internet Week*, Aug. 5, 1996 ("PHILLIPS BUSINESS")	PHILLIPS BUSINESS at 1: "Another approach to selling ads is through leasing key search words. Advertisers can purchase the rights to a key word not necessarily one derived from their own products. If a search term matches a key word, their ad will be placed. Lycos Marketing Manager Sarah Garnsey said users who enter the key word "Windows" on the Lycos engine, for example, will see an ad for IBM. She added that AT&T {T} once owned the key word "telephone."
DEDRICK 1994	*See e.g.*, DEDRICK 1994, p. 57 ("To enable electronic advertising to subsidize the consumption of electronic content, these yellow pages services are also integrated with a variety of related services.");*id.*, p. 58 ("Each object may have attributes consisting of hot links to other objects, each of which may have attributes such as viewing time and desired consumer target variables."); *id.*, p. 59 (""a dynamic linking ("hot-link") capability is a very important feature that is being incorporated into electronic advertisements. Objects may contain

Reference	Disclosure
	dynamic link attributes which are embedded by the author of the electronic advertisement at the time of the object creation. . . . This dynamic upgradeability is gained by enabling the dynamic link to point across the content distribution network to objects residing on remote servers. These objects may contain actual advertising content or they may themselves be dynamic links, pointing to other objects. Invocation of a dynamic link may be the result of a process-triggered function or consumer interaction (such as a consumer clicking on a hot-spot in a graphic or digital video clip within an electronic advertisement. Dynamic links that exist within regular electronic content may also point to related electronic advertising objects."); *id.*, p. 62 ("the currently suggested attribute extension list is as follows: . . .Dynamic (e.g. hypertext) links to associated objects, residing on both local and remote servers . . .")
DEDRICK 1995	*See e.g.*, DEDRICK 1995, p. 42 ("An electronic yellow pages might consist of various types of advertising . . ."); *id.*, p. 42 ("enables the creation of ads with embedded demographic and psychographic variables, allowing the distribution network to concentrate delivery of ads to the most desirable consumers (or to all connected consumers at the advertiser's option)."); *id.*, p. 44-45 ("A hyptertext linking (hot-link) capability is a very important feature in electronic ads. Elements can contain hypertext link attributes embedded by the electronic ad's author during element creation. This hypertext link capability allows the advertiser to change an element, and thus the ad, dynamically at any time. This dynamic upgrade-ability is gained by enabling the hypertext link to point across the content distribution network to elements residing on remote servers. These elements can contain actual advertising content, or they might themselves be hypertext links pointing to other elements. Invocation of a hypertext link might be the result of a process-triggered function or consumer interaction (such as a consumer clicking on a hot spot in a graphic or digital video clip within an electronic ad.) Hypertext links within regular electronic content might also point to related electronic advertising elements. For example, if an author publishes an article electronically, the author could insert a hot spot into the article that, when selected by the consumer, will point to a related electronic ad. By selecting the hot spot, the consumer triggers the ad to be downloaded to the local consumption device."); *id.*, p. 45 ("Other profile data might include key words and other variables used by consumption agents for finding both electronic content and electronic ads that have a certain 'hit rate' when matched against a consumer's profile."); *id.*, p. 45 ("2. When a consumption device presents one of these labeled electronic ads to a consumer, all input and output between the consumer and the multimedia element currently being consumed is monitored. 3. Each of these I\O interactions is correlated to the labels associated with the

Reference	Disclosure
	particular multi-media element being displayed on the consumption device. 4. Relations between the elements of the electronic ad that are not chosen for interaction by the consumer are also correlated with the labels associated with each multimedia element. 5. The correlations made in the previous steps are entered into the consumer's profile, representing data on what a consumer likes and dislikes."); *id.*, p. 46 ("As personal consumption profiles become more robust, consumers might begin to see ads focusing on their favorite subjects, presented primarily in their favorite colors, sizes and shapes. Also, their agents might report the availability of electronic content and ads matching their personal profiles.")
GALLAGHER	*See e.g.,* GALLAGHER, p. 1("In this paper, we address the challenge of attracting a defined target audience to a Web site via *banner advertising*. We propose a framework for effectively targeting banner advertising in an electronic marketplace in a manner that benefits both advertisers and consumers."); *id.*, p. 2 ("We define a banner advertisement as: . . . embedded within, and visually distinct from, information provided by an online service."); *id.* ("We define a banner advertisement as . . . with hypermedia links to the sponsor's Web site."); *id.*, p. 3 ("As of August 1996, both Yahoo! and Excite offered advertisers three options: general rotation, geographic or content targeting, and keyword-based targeting. . . . The third option, keyword-based targeting makes greater use of the targeting potential of information services. A company can buy keywords so that whenever a user enters one of those keywords during a search, s/he will be exposed to the company's banner advertisement. This ensures that that the banner advertisement is presented only to people with a demonstrated interest in the area. For instance, a marketer of golf equipment might buy the keyword 'golf.' Every time a user enters "golf" in a search, a banner advertisement for the equipment would appear.")
"NetGravity AdServer Chosen by GNN to Standardize WebCrawler Advertising Management," dated June 17, 1996. (NETGRAVITY ADSERVER CHOSEN BY GNN)	*See e.g.,* NETGRAVITY ADSERVER CHOSEN BY GNN ("NetGravity, the leader in Internet advertising technology, today announced GNN, a service of America Online Inc., will take advantage of the NetGravity AdServer technology for WebCrawler. . . . This allows GNN to . . . dynamically deliver targeted ads. . . . Now, through NetGravity's relationship with I/Pro, Web sites will be able to develop and place advertising much more effectively using management tools with demographic profiles for targeted ad placement.")

Table B3: Providing Search Results and Ads Together

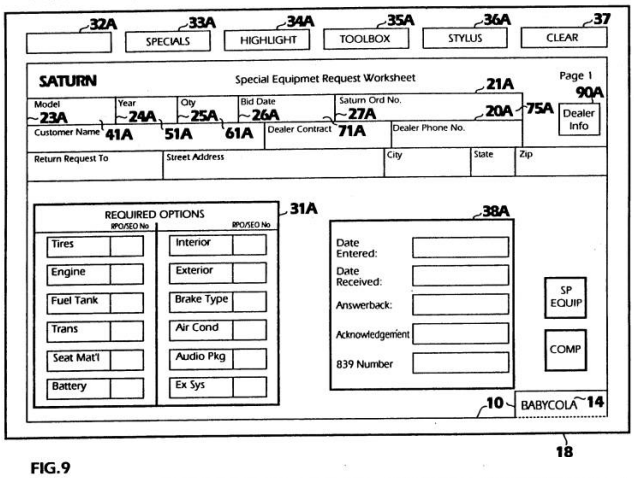
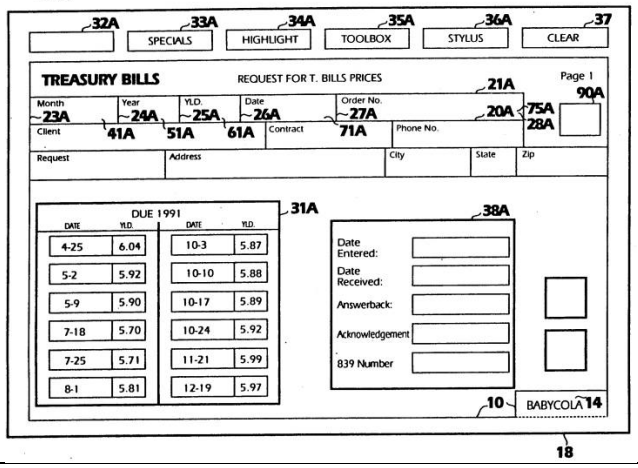
To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B3, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B3 references listed below because: it would have yielded predictable results; using the techniques of the Table B3 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B3 references to improve primary or obviousness references would have yielded predictable results.

Reference	Disclosure
U.S. Patent No. 6,119,101 ("PECKOVER")	*See*, *e.g.*, PECKOVER, 7:59-65: "Banner" advertisements placed on popular Web sites have not been particularly successful. Many online users don't "click-through" the banner to the more extensive advertiser information, because the placement of such banners is not finely targeted. Some Web activity statistics indicate that only one and one-half to three and one-half percent of users click-through. PECKOVER, 9:15-56:

Reference	Disclosure
	 PECKOVER, 28:1-10: When a user acting as a consumer decides to search within Agent System 10 for a product or product category, the consumer establishes a communications session with consumer's Personal Agent 12 (steps 222-224). Typically the consumer, using a personal computer, connects to consumer's Internet access provider, directs consumer's Web browser software to Agent System's electronic address (known as a URL), and enters a login name and password. A sample login screen is illustrated in FIG. 39.
U.S. Patent No. 5,105,184 ("PIRANI")	PIRANI, 2:26-42: Therefore, it is an object of this new use to provide an integration between software programs and commercial advertisements by suggesting methods for such integration. Furthermore, it is a specific object of this new use to provide methods of integrating and displaying commercial advertisements with data entry, help, menu, edit, prompt, report, maintanence, error, action, game, management, user access, and other information screens to be used in system, interface, language, application, games, education, utility, network, or other types of software. It is also an object of this new use to provide sequence of displays to integrateadvertisements with software. It is another

Name	Purpose
ASpider (Associative Spider)	searches for keywords
Arachnophilia	collect documents
Aretha	(none given)
CS-HKUST WWW Index Server	Resource Discovery, Validate HTML
ChURL	URL checking
Checkbot	(none given)
EIT Link Verifier Robot	verify links
Emacs W3 Search Engine	Resource Discovery
Fish Search	Resource Discovery
GetURL	validate links, mirroring
HTML Analyzer	check validity of Web servers
HTMLgobble	mirroring
Harvest	Resource
InfoSeek Robot	collect information for database
JumpStation Robot	Resource Discovery
Katipo	look for changed documents
Lycos	information retrieval and discovery
MOMspider	maintenance of distributed hypertext
Mac WWWWorm	keyword searching
NHSE Web Forager	Resource Discovery
NIKOS	Resource Discovery
NorthStar Robot	textual analysis, indexing
Open Text Corporation Robot	(none given)
Peregrinator	indexing
Python Robot	(none given)
RBSE Spider	Resource Discovery
SG-Scout	Resource Discovery
Scooter	Resource Discovery
Spry Wizard Robot	Resource Discovery
TITAL	Resource Discovery
Tarspider	mirroring
Tcl W3 Robot	validate links
TkWWW Robot	find logically related pages
W4 (World Wide Web Wanderer)	measure growth in Web
WM32 Robot	Resource Discovery, validate links
WWWW - World Wide Web Worm	indexing
WebCopy	mirroring
WebCrawler	Resource Discovery
WebLinker	traverses Web converting URN→URL
WebWatch	validate HTML
Webfoot Robot	(none given)
Weblayers	validate, cache, maintain links
Webstarf	mirroring
Webwalk	Resource Discovery, validate links, mirroring

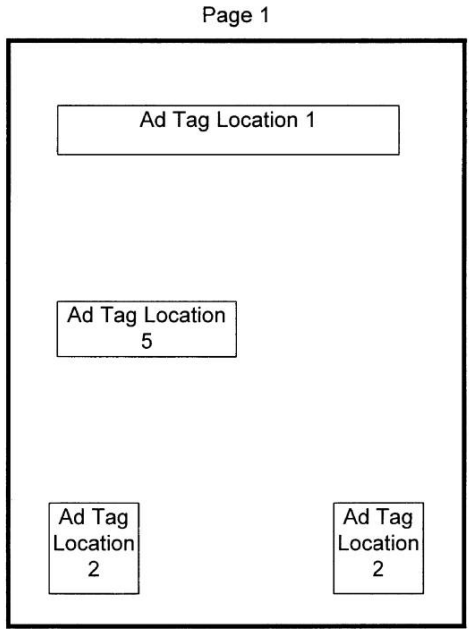
Reference	Disclosure
	object of this new use to provide directory advertisements integrated with software. PIRANI, 2:45-60: Presently, software development is far behind hardware development. Intel, a computer microchip developer, has already shipped 80286, 80386, and 80486 microchips; and it is in the process of developing 80586 microchips. But, software to utilize fully the advantage of 80286 microchip has began to appear in the market now. Thus, software development is almost three generations behind the hardware development. Long term committment needed to develop software against comparatively low amount available to buy software by the users has created a roadblock for a small software developer. Integration of commercial advertisements with software will provide additional funds to software manufacturers and will overall increase the availability of software to the user at low cost. PIRANI, 4:27-44: As mentioned earlier FIG. 8 is a modified version of Sheet 2 of 17 from U.S. Pat. No. 4,763,356. In the modified version letter "A" have been added to all numerical references belonging to that patent to distinguish those numerical references from our drawing numerals. A small advertisement from a fictitious BabyCola Company has been added. The numerical reference shown in this modified version are consistent with the numerical references shown on next page (No. 8). FIG. 9 is the further modification of the Sheet 2 of 17 mentioned in the above paragraph. Here all information related to the fictitious SATURN car is remobed. Instead the information about the Treasury Bills has been inserted. This information is now used by a stock broker to find information about various treasury securities. The BabyCola advertisement is still there. The FIG. 9 shows how our new use is different from the use indicated by Day, Jr. et al. PIRANI, 4:62-5:14: 1. Integration of one letter to a whole screen advertisement with various screens (data entry, menu, edit,etc.) of a software. 2. Displaying advertisement of one letter to a whole screen page integrated with a software in which a sequence of display screens are divided between advertisements and the software. These advertisements are placed on the first screen, second screen, third screen, menu screen, last screen, or any screen in

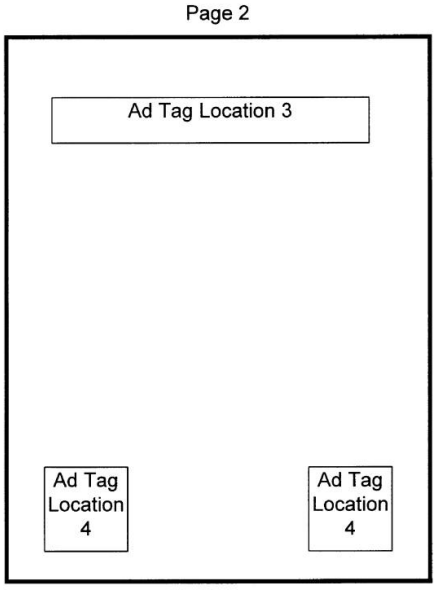
Reference	Disclosure
	between. It could also be placed as a whole screen, half screen, one-fourth screen, or even a tiny part of the screen. 3. A directory of advertisements to be accessed by the user. This directory contains names of the advertise- ments and are accessed by the user by using an input device. Usually a menu shown in FIG. 7 is used to list all advertisers or catagories of advertisers and the access is made via this menu. The advertisement could be a full page, half page, one-fourth page or any part of the screen and could be placed together or separately. FIG.8  FIG.9 
U.S. Patent No. 5,710,884 ("DEDRICK PATENT")	DEDRICK PATENT, 4:24-35: The publisher/advertiser 18 is provided with software tools to create electronic information which includes content and advertisements that can be transmitted over the system. The electronic information may allow an end user to access a content database, or the information may be all or a portion of a content database. By way of example, the content database may be the text and video of an electronic newspaper. The

Reference	Disclosure
	content database may reside within the publisher unit or be located at a remote location such as the metering server or a regional server that services a plurality of metering servers. The software tools may include a hypertext oriented mark up language that routes distributed end users to the content databases. DEDRICK PATENT, 7:9-22: The content adapter 25 customizes electronic content to the individual end user based on the user profile data contained in personal profile database 27. Electronic content received by system 12 from metering server 14 may include fields which can be customized. Which fields can be customized may be indicated in a header block received with the electronic content. For example, a unit of electronic information may be received with a particular field having the default color of green. If personal profile database 27 contains sufficient data regarding color preferences for the individual end user, then content adapter 25 changes the color of that particular field from green to whatever color preference is contained in personal profile database 27 for that individual end user. Similarly, the default consumption format may be video, but if personal profile database 27 indicates that the end user prefers audio format, then content adapter 25 delivers the audio format version ofthe electronic information to the client interface 23 rather than the video version.
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, Abstract: A method for presenting advertising in an interactive service provided on a computer network, the service featuring applications which include pre-created, interactive text/graphic sessions is described. The method features steps for presenting advertising concurrently with service applications at the user terminal configured as a reception system. In accordance with the method, the advertising is structured in a manner comparable to the service applications enabling the applications to be presented at a first portion of a display associated with the reception system and the advertising presented at a second portion. Further, steps are provided for storing and managing advertising at the user reception system so that advertising can be pre-fetched from the network and staged in anticipation of being called for presentation. This minimizes the potential for communication line interference between application and advertising traffic and makes the advertising available at the reception system so as not to delay presentation of the service applications. Yet further the method features steps for individualizing the advertising supplied to

Reference	Disclosure
	enhance potential user interest by providing advertising based on a characterization of the user as defined by the users interaction with the service, user demographics and geographical location. Yet additionally, advertising is provided with transactional facilities so that users can interact with it. FILEPP, 1:17-32: This invention relates generally to a distributed processing, interactive computer network intended to provide very large numbers of simultaneous users; e. g. millions, access to an interactive service having large numbers; e.g., thousands, of applications which include pre-created, interactive text/graphic sessions; and more particularly, to a method for presenting advertising to service users during interactive sessions, the method featuring steps for presenting advertising concurrently with applications, the advertising being organized as data which is stored for presentation and replenished at the user sites so as to minimize interference with retrieval and presentation of application data; the method also featuring steps for individualizing the advertising presented based on user characterizations defined by service interaction and/or other data such as user demographics and geographical location. FILEPP, 2:59-67: It is a still another object of this invention to provide a method for presenting advertising which minimizes the potential for interference between presentation of interactive-service applications and advertising. It is yet a further object of this invention to provide a method for presenting advertising in an interactive service which method enables the advertising presented to be individualized to the user to whom it is presented in order to increase the likelihood the advertising will be of interest to the user. FILEPP, 9:65-10:6: Continuing with reference to FIG. 3a, in accordance with the invention, advertising 280 is provided over network 10, like page elements, also includes information for display on page 255, and may be included in any partition of a page. Advertising 280 is presented to the user on an individualized basis from queues of advertising object identifications (ids) that are constructed offline by business system 130, and sent to file server 205 where they are accessible to each RS 400. FILEPP, 21:19-34: If the string entered by the user matches a keyword existing on one of the keyword tables, and is thus associated with a specific PTO, RS 400 fetches and displays associated objects

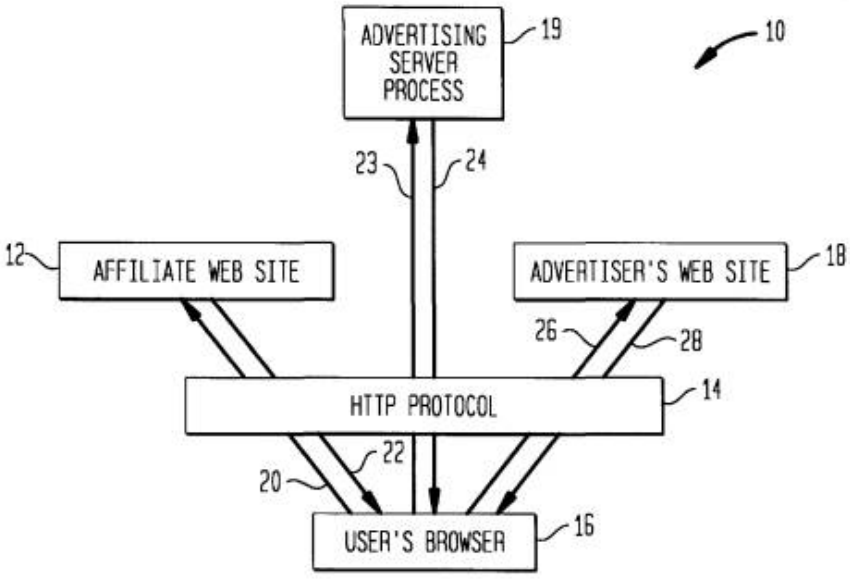
Reference	Disclosure
	of the partitioned applications and builds the entry page in accordance with the page composition dictated by the target PTO. If the string entered by the user does not match a specific keyword, RS 400 presents the user with the option of displaying the table of keywords approximating the specific keyword. The approximate keywords are presented as initialized, cursorable selector fields of the type provided in connection with a Index command. The user may then move the cursor to the nearest approximation of the mnemonic he originally selected, and trigger navigation to the PTO associated with that keyword, navigation being as described hereafter in connection with the RS 400 native code. FILEPP, 22:22-44: Activation of the Path command accesses the user's list of pre-selected keywords without their display, and permits the user to step through the list viewing the respective applications by repeatedly invoking the Path command. As will be appreciated, the user can set a priority for selecting keywords and viewing their associated applications by virtue of where on the list the user places the keywords. More specifically, if the user has several application of particular interest; e.g., news, weather, etc., the user can place them at the top of the list, and quickly step through them with the Path command. Further, the user can view and randomly access the keywords of his list with the Viewpath operation noted above. On activation of Viewpath, the user's Path keywords are displayed and the user can cursor through them in a conventional manner to select a desired one. Further, the user can amend the list as desired by changing the keywords on the list and/or adjusting their relative position. This is readily accomplished by entering the amendments to the list presented at the screen 414 with a series of amendment options presented in a conventional fashion with the list. As noted, the list may be personally selected by the user in the manner described, or created as a default by network 10.
U.S. PATENT NO. 5,999,912 ("WODARZ")	*See*, *e.g.*, WODARZ, Abstract: Dynamic advertising scheduling, display, and tracking for the World Wide Web. The invention includes at least one template Web page that has conventional HTML codes defining the format and content of the Web page. Special "ad tags" are used to indicate the characteristics of an ad that can be displayed on a Web page at the position of the ad tag. A request to view a page is sent to a server-resident parser. The parser accesses the

Reference	Disclosure
	template for the requested page, parses the conventional HTML codes, and provides such codes to the user. In addition, the parser "expands" each ad tag to standard HTML code that defines the characteristics of an ad. During expansion of ad tags, the parser determines from each ad tag the type of ad that can be inserted at the page position of the ad tag; a bin identifier defining Which ads can be associated With the ad tag; a page identifier of the page associated With the ad tag; and various optional flags and codes. The parser generates a list of valid ads by searching through a conventional database, selects one that fulfills all the parameters of the ad tag, and generates HTML code linking a particular ad to the ad tag. That HTML code is then sent to the user. The parser program can also apply scheduling criteria to select ads from the generated list of eligible candidates.  **FIG. 1a**

Reference	Disclosure
	 **FIG. 1b**
U.S. PATENT NO. 5,710,884 ("DEDRICK PATENT")	*See*, *e.g.*,
BUSINESSWIRE	*See e.g.*, BUSINESSWIRE (Lycos provides keyword search advertising, which links advertisements to Lycos' search engine. When linked keywords are selected in a user's search, the company's advertisement will appear on the Lycos results page above the results listing. This enables an advertiser to purchase keywords related to its business and to have its ad appear whenever a search is conducted using that keyword.")
Another Search Engine? Hotwired Introduces Hotbot, Powered By Inktomi, PR Newswire, May 20, 1996 ("ANOTHER SEARCH ENGINE")	*See*, *e.g.*, ANOTHER SEARCH ENGINE, p. 1: "For advertisers, HotBot offers smart messaging technology similar to what is already available on HotWired; ads can appear selectively on pages served to specific categories of users."
The 'Hottest' Search Engine," Business Communications Co., Vol. 3, No. 3, June 1996	*See*, *e.g.*, THE 'HOTTEST' SEARCH ENGINE, p. 1: "HotBot will be advertising-supported, and offered free of charge to users. For advertisers, HotBot offers smart messaging technology similar to what is already available on HotWired; ads can appear selectively on pages served to specific categories of users. Ads can also appear selectively on pages delivered in response to specified query terms."
U.S. Patent Nos. 5,948,061 ("MERRIMAN I") and 7,844,488 ("MERRIMAN II")	*See*, *e.g.*, MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 2:59-3:4: The basic architecture of the network 10 comprises at least one affiliate web site 12, an advertisement (ad) server web site 19

Reference	Disclosure
	and one or more individual advertiser's web sites 18. Affiliates are one or more entities that generally for a fee contract with the entity providing the advertisement server permit third party advertisements to be displayed on their web sites. When a user using a browser accesses or "visits" a web site of an affiliate, an advertisement provided by the advertisement server 19 will be superimposed on the display of the affiliate's web page displayed by the user's browser. Examples of appropriate affiliates include locator services, service providers, and entities that have popular web sites such as museums, movie studios, etc. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:5-23: The basic operation of the system is as follows in the preferred embodiment. When a user browsing on the Internet accesses an affiliate's web site 12, the user's browser generates an HTTP message 20 to get the information for the desired web page. The affiliate's web site in response to the message 20 transmits one or more messages back 22 containing the information to be displayed by the user's browser. In addition, an advertising server process 19 will provide additional information comprising one or more objects such as banner advertisements to be displayed with the information provided from the affiliate web site. Normally, the computers supporting the browser, the affiliate web site and the advertising server process will be at entirely different nodes on the Internet. Upon clicking through or otherwise selecting the advertisement object, which may be an image such as an advertisement banner, an icon, or a video or an audio clip, the browser ends up being connected to the advertiser's server or web site 18 for that advertisement object. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:24-63: In FIG. 1, a user operates a web browser, such as Netscape or Microsoft Internet Explorer, on a computer or PDA or other Internet capable device 16 to generate through the hypertext transfer protocol (HTTP) 14 a request 20 to any one of preferably a plurality of affiliate web sites 12. The affiliate web site sends one or more messages back 22 using the same protocol. Those messages 22 preferably contain all of the information available at the particular web site 12 for the requested page to be displayed by the user's browser 16 except for one or more advertising objects such as banner advertisements. These objects preferably do not reside on the affiliate's web server. Instead, the affiliate's web server sends

Reference	Disclosure
	back a link including an IP address for a node running an advertiser server process 19 as well as information about the page on which the advertisement will be displayed. The link by way of example may be a hypertext markup language (HTML) <img> tag, referring to, for example, an inline image such as a banner. The user's browser 16 then transmits a message 23 using the received IP address to access such an object indicated by the HTML tag from the advertisement server 19. Included in each message 23 typically to the advertising server 19 are: the user's IP address, (ii) a cookie if the browser 16 is cookie enabled and stores cookie information, (iii) a substring key indicating the page in which the advertisement to be provided from the server is to be embedded, and (iv) MIME header information indicating the browser type and version, the operating system of the computer on which the browser is operating and the proxy server type. Upon receiving the request in the message 23, the advertising server process 19 determines which advertisement or other object to provide to user's browser and transmits the messages 24 containing the object such as a banner advertisement to the user's browser 16 using the HTTP protocol. Preferably contained within the HTTP message is a unique identifier for the advertiser's web page appropriate for the advertisement. That advertisement object is then displayed on the image created by the web user's browser as a composite of the received affiliate's web page plus the object transmitted back by the advertising web server. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), Fig. 1:

Reference	Disclosure
	FIG. 1  MERRIMAN II (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 9:38-41: 2. The method of claim 1, wherein selecting an advertisement based upon stored information about said user node comprises selecting an advertisement based upon a prior content request sent from said user node to an affiliate node.
DoubleClick Named Advertising Sales and Distribution Partner for AltaVista Search Site; Leading Internet Ad Network Teams with Net's Largest Search Engine, PR Newswire (Dec. 18, 1996) ("AltaVista")	ALTAVISTA, p. 1: In a move that will provide online advertisers access to its leading Internet search engine, Digital Equipment Corporation's (NYSE: DEC) AltaVista Internet Software subsidiary has signed an agreement with DoubleClick, Inc., the premier Internet advertising network. The agreement grants DoubleClick rights to market display ad banners on selected AltaVista Search pages, as well as create sponsorship opportunities for major advertisers. The agreement is effective immediately. Details were not disclosed. "We continuously strive to enhance the effectiveness and value of our service," said Ilene H. Lang, president and CEO of AltaVista Internet Software, Inc. "By partnering with DoubleClick, we can now provide an informative advertising service to our millions of users without compromising search performance. DoubleClick's leadership technology for targeting and delivering ads will allow AltaVista Search to maintain sub-second response times for user queries, to present highly relevant advertisements in response to selected queries, and to participate in a growing revenue opportunity."

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	"AltaVista Search is an unparalleled Internet service," states Kevin O'Connor, president and CEO of DoubleClick. "We're extremely proud that DoubleClick has met AltaVista's high standards for performance and service, and that they've chosen us as their advertising partner. Working together, we have created a 'no compromise' service which benefits AltaVista Search's widely respected professional user base as well as on-line advertisers of all industries."
Doubleclick Debuts New Tool For Testing Creative On The Web, PR Newswire (May 20, 1996).	DOUBLECLICK DEBUTS, p. 2: Currently, the DoubleClick Network offers advertisers the ability to distribute their ad banners to more than 25 independent sites, including: Excitel, I-Golf, WITI (Women in Technology), Travelocity, Quicken Financial Network and Sportsline. The Network represents a broad range of users including; investors, business professionals, college students, women, consumers, gamers and sports enthusiasts. Ad banner distribution through the DoubleClick Network can be executed in a variety of ways; by appearing on all 25 Web sites, on only one Web site, or on any combination of Web sites.
Web offers wide audience, pinpoint accuracy, The Boston Globe (May 5, 1996) ("Bray")	BRAY, p. 1: DoubleClick has assembled a network of about 30 Internet sites, including the Excite search engine, the SportsLine sports news service and the Travelocity travel-planning service. The members sell ad space to major companies such as Microsoft, Intel and Bank of America. But instead of displaying the ads to all comers, DoubleClick targets them to particular viewers.
Poppe Tyson Partners With Atlanta Software Leader To Form Doubleclick -- The First Advertising Network For The Internet, PR Newswire (Feb. 6, 1996).	POPPE TYSON, p. 1: DoubleClick's network, which is currently live on a number of major sites as part of a beta test, is anticipated to have in excess of 200 quality Web sites by the end of the year. The network will go live in early April. Currently, DoubleClick represents two leading Web sites, Netscape and Excite!. In addition, the DoubleClick network will offer advertisers a unique ability to customize and target ads to specific users and to measure results.
NAQVI WO	NAQVI WO at Abstract - "The advertisements on the server are not tied to any particular page containing information on the network, but rather, are retrieved in response to a query entered by the user (17) and dynamically mixed with the content of the pages returned in response to the query (16). The present invention displays the content pages with focused, targeted advertisements as a part of the page, in accordance with a particular layout." NAQVI WO, p. 2 - "That is, when a user uses certain search engines for conducting a search, the user will be shown advertisements while

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	doing the searching. These advertisements are sometimes referred to as "banner" advertisements because they simulate a banner that the user sees as the user is traveling down a "road" on the computer network. These advertisements are typically tied to a particular search page that the user encounters during the search. The current state of the art is such that when the user uses a search engine, a randomly selected advertisement is shown as if it is part of the search page. For example, the user may enter a search request to see a home page on cooking and, as a part of that page, the existing systems might display an advertisement about cars. This is a problem, of course, because there is no connection made between the content of the advertisements or the message of the advertisements and what the user is actually searching." NAQVI WO, p. 3 – "It is a further object of the present invention to provide a method and system for advertising on a computer network in which advertisements are more focused and targeted, for example, by user queries and user profiles, including the past history of the user's interactions with the system." NAQVI WO, p. 4 – "The present invention provides a new process and system for online advertising. This new process will be referred to throughout this application as query-based advertising ("QBA"). In the QBA process, advertisements are primarily triggered by user queries. User queries, as 15 used herein, refer to requests from an information consumer for one or more pages of information from a computer network. As a result of a query, a user is exposed to advertisements with the present invention, i.e., the query triggers advertisements." NAQVI WO, p. 5-6 - "When the user requests a certain page or a certain topic of information, the relevant pages are retrieved from the computer network and shown to the user. The present invention, upon receiving the user's request, retrieves advertisements that are related to the user's action, dynamically mixes the advertisements with the content of the pages according to a particular layout, and displays the pages with focused, targeted advertisements as a part of the page. The advertisements can be made to satisfy a set of constraints requested by the advertiser, as well as the constraints of the publisher of the page, as further discussed below. The advertisement triggering mechanism of the present invention is not random or coincidental, but rather, is prespecified in advance. This specification will be referred to in this application as a contract. A contract specifies the marketing

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	rules that link advertisements with specific queries. For example, a diet soft drink advertisement may be shown when a user asks for a page about exercising equipment. These rules are specified by advertisers implementing the concept of "focus" or "relevance" of advertisements and help the advertisers to target a specific audience. Owners of pages specify the focus content of their pages through special tags within a page. These tags are not displayed to the information consumer; the tags are used to decide what advertisement can be shown when the page is requested by a consumer. The notion of a contract, however, goes well beyond just marketing rules. First of all, the advertising space on the online medium, although technically unlimited, is severely restricted by the user's attention span. Placing advertisements on the first page which constitutes the answer to a query gives the advertisements much higher probability to be seen than on later pages of the answer." NAQVI WO, p. 7-8 – "A consequence of QBA is that ads cannot be placed on pages a priori because it is the query that determines what ads are to be placed on a page. This is referred to as dynamic advertising. The query asks for a page that has a 30 focus. Ads that are resident in the system are checked to determine which ads can potentially be placed on the page in question. This decision is based on matching the focus of a page with the focus of the ad. When not all matching ads can be placed on a page because of space limitations, the contract enforcement feature of the present invention ensures that the ads that are placed on the page are 5 consistent with the contracts signed by the system with the advertiser." NAQVI WO, p. 9 – "In summary, the present invention provides a system and method for advertising on a computer network, comprising a server containing a plurality of advertisements, means for electronically connecting the server to a computer network, and means for selecting and 15 retrieving an advertisement from the server in response to a query entered on the network. The selecting means comprises means for ensuring that a selected advertisement is relevant to the query. A mixer means is provided for combining a retrieved advertisement with a content page 20 returned by the computer network in response to the query. The mixer means comprises a layout manager means for computing an optimum layout of a combined page containing the retrieved advertisement and the content page. The

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	mixer means also comprises a typography manager means for 25 detecting special tags and HTML rules in the content page and for determining which part of the content page the selected advertisement can be displayed on. The content page is provided by a home page dispatcher, a search engine, or a generic HTML content provider in response to 30 the query." NAQVI WO, p. 24-25 - In using a yellow page publisher there are two broad 20 distinctions for a query. A client may be asking for a certain category of listings, or the client may be asking for a particular vendor. For example, the user could ask for car dealers in Morristown, NJ (i.e., a category of listings), or the user could ask for Morristown BMW located 25 on South Street in Morristown, NJ (i.e., a particular vendor) . The system determines which of the two types of queries or searches the user has made, as illustrated by box 32 in Fig. 2. If the query is for a certain category, the process will go to the left hand side of the flow chart 30 of Fig. 2, and if the query is for a certain vendor, the process will go to the right hand side of the flow chart of Fig. 2. The left hand side of the flow chart will be explained first. After determining the type of query, the category search engine 33 next determines which category best fits 5 the user's request. The user may have asked for "car," but the category in the yellow page provider's index may in fact say "automobile." Or, the user may have asked for "spectacles," and the category in the yellow page provider may be called "optician." The matching of these variations 10 of terms is performed by the category search engine 33. Once it has been determined which category the user's request falls into, the advertisement selection process comes into play with the ad selector 34. The ad selector 34 determines what advertisements are best suited to be 15 mixed in with what the user has requested. The content from the category search engine 33 and the ad(s) from the ad selector 34 are then given to a mixer 35. The mixer 35 functions to mix the content coming from the search engine with the ad(s) selected by the ad selector 34. The result 20 is the creation of a page that is of interest to the user. If the user's category was about cars, at this point

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	the ad selector 34 would have presumably found advertisements related to cars and displayed these ads at step 36 to the user. The user at this point can select one or more of the listed or advertised car dealers. This again results in more advertisements being selected by the ad selector 34, as well as the accessing of a vendor search engine 37 provided by the yellow page publisher, and a new page being shown to the user." NAQVI WO, p. 32-33 – "Referring to Fig. 6, a process flow of the mixer and ad selector will be described. The purpose of the mixer 35 (as previously described in reference to Fig. 2) is to take publishers' content and advertisements and combine them 15 together so that the content and the advertisements are mixed on the same page. In Fig. 6, the mixer 35 is shown receiving two inputs from the publishers: data 50 (which is the content) and EHTML 61 (which contains the special tags). The layout 20 manager 10 and parser 60 both form a part of the mixer 35. The data 50 is input to the layout manager 10, and the E_HTML 61 is input to the E_HTML parser 60, as previously discussed. Both of these sub-modules then determine where the advertisements can be placed on the publisher's page. 25 The advertisement list is then input from the ad selector 34. The ad selector 34 receives a focus input 43, retrieves relevant ads (step 70), and creates the advertisement list using the prime space manager 20 (step 71). These advertisements are then placed in the parser 60 30 and the layout manager 10 (step 72), as described above. The mixer 35 then logs all the essential billing and other user information (step 73) for keeping track of the system's placement of an advertiser's ad. At this point, a refresh tag is inserted (step 74) and the system outputs an HTML page (step 75)." NAQVI WO, p. 39-40 - "Referring to Fig. 10, the flow of an ad placement process 110 according to the present invention will be described. The purpose of ad placement is to allow advertisers to enter their advertisements into the system. For entering an ad, the system provides a screen that is shown to the user asking whether the user wants to enter an ad. If the user indicates yes by clicking on that 20 particular choice, the system enters the start 111 of the

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	ad placement mode. At this point the system asks the user for the focus (step 112). The advertiser may say, for example, that he is in the car business, the car washing business, or that he is a physician, a lawyer or whatever 25 other category name that he wants to give. The user is also asked for an advertisement name at step 112. This is just a name for future reference. The purpose of the focus in step 112, as discussed above, is to prevent an advertisement from being shown that 30 is not relevant to the query at hand. The system of the present invention always shows advertisements that are relevant to what the user has asked for. Therefore, it is of paramount importance that the system know the context of the ad. Thus, when the advertiser places an ad, the system establishes the focus." NAQVI WO at Claim 3, 8, 9 Figures 1, 2, 7, 8A, 8B, 10, 11 (and associated text)
BULL	BULL at Col. 4 - "Along with displays, including those for data entry, searches, search results, information retrieval, the user will be presented with advertisements and/or coupons based on criteria entered by advertisers. This criteria may take the form of simple logic, linking an ad/coupon with a display or be derived from complex software text search agents that analyze one or more of the following: The user's looking pattern, the user's psychographic profile, the user's personal profile, the availability of the advertiser's/couponer's goods or services at the instant in time that the criteria is being exercised. The placement of the ad/coupon will be logged along with user profile information and provided to the advertiser/couponer in some form of report." BULL at Col. 4 - "III. Software Agent Advertising Insertion. Currently, advertisements in WWW pages are tightly tied to each page, are inserted based on keywords or on a psychographic profile of the user. Certain criteria will be entered which delineates a pattern that is requested to be monitored. When this pattern is seen or is in close match) in the user's WWW activity, the insertion mechanism is activated. If a certain web page is requested, the present invention will display a particular advertisement. The ad will be inserted based on the content of the existing web page being read. An analysis of the text stream of the user's interactive session will be performed

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	on-line. For instance, if the user accesses web pages for Holiday Inns on the West Coast, the insertion mechanism could be established to automatically insert ads for Hilton Inns on the West Coast." BULL at Cols. 6-7 – "Initial Setup for Advertisers and Lead Generation Advertisers: Advertisers, using a user access system 100 enter criteria that should met for an advertisement/coupon placement. These criteria are in the form of the complex software text search agents described above. This includes a match "threshold." When this threshold is met or exceeded, an ad/coupon will be appended to a system session. Statistical analysis known as clustering is used to evaluate the data. The ad/coupon may be resident on the user access system 100, an advertiser's computer system (400 . . . N) or stored in the Advertising DataStore 250. Additionally, the Advertiser may include conditional criteria for ad/coupon place ment (available inventory, in stock levels, excess capacity, etc.). This criteria is referenced when the "threshold" is met and if satisfactory, the ad/coupon is appended. This criteria may be tested against data input through the user access system 100, data on the advertising datastore 250 or data on the advertiser's computer system (400 . . . N). Additionally, advertisers can input World Wide Web referential information (hot links) to be displayed with ads/coupons or on geographic map displays. These are stored on the adver tising datastore 250" BULL at Col. 10 – "233 Ad/Coupon Insertion Agents These are complex software text search patterns that when matched within the text being reviewed within a given session, cause an advertisement/coupon to be added into the display. These can be direct insertion or conditioned from criteria on the Advertiser's Computer Systems (400 . . . N) and/or the user's profile from the user profile datastore 210" BULL at Col. 12 – "296 Ad/Coupon Insertion System This looks at the current display requested by the user with a Ad/Coupon Insertion Agent 233, determines which ads should be placed (or rotated) and makes the placement (or establishes the rotation)." BULL at Col. 12 – "Certain criteria will be entered which delineates a pattern that is requested to be monitored. When this pattern is seen (or is in close match) in the user's WWW activity, the insertion

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	mechanism is activated. If a certain web page is requested, the present invention will display a particular advertisement. The ad will be inserted based on the content of the existing web page being read. An analysis of the text stream of the user's interactive session will be performed online. When certain text patterns are observed (or close matches are observed), an advertisement is inserted into the display. The advertising may be static or connected to the adver tiser's computer datastore which designates specific ads or coupons based on the pattern match and other conditions which may be required. The software agent criteria is entered by the merchant in the agent data store 230 which delineates a pattern that needs to be monitored. As an example, if the user accesses web pages for "Holiday Inns on the West Coast", the insertion mechanism Would be established to automatically insert ads for "Hilton Inns on the West Coast."" BULL at Figs. 1 - 7 (and associated text)
SUBMIT-IT	TECHCRUNCH[11] at 2-3 - "But we weren't the first to appreciate the true value of search. Submit-It, founded a few years earlier in a dorm room by Scott Banister, helped website owners submit their URLs to multiple search engines and directories. Banister saw how badly his customers wanted to secure placement on search results. In 1996, he brilliantly conceived an idea he called "Keywords": to sell search listings based on pay-for-placement bidding – more or less the same as today's AdWords. Banister began pitching the idea to anybody who would listen to him, including, among others, Bill Gross of IdeaLab, and the principals of LinkExchange: Tony Hsieh, Sanjay Madan, and me."
HEALTHGATE	HEALTHGATE.COM[12] - "Due to our aggressive pricing and volume discount plans, the actual cost per thousand (CPM) impressions may vary. Our Keyword Plan gives you the ability to ensure that your ad will be displayed whenever a user enters your pre-defined keyword."
INFOSEEK	PRNEWS at 1: "It is possible for a company to buy its own name or an

[11] TECHCRUNCH shall refer to Ali Partovi, "Bubble Blinders: The Untold Story of the Search Business Model," posted Aug. 29, 2010

[12] HEALTHGATE.COM will refer to the HealthGate.com website at the webpage currently available at https://web.archive.org/web/19961105192255/http:/www.healthgate.com/HealthGate/product/sponsorship.html

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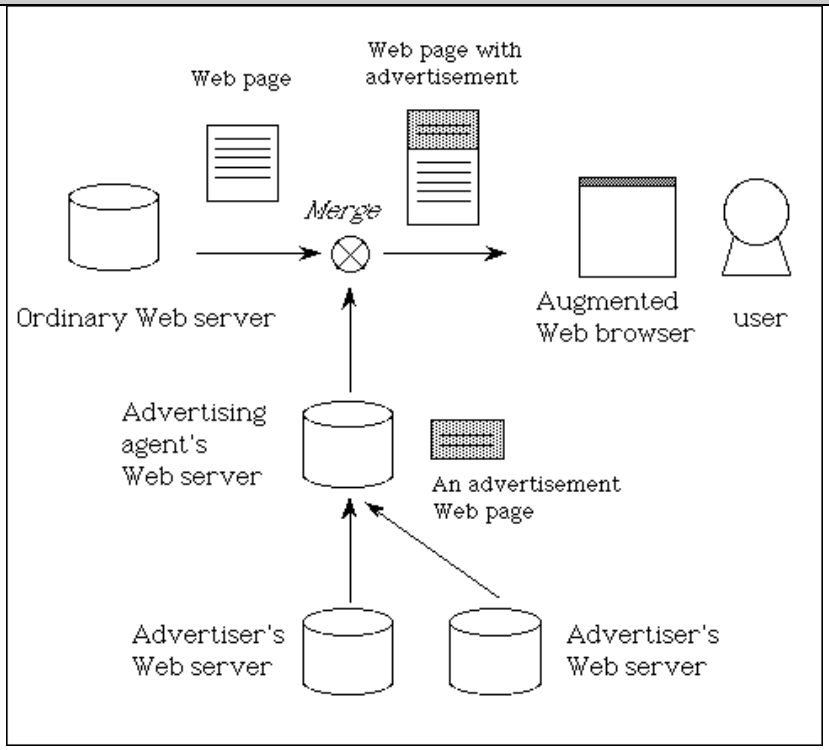
	ad to ensure it is listed at the top of a search results page); ("WebCrawler, Lycos and InfoSeek offer advertisement banner links, however Alta Vista's product is still in beta-test.") FROOK at 1: "These advertisements work by delivering a sales pitch along with the results of a key-word search on a search engine. For example, a user searching under the subject "cars" might receive a Web ad for Genetal Motors Corp. or Chrysler Corp., while a search for modems might delivervan ad for online computer superstore NECX Direct."
OPEN TEXT INDEX	CNET - "Open Text is offering to help those publishers by allowing them premium slots in its search engine without requiring them to buy more expensive advertising banners. Under the company's Preferred Listing [http://www.opentext.com/omw/preferred_c.html] service, a merchant that sells personal computers online, for example, could ensure that its Web site appears as the top listing in searches for the terms *PC* and *computer.*" FAIN - "Paid search reconciled this dilemma by tying the search engine's revenue to the act of transferring the user to an advertiser's site. In 1996, the search engine Open Text briefly offered ***preferred listings,*** in which sites would pay to be inserted into the search result set for particular keywords."
PR NEWS	PR NEWS at 1: "The general solution to avoid getting buried by others' words is to buy a 'search word,' an option introduced last year by several search engines. For example, it is possible for a company to buy its own name or an ad to ensure it is listed at the top of the search results. Time Warner could thus ensure that anyone who enters the term 'Time Warner' will see its home page or ad at the top of the search results. Charges for banner ads in search engines vary, but tend to be expensive, according to Beth Lanahan, spokesperson for one of the Web's more popular search engines, InfoSeek. Depending on Impression and specific topic, advertisements that rotate through directories range from $7,500 to $73,000 for a four-week period. Advertisements that appear only with the results of a specific key word search are a minimum of $1,000 for a four-week period. WebCrawler, Lycos and Infoseek offer advertisement banner links, however Alta Vista's product is still in beta-test."

Reference	Disclosure
KOHDA '96	KOHDA '96, §1: "An advertising agent is placed between the advertisers and the users. Advertisements fetched from advertisers' Web servers are merged with Web pages from ordinary Web servers by the agent, and the merged pages are displayed on the users' Web browser. Thus, the users see advertisements on any server around on the Internet. Moreover the agent has chances to deliver appropriate advertisements which suit each user's taste." *Id*., §2.1: "First of all, the advertising agent company makes a contract with advertiser companies. Remark that ordinary users can become advertisers or advertising agents if they are ready to pay for it, but we use the word, company, to make the explanation brief. The agent company is responsible for delivering advertisements to users. The advertisements are stored on the agent's Web server." *Id*., §2.2: "When a user clicks an anchor on a page displayed on the browser, the browser contacts the Web server and returns a Web page designated by the anchor. Simultaneously, the browser contacts the advertising agent's Web server. The agent's Web server returns a Web page of one of its advertisements. Then the browser merges those returned Web pages, and displays a composite page on the screen." *Id*., §2.2: "Note that the agent is aware of the identity of the user and which page the user is about to read on the browser, so the advertising agent can tailor advertisements for *individuals and their current interests*. Thus it prevents the user from having to see advertisements that are unrelated to their current interests." *Id*., §3.2: "The filter keeps in memory the contact path (URL) to the agent's Web server. When it is invoked, it forwards the invocation parameters passed from the browser to the agent's Web server, and waits for a reply. Then, the agent's Web server returns one of its advertisements or other useful information. The filter merges the reply from the agent's Web server before the input from the pipe, i.e., Web pages from other Web servers." Fig. 2:

Reference	Disclosure
	
	

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KOHDA '853	KOHDA '853 at 38:30-35: "the advertising information server provides the advertising information automatically based upon the retrieval condition data, wherein another predetermined tag is added to the provided condition data to retrieve advertising information, and is derived from the retrieval information." *Id*. at 23:60 to 24:7: "When the user is obtaining the information about the sales conditions of the latest automobiles, the information server 100 to obtains and analyzes the retrieval information to be obtained by the user, and recognizes that the information relates to the sales conditions of the latest automobiles.... Then, the information server 102 selects the advertising information about, for example, sports cars from a large volume of advertising information relating to automobiles, and transmits the selected information to the information retrieving apparatus 100. As a result, the advertising information in which the user may be interested can be transmitted to the user, thereby enhancing the advertising effect." *Id*. at 6:56 to 7:3: "The user inputs data for use in obtaining requested retrieved information (for example, articles from a newspaper relating to a specified item) through the input/output unit 1. Then, the information retrieving apparatus 100 obtains the retrieved information from the information retrieving server through the retrieved information obtaining unit 3, automatically obtains additional information such as advertising information from the information server through the additional information obtaining unit 4, incorporates the obtained information into the retrieved information obtained from the information converting unit 2, and outputs the result on a display unit." *Id.* at 6:13-18: "The input/output unit 1 receives data for use in obtaining retrieved information (common information) and additional information (advertising information) from the user, and outputs the retrieved information and additional information obtained from the server to the display unit." *Id*. at 13:40-43: "The information converting unit 2 incorporates the additional information stored by the additional information storage unit 44 into the retrieved information stored by the retrieved information storage unit 34." *Id*. at 17:8-10: "[T]he user obtains an output with a corresponding advertisement incorporated."

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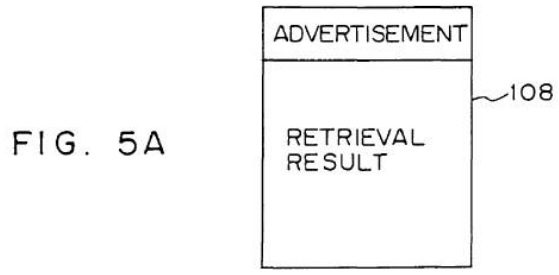
	Id. at 17:56-59: "The additional information 107, that is, advertising information is displayed at the top of the screen while the retrieved information 106 is displayed at the bottom of the screen." Figure 5a:  FIG. 5A
	See e.g., LITTLE, p. 75: "Consumers can use computer-based searching techniques to quickly locate products and to shop for competitive prices on a single site or across many sites."
	See e.g., ADAM, p. 818 ("Electronic commerce (EC) and digital libraries (DL) are two increasingly important areas of computer and information sciences, with different user requirements but similar infrastructure requirements. . . . An EC/DL system is characterized as a collection of distributed autonomous sites (servers) that work together to give the consumer the appearance of a single cohesive collection."); *id.*, p. 821 ("From an EC perspective, consumers seek to find products and services at low cost using language and terminology they are most familiar with. The unique challenges for EC include: create mechanisms to allow buyers to locate products and services with specific characteristics and to allow sellers to locate potential buyers with specific traits (matchmaking services); and provide secure bidding and negotiation systems with which a buyer can solicit bids and receive quotes.")
Business Briefcase refers to *Business Briefcase*, The Boston Herald (Dec. 19, 1996). (BUSINESS BRIEFCASE)	*See e.g.,* BUSINESS BRIEFCASE, p. 1 ("Digital Equipment Corp. of Maynard said yesterday it had sold rights to advertise on its popular AltaVista Internet search engine to DoubleClick Inc., a Net ad network. The deal lets DoubleClick sell display space on selected AltaVista pages. Financial details were not disclosed.")
DoubleClick Named Advertising Sales and Distribution Partner for AltaVista Search Site; Leading Internet Ad Network Teams with	*See e.g.,* ALTAVISTA, p. 1 ("In a move that will provide online advertisers access to its leading Internet search engine, Digital Equipment Corporation's (NYSE: DEC) AltaVista Internet Software subsidiary has signed an agreement with DoubleClick, Inc., the premier Internet advertising network. The agreement grants DoubleClick rights to market display ad banners on selected AltaVista

Reference	Disclosure
Net's Largest Search Engine, PR Newswire (Dec. 18, 1996). (ALTAVISTA)	Search pages, as well as create sponsorship opportunities for major advertisers. The agreement is effective immediately. Details were not disclosed. 'We continuously strive to enhance the effectiveness and value of our service,' said Ilene H. Lang, president and CEO of AltaVista Internet Software, Inc. 'By partnering with DoubleClick, we can now provide an informative advertising service to our millions of users without compromising search performance. DoubleClick's leadership technology for targeting and delivering ads will allow AltaVista Search to maintain sub-second response times for user queries, to present highly relevant advertisements in response to selected queries, and to participate in a growing revenue opportunity.' 'AltaVista Search is an unparalleled Internet service,' states Kevin O'Connor, president and CEO of DoubleClick. 'We're extremely proud that DoubleClick has met AltaVista's high standards for performance and service, and that they've chosen us as their advertising partner. Working together, we have created a 'no compromise' service which benefits AltaVista Search's widely respected professional user base as well as on-line advertisers of all industries.'"
FLYNN	*See e.g.*, FLYNN, p. 2 ("Yahoo!, for example, uses [NetGravity's] AdServer . . . AdServer offers Yahoo! several features for targeting ads to specific visitors. For starters, when a visitor to the Yahoo! site conducts a search by inputting a keyword, advertising related to that keyword appear on the screen. A visitor might, for example, conduct a search for Web pages related to cars. The server would then display an ad related to cars when it displays the results of the query."
MEEKER	MEEKER at 1-9: "Other advantages for advertisers include: parallel delivery of an ad with the content a user is searching for, like a billboard for a restaurant along a highway (in TV, advertisements are delivered serially with content)." *Id.* at 6-2: "Each time the page is downloaded by a user, a designated space on the page (in the example in Figure 6-1, a rectangle across the top) is automatically filled with a banner. The method by which a site determines which ad to put into which download may depend on agreements or contracts with advertisers, the capability of the technology involved, the demographics of the user, and other factors." *Id.* at 6-6: "Search engines, by definition, use text input by users to conduct searches of relevant content on the Web. Since advertisements are displayed along with the search results, these companies allow advertisers to buy "key words," which display the advertiser's banner when a user searches for the word purchased. It follows that the word or words purchased are generally related in some way to the advertiser's products or services. Infoseek and

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	Yahoo! charge $1,000 per month per keyword, and based on a target of 20,000 impressions, this would yield a CPM of $50. For example, Figure 6-3 shows how the results of a search for the word "router" yielded a typical list of sites but also netted an advertisement for Cabletron Systems (a maker of switches, considered an alternative to routers). In fact, any time this word was searched for, the same ad came up. A search for "hub" consistently resulted in a different ad for the same company. (Yes, we searched for "beer," and each time we got a Miller Genuine Draft ad)."
PHILLIPS BUSINESS	PHILLIPS BUSINESS at 1: "Another approach to selling ads is through leasing key search words. Advertisers can purchase the rights to a key word not necessarily one derived from their own products. If a search term matches a key word, their ad will be placed. Lycos Marketing Manager Sarah Garnsey said users who enter the key word "Windows" on the Lycos engine, for example, will see an ad for IBM. She added that AT&T {T} once owned the key word "telephone."
DEDRICK 1995	*See e.g.*, DEDRICK 1995, p. 44-45 ("A hyptertext linking (hot-link) capability is a very important feature in electronic ads. Elements can contain hypertext link attributes embedded by the electronic ad's author during element creation. This hypertext link capability allows the advertiser to change an element, and thus the ad, dynamically at any time. This dynamic upgrade-ability is gained by enabling the hypertext link to point across the content distribution network to elements residing on remote servers. These elements can contain actual advertising content, or they might themselves be hypertext links pointing to other elements. Invocation of a hypertext link might be the result of a process-triggered function or consumer interaction (such as a consumer clicking on a hot spot in a graphic or digital video clip within an electronic ad.) Hypertext links within regular electronic content might also point to related electronic advertising elements. For example, if an author publishes an article electronically, the author could insert a hot spot into the article that, when selected by the consumer, will point to a related electronic ad. By selecting the hot spot, the consumer triggers the ad to be downloaded to the local consumption device."); *id.*, p. 45 ("Other profile data might include key words and other variables used by consumption agents for finding both electronic content and electronic ads that have a certain 'hit rate' when matched against a consumer's profile."); *id.*, p. 46 ("As personal consumption profiles become more robust, consumers might begin to see ads focusing on their favorite subjects, presented primarily in their favorite colors, sizes and shapes. Also, their agents might report the availability of electronic content and ads matching their personal profiles.")
GALLAGHER	*See e.g.,* GALLAGHER, p. 3 ("As of August 1996, both Yahoo! and

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	Excite offered advertisers three options: general rotation, geographic or content targeting, and keyword-based targeting. . . . The third option, keyword-based targeting makes greater use of the targeting potential of information services. A company can buy keywords so that whenever a user enters one of those keywords during a search, s/he will be exposed to the company's banner advertisement. This ensures that that the banner advertisement is presented only to people with a demonstrated interest in the area. For instance, a marketer of golf equipment might buy the keyword 'golf.' Every time a user enters "golf" in a search, a banner advertisement for the equipment would appear."); *id.*, Appendix 2
NETGRAVITY ADSERVER CHOSEN BY GNN	*See e.g.,* NETGRAVITY ADSERVER CHOSEN BY GNN ("NetGravity, the leader in Internet advertising technology, today announced GNN, a service of America Online Inc., will take advantage of the NetGravity AdServer technology for WebCrawler. . . . This allows GNN to . . . dynamically deliver targeted ads. . . . Now, through NetGravity's relationship with I/Pro, Web sites will be able to develop and place advertising much more effectively using management tools with demographic profiles for targeted ad placement.")

Table B4: User Preference Input and User Profile Data

To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B4, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B4 references listed below because: it would have yielded predictable results; using the techniques of the Table B4 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B4 references to improve primary or obviousness references would have yielded predictable results.

Reference	Disclosure
U.S. Patent No. 6,119,101 ("PECKOVER")	*See*, *e.g.*, PECKOVER, 10:20-29: A practical and viable electronic marketplace involves the exchange of market information, as well as the more obvious trading for goods and services. From a consumer's point of view, shopping is a means of gathering data about goods and services offered. This data is used by the consumer to compare and rank offerings and to make decisions about purchases. From a provider's point of view, consumer shopping is an opportunity to gather data about consumer needs and interests. This data is used by the provider to improve product and service offerings. PECKOVER, 11:44-46: Advertising may have higher success rates since the targeted consumers have expressed an interest in the product. PECKOVER, 11:54-64: The mechanism for quantifying consumer demand uses data based on individual buying decisions, not merely aggregate or estimated data. Providers can quantify demand in real-time. Providers have a mechanism for discovering the reasons for lost sales. Providers can provide a consideration to consumers for viewing advertisements and other notices. Providers can receive feedback in real-time about the success of promotions. PECKOVER, 17:16-22: Agents and other components of Agent System 10 record and access system history data (records of searches, transactions, etc.) in System History Data 36 component. Most of the

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	system history is more conveniently accessed through logs and archives located within various functional components, but System History Data 36 maintains the "master" copy. PECKOVER, 18:30-39: Personal Agent 12 or 13 is the point of contact between a user and the Agent System 10. Personal Agent 12 or 13 acts as an electronic "butler" or assistant, accepting requests from the user, delegating tasks to other agents in the system, and arranging for responses from various agents to the user to be delivered at a time and in a manner that is convenient for the user. Consumer Personal Agent 12, via its internal functions, maintains the user's preferences and other data about the user, some of which is protected from unauthorized access. PECKOVER, 19:3-32: A Preference Manager function 54 maintains data about the preferences of the user. Preferences indicate items of interest to the user, such as favorite brands, interest in sports, etc. Within Agent System 10, preference data also includes "demographic" data. Demographic data indicates facts about the user, such as whether the user is a homeowner, the user's gender, the user's age group, etc. Although marketing industry usage of the term "demographics" may include a person's name, address, or other identifying data, a Preference Manager's demographic data does not include data that identifies the particular user. Preference data may be entered manually by the user using, for example, a form on a Web page, or data may be loaded by a System Administrator. Preferences may also be updated automatically by the system as, for example, when the user instructs the system to "remember" a product brand name from a product search. Preference Manager 54 uses preference data to order search results, so that items that are more likely to be preferred by the user will be displayed first when the results are delivered to the user. Referring now to FIG. 5A, each preference datum 68 comprises not only a value 72, but also a key 70 for ease of searching. Referring to FIG. 5B, a small sample of preference data illustrates the kind of data that might be used. A particular user typically will have much more preference data. Some values are shown as "rank m in n" to illustrate that ranking data may also be stored. The specific keys of any particular set of preference data depends on what the user has entered, etc. Only keys that are relevant to a particular user are included in that user's preferences, and the specific data maintained will change over time. PECKOVER, 19:33-34: Referring again to FIG. 4A, a Delivery Manager function 56

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	accepts all messages, generated by agents or other components of the system, that are directed to the user, and delivers those messages according to the user's desired delivery time and delivery media. Default delivery time and delivery media are specified as part of the user's preferences (maintained by Preference Manager 54). Individual messages may also have a specified delivery time and delivery media that overrides the defaults. Delivery Manager 56 establishes communication with the user's Communication Device 22 or 23 to effect delivery. Messages may be sent to multiple devices if the user so desires. Delivery Manager 56 queues messages that are to be delivered at a future time. PECKOVER, 20:65-21:4: Referring again to FIG. 4A, a Target Manager function 66 assists the user in identifying Personal Agents to which targeted ads may be delivered. Target Manager 66 can identify Personal Agents based on preferences, demographic characteristics, and Decision Agent activity. Target Manager 66 does not have access to private data of consumer Personal Agents 12 such as name, address, etc. PECKOVER, 21:57-61: A Query 106 describes the product or product category for which to search. Query 106 includes data from Product Template 174 completed by the consumer and relevant data from the consumer's preferences, as assembled by Decision Agent Factory 76 of the consumer's Personal Agent 12. PECKOVER, 21:64-67: A Log function 110 stores records of the activities of Decision Agent 14. These records may be consulted later, for example, by a Demand Agent 16 that is calculating historical demand for a product. PECKOVER, 22:12-23: A Demand Agent 16 acts on behalf of a provider user, as instructed by the provider's Personal Agent 13, to search out and collect information from the Agent System 10 that helps the provider quantify consumer demand and helps target specialized advertisements to a group of consumers. A provider may have multiple Demand Agents 16 active within Agent System 10 at any time. For example, a provider may have one Demand Agent 16 calculating historical demand over the past month for a certain model of sports shoe, and have another Demand Agent 16 searching for consumers who have purchased sports shoes in the past month to receive ads for sports socks. PECKOVER, 28:62-67:

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	The consumer may select a delivery media (e-mail, Web page display, etc.) and a delivery time and period (e.g., 6:00 p.m. daily, Monday noon weekly, etc.), or default media and time is noted (steps 276-280). At this point the Decision Query composition is complete (step 282). PECKOVER, 29:49-67: The Decision Agent's Response Manager 108 collects references (step 326) to the matching ads found by Basic Search Engine. The Response Manager also sends a response to the Personal Agent that placed the advertisement (if the placer so desired and marked in the ad), providing real-time feedback to the placer. Immediate Agents then removes the Decision Agent from its internal queue and gives the Decision Agent back to Active Decision Agent Manager 152 (step 328). PECKOVER, 30:33-54: Referring now to FIG. 19, a Deliver Search Results subroutine is referred to generally by reference numeral 360. Immediate search results are delivered to the consumer when the consumer's desired delivery time is reached (which may be immediately if the consumer has so requested). Intermediate results from extended searched are delivered periodically according to the consumer's desired delivery period. When the desired delivery time is reached (step 362), Preference Manager 54 organizes the not-yet-delivered results according to the consumer's preferences (step 364). For example, results that mention favored brands are ordered before results with less favored brands. Delivery Manager 56 formats the responses according to the consumer's desired delivery media (step 366). For example, if the consumer's desired delivery media is the Web, a Web page in HTML is generated. For another example, if the consumer desires e-mail delivery, a suitable representation is generated. When formatting is complete, Delivery Manager 56 arranges the actual delivery of the search results (step 368). If the Decision Agent has completed its search, no more results will be forthcoming, so a subroutine Expire Decision Agent expires the Decision Agent (steps 370-372). PECKOVER, Fig. 5B:

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	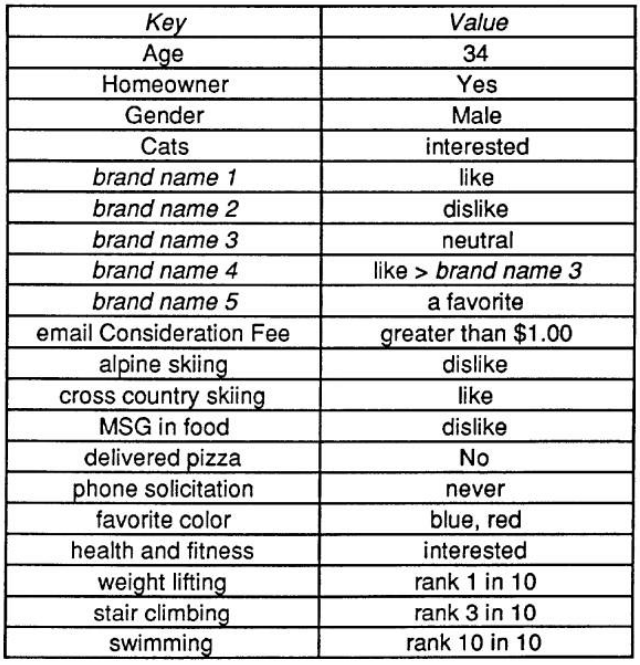

Key	*Value*
Age	34
Homeowner	Yes
Gender	Male
Cats	interested
brand name 1	like
brand name 2	dislike
brand name 3	neutral
brand name 4	like > *brand name 3*
brand name 5	a favorite
email Consideration Fee	greater than $1.00
alpine skiing	dislike
cross country skiing	like
MSG in food	dislike
delivered pizza	No
phone solicitation	never
favorite color	blue, red
health and fitness	interested
weight lifting	rank 1 in 10
stair climbing	rank 3 in 10
swimming	rank 10 in 10

Fig. 5B

U.S. PATENT NO. 5,999,912 ("WODARZ")	*See*, *e.g.*, WODARZ, 1:63-2:21: With the information from an ad tag, the parser determines What ads are valid for the page containing the ad tag, such as by searching through a conventional database. Each ad is associated With an image (Which may include "none") and a network link (for example, by means of a universal resource locator, or "URL", address) to a Web page that the viewer Would be sent to if the viewer selects ("clicks on") the associated ad. The parser generates a list of valid ads, selects one that fulfills all the criteria of the ad tag, and generates HTML code linking a particular ad to the ad tag. That HTML code is then sent to the user. The parser program can apply scheduling criteria to select ads from the generated list of eligible candidates, such as: a "least recently viewed" algorithm; random selection; selection based upon time of day; selection based upon user-specific characteristics, such as age, sex, language, etc.; and selection based upon the maximum number of times that an ad has been viewed in a specific time period. Advantages of the invention are that it maximizes the number of advertisers per Web page; it changes ads based upon page number; it tracks the number of times an ad is viewed; it chooses only from eligible ads for each page number; and it makes the entire set of Web page for a site more attractive to viewers since changing Web pages on the Internet attract more interest than static pages.

Reference	Disclosure
U.S. PATENT NO. 5,710,884 ("DEDRICK PATENT")	*See*, *e.g.*, DEDRICK PATENT, 3:50-4:13: Each client system 12 is provided with an interface, such as a graphic user interface (GUI), that allows the end user to participate in the system 10. The GUI contains fields that receive or correspond to inputs entered by the end user. The fields may include the user's name and possibly a password. The GUI may also have hidden fields relating to "consumer variables." Consumer variables refer to demographic, psychographic and other profile information. Demographic information refers to the vital statistics of individuals, such as age, sex, income and marital status. Psychographic information refers to the lifestyle and behavioral characteristics of individuals, such as likes and dislikes, color preferences and personality traits that show consumer behavioral characteristics. Thus, the consumer variables refer to information such as marital status, color preferences, favorite sizes and shapes, preferred learning modes, employer, job title, mailing address, phone number, personal and business areas of interest, the willingness to participate in a survey, along with various lifestyle information. This information will be referred to as user profile data, and is stored on a consumer-owned portable profile device such as a Flash memory-based PCMCIA pluggable card. The end user initially enters the requested data and the non-identifying information is copied to the metering server 14. That is, the information associated with the end user is compiled and copied to the metering server 14 without any indication of the identity of the user (for example, the name and phone number are not included in the computation). The GUI also allows the user to receive inquiries, request information and consume information by viewing, storing, printing, etc. The client system may also be provided with tools to create content, advertisements, etc. in the same manner as a publisher/advertiser. DEDRICK PATENT, 4:4-23: All of the fields in the GUI relating to consumer variables are hidden from the consumer. The display of the GUI is based upon these fields, but the GUI does not display them to the user except when the user brings up a "profile editor", as discussed in more detail below. Thus, the monitoring of consumer actions and inaction based on these consumer variables and the updating of user profile data is transparent to the consumer. In addition, modifications made to the electronic information to customize it to a particular consumer are also

Reference	Disclosure
	transparent to the consumer. DEDRICK PATENT, 4:36-55: In one embodiment, the software tools provided to the publisher/advertiser 18 include software tools for embedding consumer variables within the electronic information. The embedded consumer variables enable a client activity monitor and a consumption device to monitor consumer interaction with the electronic information based on the consumer' s interaction with the unit of information currently being consumed. This interaction includes both inputs by the consumer and actions which the consumer could have taken but chose not to. In one implementation, the publisher advertiser 18 is provided with a GUI which allows the publisher/advertiser 18 to select certain consumer variables from a set of consumer variables and associate the selected variables with specific objects or fields within the electronic information. For example, the electronic information may include several option fields from which end users may select. The publisher/advertiser 18 may associate a color preference variable with these option fields, thereby indicating to the client systems 12 to track the color ofthe option field selected by the end user. DEDRICK PATENT, 5:1-16: In one embodiment, each piece of electronic information received by client system 12 includes a header block which includes the consumer variables and their related objects or fields for that piece of electronic information. For example, the header block of the given piece of electronic information may include a quality parameter and a cost parameter indicating the minimum quality the electronic information must be delivered at the designated cost. Such information may be input by the publisher/advertiser 18 at the authoring site of the electronic information. The header block of a given piece of electronic information may also include an indicator that a color preference variable is associated with certain option fields. In addition, default colors for particular fields or objects, or a default consumption format, such as audio or video, for the electronic information may also be included in the header block. DEDRICK PATENT, 5:52-67: The client activity monitor 24 tracks the consumer variables corresponding to the preferences of the end user(s) of client system 12. When an end user consumes electronic information, and also possibly interacts with that electronic information, client activity monitor 24 associates the electronic information

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	with the appropriate consumer variables and stores this data in the personal profile database 27. For example, the client activity monitor 24 tracks the color of fields or objects that are selected most frequently and least frequently by the end user. Similarly, the consumption format chosen most frequently and least frequently by the end user, such as audio or video, is also tracked and stored in personal profile database 27. In one embodiment, the consumer variables and corresponding fields or objects are indicated in a header block received with the electronic information. DEDRICK PATENT, 7:28-39: Data is collected for personal profile database 27 by direct input from the end user and also by client activity monitor 24 monitoring the end user's activity. When the end user consumes a piece of electronic information, each variable (or a portion of each variable) within the header block for that piece of electronic information is added to the database for this end user. For example, if this piece of electronic information is made available to the end user for consumption in both audio and video format, and the end user selects the audio format, then this choice of format selection is stored in personal profile database 27 for this end user. DEDRICK PATENT, 7:28-39: Data is collected for personal profile database 27 by direct input from the end user and also by client activity monitor 24 monitoring the end user's activity. When the end user consumes a piece of electronic information, each variable (or a portion of each variable) within the header block for that piece of electronic information is added to the database for this end user. For example, if this piece of electronic information is made available to the end user for consumption in both audio and video format, and the end user selects the audio format, then this choice of format selection is stored in personal profile database 27 for this end user. DEDRICK PATENT, 17:13-26: The metering server 14 in conjunction with the client activity monitor 24 of the client system may monitor the end user's consumption of electronic advertising information and provide user profile data to the metering server 14 relating to the end user. For example, the metering process 36 may monitor the amount of time an end user spends viewing an electronic advertisement, or which particular advertisement or page of the advertisement was of interest to the end user. The metering process 36 may further monitor what answers were provided by the user, or paths taken by the user in an interactive model,

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	along with follow-up requests initiated by the end user in an interactive model. This information is then forwarded to the clearinghouse server 20 for compilation.
U.S. Patent No. 6,374,237 ("REESE")	REESE, 1:22-30: Search engine servers have been developed to allow a user to transmit a request from a client to retrieve data. Search engines rely on a user formulated query to retrieve data. In this case, a client transmits a request to a search engine server to search content sites (e.g., other servers) on the Internet for information based on user-selected "keywords." The search engine searches the web and retrieves data that matches the keywords, then transmits the matching data to the client. REESE, 1:55-63: A method and a system for requesting and retrieving information from distinct web network content sites is disclosed. The method includes retrieving by a server of a first set of pre-determined data from said content sites, sending a request from a client, wherein the request contains the user profile, and adapting the server, upon receiving the request, to retrieve a second set of data from the first set of data, wherein the second set of data matches the request, and delivering the second set of data to the client. REESE, 1:64-2:3: The system of the invention includes a client adapted to send a request that contains a user profile, and a server adapted to retrieve a first set of pre-determine data. Upon receiving the request from the client, the server is adapted to retrieve a second set of data from the first set of data that substantially matches the request and deliver the second set of data to the client. REESE, 3:33-44: Next, client 110 initiates a user profile request 100 to matching server 120. The matching server 120 applies the user profile request 100 against the pre-determined aggregate data. The aggregate data that matches the client request is returned to the client 110 by way of an HTML document. The client 110 is then instructed to review the retrieved data and may go to various content sites 130-160 for more information through links in the HTML document returned to the client or to request that the entire contents of a particular content site 130-160 be delivered to the client 110. Alternatively, the user can modify the user profile and execute a new search. REESE, 3:45-58: The invention contemplates that the matching server 120 works with the client user profile request 100 to pare down the

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	data delivered to the client. The matching server 120 pre-selects an aggregate of data that is determined to be the most relevant to different sets of user profile requests 100. The matching server 120 does this by searching various content sites 130, 140, 150, 160 on the Internet or other network. A user profile request 100 is applied against the matching server 120 aggregate of data like a sieve, and only data matching the user profile request 100 is returned to the client 110. The invention contemplates that the matching server 120 need not match the user profile 100 exactly, but can accommodate a user's designated acceptable range of variability, i.e., a quality factor. REESE, 3:59-4:5: FIG. 2 illustrates a flow chart of the invention. In FIG. 2, a matching server 200 is developed made up of predetermined data that has been designated desirable to collect. Data might be designated desirable, for example, by the number of previous times the data has been accessed by users of a certain demographic. The matching server 200 organizes the data into a manageable form. For example, an advertising agency seeking to target ten different sets of customers would collect information to target all of the ten different sets of customers. Certain characteristics would be associated with each of the ten sets of customers. The database that would be collected and organized would be an aggregate of data determined by the advertising agency to be relevant to all of the customers. REESE, 4:6-21: Next, in step 210, a user wishing to retrieve information from the matching server, submits a user profile, preferably in the form of an algorithm that works with the algorithm the server used to represent the aggregate of the collected data. In step 220, the client then sends the user profile developed by the user to the matching server. At step 230, the matching server performs a search request on its database based on the user profile. At step 240, the matching server retrieves data from its database that matches the user profile. At step 250, the matching server delivers the results to the client. In the example wherein the matching server is developed by an advertising agency, profiles from the targeted customers would be delivered to the matching server, and the aggregate of data in the matching server would be applied against the desired profile. Data that matched the submitted profile would be returned to the client. REESE, 4:22-34: Based on the delivered results, the client prompts (step 260)

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	the user to modify the user profile request. If the user wishes to modify the user profile request, the client can send the modified user profile to the matching server to conduct a further search of the content sites. If the user elects not to modify the user profile, the user may, in step 270, review the data and further act on the data by going to individual content servers 272, 274, or 276, or request that the entire contents of a server 272, 274, or 276 be delivered to the client through links returned in the HTML document. Once the user has the retrieved data, the user can end the session (step 280). REESE, 4:35-53: The user profile is intended to focus the retrieved results on meaningful data. One type of user profile is related to the demographics of the user. For example, the user profile might include the area code, zip code, state, sex, and age of a user. With such a profile, the matching server would retrieve data to the client related to the client's demographics. For example, if the user were interested in current events in the state of Oregon, the matching server would retrieve data and compile an aggregate database relating to current events pertinent to the user's age and area, e.g., Portland. Similarly, if the user sought information regarding retail purchases, the matching server would retrieve data relevant to the user's demographics. A demographics user profile is also very effective for advertisers that wish to advertise their goods or services on the matching server so that specific advertisements can be targeted at user's with specific user profile demographics. Other user profiles include, but are not limited to, areas of interest, business, politics, religion, education, etc. REESE, 5:43-54: FIG. 6 illustrates a user profile form 600 that can be displayed by the User-Agent (e.g., browser) to allow a user to complete a specific user profile that the matching server will accept to refine search requests to more meaningful data. The form 600 used in FIG. 6 is displayed on the client and allows the user to quickly and easily enter and modify the user profile. FIG. 6 presents a user profile form 600 relating to a user profile of demographics. The document form 600 may be in standard HTML text. The form 600 includes a document title and a document URL 620. The document title 610 specifies that the form is a user profile form. The document URL 620 specifies the query string. REESE, 8:25-53: Thus far, the invention is focused on a user-created user profile. The invention also contemplates that the user profile

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	may be constructed by the client based on the user's search habits. In other words, an artificial intelligence system may be created to develop a user profile. In the same way that a system is trained to be associative with regard to matching profile elements, the entire profile may be trained based on a user's search habits. For instance, a user profile that relates to demographics can be trained by recognizing user habits relating to demographics. Where a user conducts searches focusing on the Portland area of Oregon, the user profile is trained to recognize the City of Portland, Oregon as a profile criteria. Similarly, if the user conducts searches of information for males of a certain age group or income, the user profile will be trained to recognize these criteria. Once again, the invention contemplates that the user profile be constructed automatically with known artificial intelligence systems. Similarly, the matching server would monitor search requests and create aggregate data based on such search requests to compare against the user profile. Such automatic profile/matching server is ideal for advertisers that want to target specific advertisements at specific profiles. For instance, an advertising agency matching server can construct an aggregate advertisement database triggered by demographics. The matching server could then deliver target local and/or national advertisements to particular user profiles. These advertisements can be designated to be returned continuously while a-user is logged on to the network.
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, 3:44-67: Also in preferred form, the method includes step for maintaining an advertising object identification queue, and an advertising object store that are replenished based on predetermined criteria as advertising is called for association and presentation with applications. In accordance with the method, as applications are executed at the reception system, the application objects provide generalized calls for advertising. The application calls for advertising are subsequently forwarded to the reception system advertising queue management facility which, in turn supplies an identification of advertising who's selection has been individualized to the user based on, as noted, the user's prior interaction history with the service, demographics and local. Thereafter, the object identification for the advertising is passed to the object store to determine if the object is available at the reception system. In preferred fonn, ifthe advertising object is not available at the reception system, a sequence of alternative advertising object identifications can be provided

Reference	Disclosure
	which if also are unavailable at the reception system will resulting in an advertising object being requested from the network. In this way, advertising of interest can be targeted to the user and secured in time-efficient manner to increase the likelihood of user interest and avoid service distraction. FILEPP, 10:7-27: Individualized queues of advertising object ids are constructed based upon data collected on the partitioned applications that were accessed by a user, and upon events the user generated in response to applications. The data are collected and reported by RS 400 to a data collection co-application in file server 205 for later transmission to business system 130. In addition to application access and use characteristics, a variety of other parameters, such as user demographics or postal ZIP code, may be used as targeting criteria. From such data, queues of advertising object ids are constructed that are targeted to either individual users or to sets of users who fall into certain groups according to such parameters. Stated otherwise, the advertising presented is individualized to the respective users based on characterizations of the respective users as defined by the interaction history with the service and such other information as user demographics and locale. As will be appreciated by those skilled in the art, conventional marketing analysis techniques can be employed to establish the user characterizations based on the collected application usage data above noted and other information. FILEPP, 22:22-44: Activation of the Path command accesses the user's list of pre-selected keywords without their display, and permits the user to step through the list viewing the respective applications by repeatedly invoking the Path command. As will be appreciated, the user can set a priority for selecting keywords and viewing their associated applications by virtue of where on the list the user places the keywords. More specifically, if the user has several application of particular interest; e.g., news, weather, etc., the user can place them at the top of the list, and quickly step through them with the Path command. Further, the user can view and randomly access the keywords of his list with the Viewpath operation noted above. On activation of Viewpath, the user's Path keywords are displayed and the user can cursor through them in a conventional manner to select a desired one. Further, the user can amend the list as desired by changing the keywords on the list and/or adjusting their relative position. This is readily accomplished by entering the amendments to the list presented at the screen 414 with a series

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	of amendment options presented in a conventional fashion with the list. As noted, the list may be personally selected by the user in the manner described, or created as a default by network 10. FILEPP, 23:47-57: Selectors are used to dynamically link and load other objects such as PEOs or other PDOs based upon parameters that they are passed when they are called. Such parameters are specified in call segments or selector segments. This feature enables RS 400 to conditionally deliver information to the user base upon predetermined parameters, such as his personal demographics or locale. For example, the parameters specified may be the transaction codes required to retrieve the user's age, sex, and personal interest codes from records contained in user profiles stored at the switch/file server layer 200. FILEPP, 19:66-20:3: In preferred fonn, where the user has not selected a list of personalized keywords, a default set is provided which includes a predetermined list and associated applications deemed by network 10 as likely to be of interest to the user. FILEPP, 21:64-67: A Log function 110 stores records of the activities of Decision Agent 14. These records may be consulted later, for example, by a Demand Agent 16 that is calculating historical demand for a product. FILEPP, 22:22-44: Activation of the Path command accesses the user's list of pre-selected keywords without their display, and permits the user to step through the list viewing the respective applications by repeatedly invoking the Path command. As will be appreciated, the user can set a priority for selecting keywords and viewing their associated applications by virtue of where on the list the user places the keywords. More specifically, if the user has several application of particular interest; e.g., news, weather, etc., the user can place them at the top of the list, and quickly step through them with the Path command. Further, the user can view and randomly access the keywords of his list with the Viewpath operation noted above. On activation of Viewpath, the user's Path keywords are displayed and the user can cursor through them in a conventional manner to select a desired one. Further, the user can amend the list as desired by changing the keywords on the list and/or adjusting their relative position. This is readily accomplished by entering the amendments to the list presented at the screen 414 with a series of amendment options presented in a conventional fashion

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	with the list. As noted, the list may be personally selected by the user in the manner described, or created as a default by network 10. FILEPP, 33:16-27: In accordance with the method of the present invention, Ad manager 442 is invoked by object interpreter 435 to return the object id of the next available advertisement to be displayed. Ad manager 442 maintains a queue of advertising object id's targeted to the specific user currently accessing interactive network 10. Advertising objects are pre-fetched from interactive system 10 from a personalized queue of advertising ids that is constructed using data previously collected from user generated events and/or reports of objects used in the building of pages or windows, compiled by data collection manager 466 and transmitted to interactive system 10. FILEPP, 34:14-24: The data collection events that are to be reported during the user's session are sensitized during the logon process. The logon response message carries a data collection indicator with bit flags set to "on" for the events to be reported. These bit flags are enabled (on) or disabled (off) for each user based on information contained in the user's profile stored and sent from high function host 110. A user's data collection indicator is valid for the duration of his session. The type of events to be reported can be changed at will in the host data collection application. However, such changes will affect only users who logon after the change. FILEPP, 34:25-39: Data collection manager 441 gathers information concerning a user's individual system usage characteristics. The types of informational services accessed, transactions processed, time information between various events, and the like are collected by data collection manager 441, which compiles the information into message packets (not shown). The message packets are sent to network 10 via object/communication manager interface 443 and link communications manager 444. Message packets are then stored by high function host 110 and sent to an offline processing facility for processing. The characteristics of users are ultimately used as a means to select or target various display objects, such as advertising objects, to be sent to particular users based on consumer marketing strategies, or the like, and for system optimization. FILEPP, 35:9-40: Data collection manager 441 is invoked by object interpreter 435 and keyboard manger 434 to keep records about what

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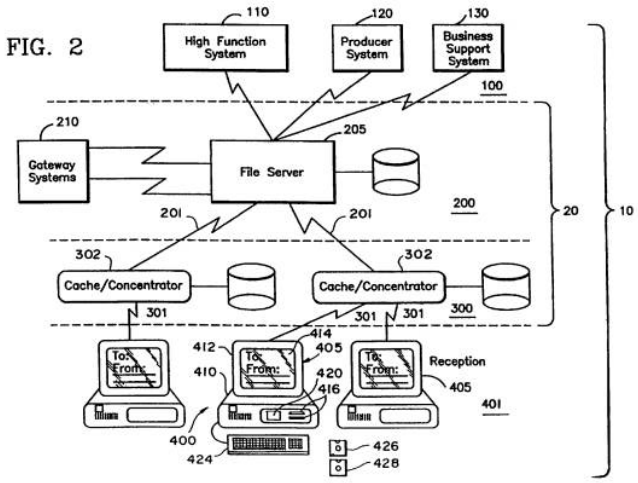
	objects a user has obtained (and, if a presentation data segment 530 is present, seen) and what actions users have taken (e.g. "NEXT," "BACK," "LOOK," etc.) The data collection events that are to be reported during the user's session are sensitized during the logon process. The logon response message carries a data collection indicator with bit flags set to "on" for the events to be reported. These bit flags are enabled (on) or disabled (off) for each user based on information contained in the user's profile stored and sent from high function host 110. A user's data collection indicator is valid for the duration of his session. The type of events to be reported can be changed at will in the host data collection application. However, such changes will affect only users who logon after the change. Data collection manager 441 gathers information concerning a user's individual system usage characteristics. The types of informational services accessed, transactions processed, time information between various events, and the like are collected by data collection manager 441, which compiles the information into message packets (not shown). The message packets are sent to network 10 via object/ communication manager interface 443 and link communications manager 444. Message packets are then stored by high function host 110 and sent to an offline processing facility for processing. The characteristics of users are ultimately used as a means to select or target various display objects, such as advertising objects, to be sent to particular users based on consumer marketing strategies, or the like, and for system optimization. FILEPP, Fig. 2: 
U.S. Patent No. 5,761,662 ("DASAN")	*See*, *e.g.*, DASAN, 1:10-15: The present invention relates to information retrieval. More specifically. the present invention relates to a client server

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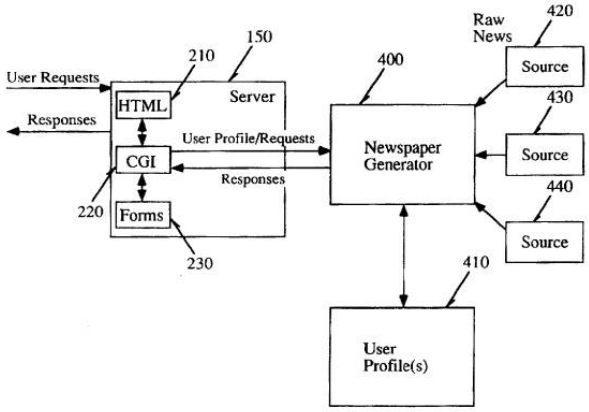
	model for information retrieval based upon a user-defined profile, for example, for the generation of an "electronic" newspaper which contains information of interest to a particular user. DASAN, 2:32-45: The user-defined profile can include source identifications and associated search terms wherein the first application scans in the information (e.g. a raw news source. USENet newsgroup or other resource) for sources identified by the source identifications. A first set of files in the sources containing the associated search terms may then be identified and the first application program places the first set of files into the subset of the information. for creation of the personalized information-the newspaper. The source identifications and associated search terms from the user-defined profile can be stored by topic wherein the subset is displayed to the user arranged by topic. DASAN, Fig. 4: 
Another Search Engine? Hotwired Introduces Hotbot, Powered By Inktomi, PR Newswire, May 20, 1996 ("ANOTHER SEARCH ENGINE")	*See*, *e.g.*, ANOTHER SEARCH ENGINE, p. 1: "HotWired Ventures, a premier Internet media company, today introduced HotBot (www.hotbot.com), a unique search engine that indexes and searches every word on the World Wide Web. Powered by Inktomi's advanced parallel-processing engine, HotBot will change the way people search for and retrieve information on the Internet." ANOTHER SEARCH ENGINE, p. 1: "'The rules of the search engine game have changed. Internet users thought they'd get what they needed from traditional search engines, but they found the result to be thin on content, rigid in context, and often totally irrelevant,' said Andrew Anker, president and CEO of HotWired Ventures. 'Our quest to find a better search engine led us to Inktomi. By combining the best technology, the most relevant searches, and an innovative interface, we created HotBot -- a bigger, better, smarter way to search the Web.'" ANOTHER SEARCH ENGINE, p. 1: "Most search engines aren't keeping

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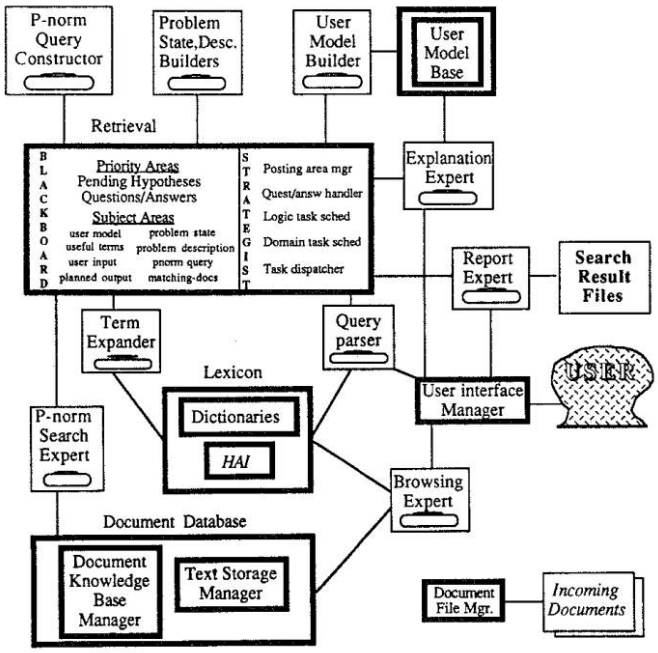
	up with the tremendous growth of the Web. HotBot's underlying Inktomi engine indexes more than 50 million full-text Web documents plus Usenet and mailing-list archives, and its scalable architecture can match the growth of the Web." ANOTHER SEARCH ENGINE, p. 2: "HotBot includes a number of unique features. Users can get the most current information quickly, efficiently view and use that information, and interact with the search engine in a personal manner. Daily Updates: The HotBot spider crawls the Web every day, offering users the most current information. Reliable and Fast: HotBot's fault-tolerant engine reliably delivers query results in seconds, without frequent downtime. Convenient Previews: HotBot allows users to preview documents without leaving the search page, reducing search time. Personal Searching: The HotBot interface allows users to personalize their search engine to fit their own surfing style." ANOTHER SEARCH ENGINE, p. 2: "HotBot identifies, customizes, and ranks millions of Web documents using an algorithm developed by a team of the world's leading experts in information retrieval. HotBot recognizes that users desire varying levels of information detail, so it allows users to control the amount and type of information searched. The computing power available to HotBot enables the user to define a search query using a wide range of criteria in a way that is not possible with more traditional search engines."
Development of the Coder System: A Testbed for Artificial Intelligence Methods in Information Retrieval ("Fox")	*See*, *e.g.*, FOX, p. 351:  Fig. 4. Overview of CODER system. The diagram is an approximate representation, aimed at conveying essential features rather than exact details. Owing to space limitations, the analysis/blackboard strategist and related experts are not shown. FOX, p. 352:

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	All user interaction is through the user interface manager. Special commands for analysis or retrieval can be given and are handled by the command parser. A report expert can cause display or filing of results. Explanations are based on the current user and on the blackboard state. Browsing is possible of both the document data base and the lexicon. The user model builder updates the user model base as a result of events on the blackboard. FOX, p. 352: Retrieval is prompted by an explicit (or default, from the user model base) query. User model building, problem state transformation, and building of the problem description all proceed. When some terms are available, the lexicon can be accessed by a term expander to obtain other related terms that can be browsed or automatically used to help construct a query. Eventually a p-norm or other query is constructed, a search is made, and a report is prepared for the user. FOX, p. 359: 5.4. User interaction and information gathering At the end of Section 3.1, work on user modeling was briefly surveyed. The findings of Daniels, Brooks, and Belkin, (751 fit in nicely with the design of CODER and have informed our approach to user interaction. The long-term plan is to use the knowledge structures and rules they uncover in their study of user-intermediary dialogues, perhaps slightly adapted to our particular environment and collection, as a foundation for the user model data base and builder; the problem state and problem description builders; the report, browsing, and explanation experts; and the interface manager. FOX, p. 360:

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	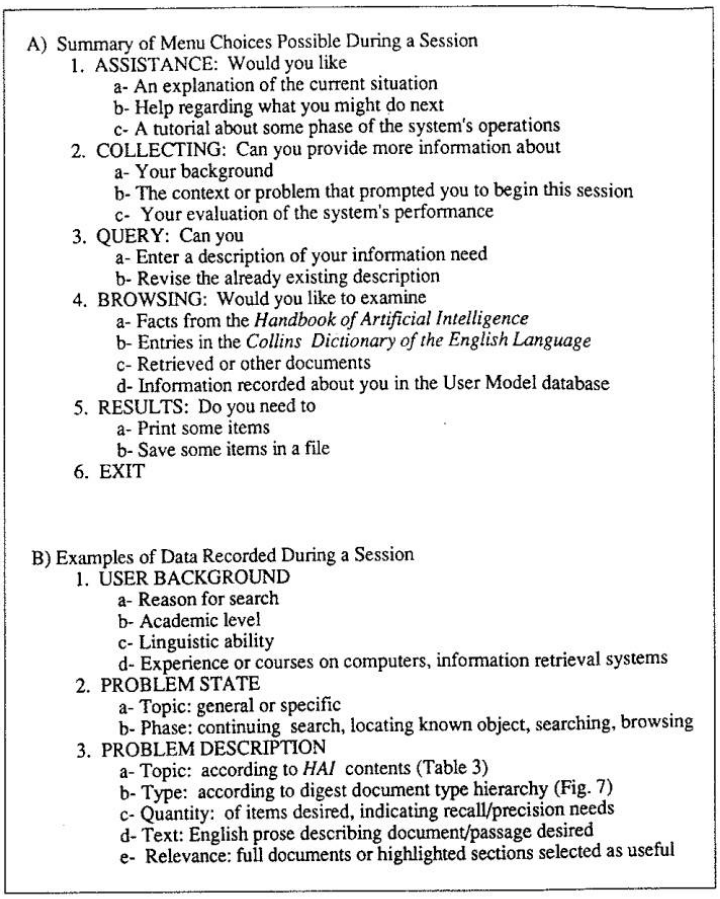 A) Summary of Menu Choices Possible During a Session 1. ASSISTANCE: Would you like a- An explanation of the current situation b- Help regarding what you might do next c- A tutorial about some phase of the system's operations 2. COLLECTING: Can you provide more information about a- Your background b- The context or problem that prompted you to begin this session c- Your evaluation of the system's performance 3. QUERY: Can you a- Enter a description of your information need b- Revise the already existing description 4. BROWSING: Would you like to examine a- Facts from the *Handbook of Artificial Intelligence* b- Entries in the *Collins Dictionary of the English Language* c- Retrieved or other documents d- Information recorded about you in the User Model database 5. RESULTS: Do you need to a- Print some items b- Save some items in a file 6. EXIT B) Examples of Data Recorded During a Session 1. USER BACKGROUND a- Reason for search b- Academic level c- Linguistic ability d- Experience or courses on computers, information retrieval systems 2. PROBLEM STATE a- Topic: general or specific b- Phase: continuing search, locating known object, searching, browsing 3. PROBLEM DESCRIPTION a- Topic: according to *HAI* contents (Table 3) b- Type: according to digest document type hierarchy (Fig. 7) c- Quantity: of items desired, indicating recall/precision needs d- Text: English prose describing document/passage desired e- Relevance: full documents or highlighted sections selected as useful Fig. 10. User interaction and user information. FOX, p. 360: In the current implementation, background information as listed in part B.1 of Fig. 10 is gathered from users. Some initial work on the user model builder has taken place, and more is scheduled through the middle of 1987. At present, all data collected are logged. Problem state and description indicators are also requested, as shown in parts B.2 and B.3 of Fig. 10, and will later be handled by the appropriate builder experts (shown at the top of Fig. 4). Finally, to gauge the user's feeling toward the system and its operation, evaluation questions are asked, as indicated in menu item A.2.c of Figure 10. With this feedback, the system could be tuned as a whole and to the needs of individual users, and should hopefully be shown to more effectively aid end user searching than would conventional approaches.
Hofferer, Knaus, and Winiwarter, *An Evolutionary Approach*	*See e.g.*, HOFFERER, p. 1 ("CIFS distils e-mails from the input stream depending on the user's interests and evaluation judgment which are used to rank e-mail information."); *id.* ("These user profiles typically

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to Intelligent Information Filtering (1994) ("HOFFERER")	describe long-term concerns and individually depend on the fact how the user reacts on an incoming stream of information. . . . CIFS is a two step learning system. In the first step, the user may specify a catalogue of relevant topics (*interest-domains*). By rating the keywords of each incoming e-mail and assigning them to one or more interest-domains, the system creates a *polarity profile* for each domain out of a set of ratings. . ."); *id.*, Section 4.1 ("The filter is composed of the following modules: . . . *Pre-Filter* and *Indexer/Parser* . . . *Knowledge Base.* The knowledge base contains the semantic representation of the user profiles which is applied to the assessment of new e-mails. The internal structure consists of frames describing the individual user interests. Their dynamical adaptation is induced by the e-mail agents of the filter component. *Monitor*. Records a user's behavior, that is, his/her reaction to incoming e-mails, e.g. deleting, forwarding, storing, replying, printing. Therefore, the monitor provides a feedback mechanism, measuring how efficiently the recording of usage patterns predicts current user behavior."); *id.*, Section 4.2 ("*Monitoring of user reaction*. Reactions or sequences of reactions, looking over the user's shoulder result in acceptance measure as positive (store, forward, print, reply), neutral (view) and negative actions (delete).")
Morita and Shinoda, *Information Filtering Based on User Behavior Analysis and Best Match Text Retrieval* ("MORITA")	*See e.g.,* MORITA, Introduction ("We propose a profile acquisition and user feedback technique to accumulate a user's preference for information, based on user behavior monitoring, as well as an information filtering technique using the acquired profile."); *id.*, Section 3.2 ("we can easily assume that articles which took considerable amount of time to read can be treated as potentially interesting articles. If we can determine whether a reader is interested in an article or not by measuring the time to read it, we might be able to capture the readers profile automatically."); *id.*, Section 5: "In these approach, it is proposed that information filtering system is told of users preference in a form of 'user model.' Then, upon arrival of an incoming information, the information is semantically analyzed and checked against the user model if the item fit the user's needs.").
U.S. Patent Nos. 5,948,061 ("MERRIMAN I") and 7,844,488 ("MERRIMAN II")	*See*, *e.g.*, MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 2:59-3:4: The basic architecture of the network 10 comprises at least one affiliate web site 12, an advertisement (ad) server web site 19 and one or more individual advertiser's web sites 18. Affiliates are one or more entities that generally for a fee contract with the entity providing the advertisement server permit third party advertisements to be displayed on their web sites. When a user using a browser accesses or "visits" a web site of an affiliate, an advertisement provided by the advertisement server 19 will be superimposed on the display of the affiliate's web page

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	displayed by the user's browser. Examples of appropriate affiliates include locator services, service providers, and entities that have popular web sites such as museums, movie studios, etc. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:5-23: The basic operation of the system is as follows in the preferred embodiment. When a user browsing on the Internet accesses an affiliate's web site 12, the user's browser generates an HTTP message 20 to get the information for the desired web page. The affiliate's web site in response to the message 20 transmits one or more messages back 22 containing the information to be displayed by the user's browser. In addition, an advertising server process 19 will provide additional information comprising one or more objects such as banner advertisements to be displayed with the information provided from the affiliate web site. Normally, the computers supporting the browser, the affiliate web site and the advertising server process will be at entirely different nodes on the Internet. Upon clicking through or otherwise selecting the advertisement object, which may be an image such as an advertisement banner, an icon, or a video or an audio clip, the browser ends up being connected to the advertiser's server or web site 18 for that advertisement object. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:24-63: In FIG. 1, a user operates a web browser, such as Netscape or Microsoft Internet Explorer, on a computer or PDA or other Internet capable device 16 to generate through the hypertext transfer protocol (HTTP) 14 a request 20 to any one of preferably a plurality of affiliate web sites 12. The affiliate web site sends one or more messages back 22 using the same protocol. Those messages 22 preferably contain all of the information available at the particular web site 12 for the requested page to be displayed by the user's browser 16 except for one or more advertising objects such as banner advertisements. These objects preferably do not reside on the affiliate's web server. Instead, the affiliate's web server sends back a link including an IP address for a node running an advertiser server process 19 as well as information about the page on which the advertisement will be displayed. The link by way of example may be a hypertext markup language (HTML) <img> tag, referring to, for example, an inline image such as a banner. The user's browser 16 then transmits a message 23 using the received IP address to access such an object

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	indicated by the HTML tag from the advertisement server 19. Included in each message 23 typically to the advertising server 19 are: the user's IP address, (ii) a cookie if the browser 16 is cookie enabled and stores cookie information, (iii) a substring key indicating the page in which the advertisement to be provided from the server is to be embedded, and (iv) MIME header information indicating the browser type and version, the operating system of the computer on which the browser is operating and the proxy server type. Upon receiving the request in the message 23, the advertising server process 19 determines which advertisement or other object to provide to user's browser and transmits the messages 24 containing the object such as a banner advertisement to the user's browser 16 using the HTTP protocol. Preferably contained within the HTTP message is a unique identifier for the advertiser's web page appropriate for the advertisement. That advertisement object is then displayed on the image created by the web user's browser as a composite of the received affiliate's web page plus the object transmitted back by the advertising web server. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 5:50-64: If the user is an existing user, the ad server 19 obtains from a database all of the information known about the user including the user's geographic location, the domain type (commercial educational, governmental, the Internet service provided), the organization type where the user works (for example a SIC code), the company size, the number of employees in that company, the particular types of advertisements that the user has clicked on by SIC or other appropriate coding and the number of times that the user has been exposed to each advertisement currently in the system as described in FIG. 3A. Also, the relative time of day for the user is calculated based upon either the user's country code or the user's IP access provider or the location of their domain. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 7:52-8:5: Alternatively, a reverse form of look up can be used independent of people accessing the network. When a domain is discovered, the server will check common DNS names for the name, such as those starting with "vvvvw" and "ftp". These resolve to IP addresses in most cases. From the IP addresses, the network number can be extracted and if the network does not yet have a domain name associated with the network number or address, the new domain associated with

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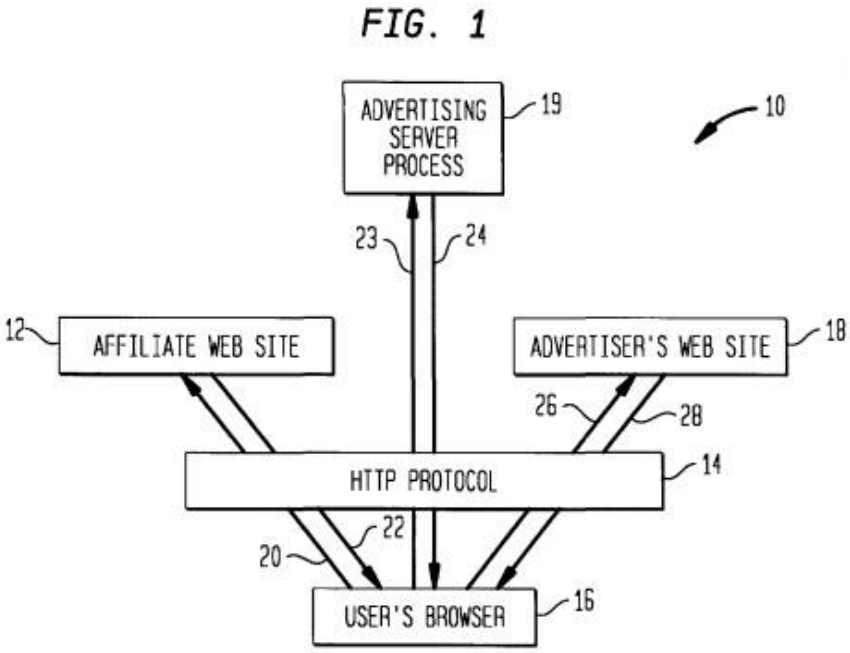
	the network. A reverse domain name look up (A Whois lookup) will then usually provide the name, address and phone number of the organization, thereby providing the geographic location and the time zone of the network. Once the domain name is acquired, the server will determine whether the domain is an educational, military, governmental network and for non-U.S. based networks what country the network is located in through the extension. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), Fig. 1:  MERRIMAN II (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 9:38-41: 2. The method of claim 1, wherein selecting an advertisement based upon stored information about said user node comprises selecting an advertisement based upon a prior content request sent from said user node to an affiliate node.
U.S. Patent No 5,886,683 ("TOGNAZZINNI")	*See*, *e.g.*, TOGNAZZINI, 16:16-43: FIG. 15 illustrates a typical electronic newspaper display. The invention also applies to data search engine displays. Here, a number of articles 1507, 1511, 1515 and 1519 along with their associated titles 1505, 1509, 1513 and 1517 are displayed in views within a window 1501. Generally a major headline 1503 is also displayed along with a selection of advertising material 1521. Because the information provider does not know what subjects interest the user, the information provider presents a mixture of articles. Here the "New Chemical Reaction" article

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	1507, and the "Quarks" article 1519 are both science and technology related. The other two articles 1515 and 1511 are not. Each article and advertisement contains information that can be categorized in multiple ways. This categorization includes at least one topic classifying the information. These topics are developed and maintained by the information provider. Using gaze tracking, the information provider can determine the user's interest in each displayed article 1505, 1509, 1513 and 1517 and advertisement 1521. Then, by using the topics categorizing the presented information, the information provider can dynamically adjust the selection of subsequent information presented to this user. In the example above, suppose the user read the scientific based articles 1507 and 1519 but did not spend any time reading the other articles 1511 or 1515 or the advertisement 1521. The information provider populates the next page of information presented to the user with articles and advertisements that have similar topics as the previously read information. TOGNAZZINI, 16:44-60: FIG. 16 illustrates a possible second page of information. Again, the information is provided within views contained in a window 1601. Now a plurality of articles 1607, 1611, 1615 and 1619 are all scientific or technology based, but with different levels of difficulty extending from articles of interest to the lay reader to those that are directed toward the advanced elemental particle physicist. Further, both a Major Scientific Headline 1603 and an advertisement 1621 can be selected to be of interest to the user. This allows the information provider to narrowly target advertising and articles to each user. Again the information provider can continue to refine and narrow the selection of information presented to the user on subsequent pages depending on the interest shown in a plurality of article titles 1605, 1609, 1613, 1617, the time spent with reading each article 1607, 1611, 1615 and 1619; and the time spent looking at the advertisement 1621 of the current page. TOGNAZZINI, 16:61-17:12: FIG. 17 illustrates the process used to select information for presentation to a user. The process starts at a terminal 1701 after an initial selection of information is displayed to the user. Using the gaze position developed as described above, a step 1705 monitors the user's reading pattern. Further a step 1709, determines the amount of interest shown by the user in the displayed information. This interest is determined by measuring the user's reading speed, determining whether the user only skimmed the information or read the information in

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	depth, and by measuring the amount of time spent with each article and advertisement. Then in a step 1711, the process retrieves the topics associated with each displayed information and in a step 1713 correlates these topics with the user's interest. Next in a step 1715, the process selects additional information based on this correlation. This selection of information is displayed in a step 1717 for the user. Finally, the process completes through a terminal 1719. In this manner, the user is presented with a customized set of information that reflects the user's interest. TOGNAZZINI, Fig. 15:  ***Fig. 15*** TOGNAZZINI, Fig. 16:

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	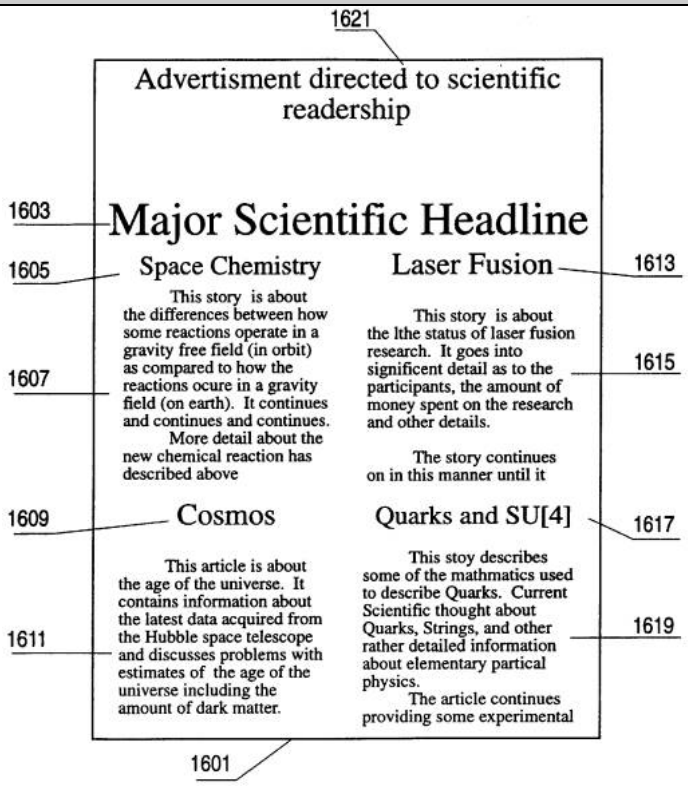 ***Fig. 16*** TOGNAZZINI, Fig. 17:

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	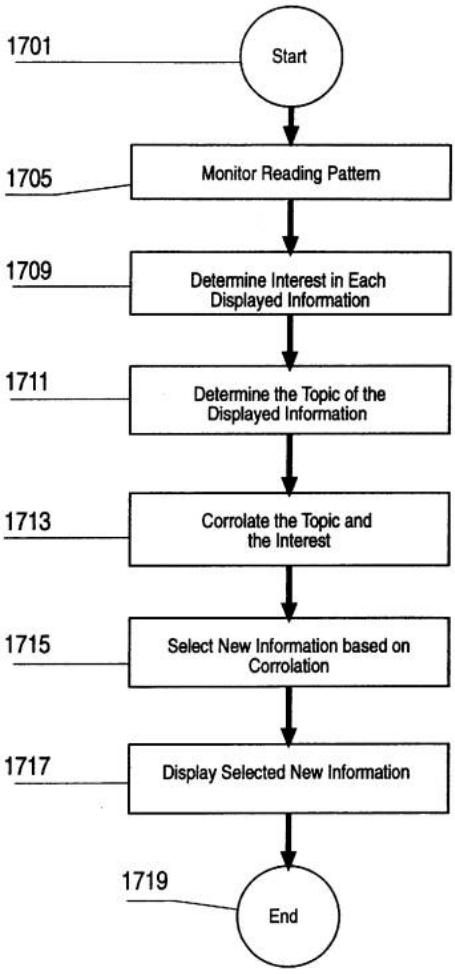 ***Fig. 17***
Kamba, Bharat, and Albers, *The Krakatoa Chronicle – An Interactive, Personalized Newspaper on the Web* ("KAMBA")	*See e.g.,* KAMBA, p. 1 ("we describe an experimental system which implements an interactive, personalized newspaper on the WWW. Some of the parameters for personalization are computed at the server end, based on user profiles and the composition of the newsfeed. Personalized layout happens at the client end, based on other parameters under user control."); *id.*, p. 2 ("A user's profile is modified by the explicit feedback provided by the user on the relevance of various articles, and when this is unavailable, from implicit feedback, derived from observations made by the embedded Java agent. The agent observes the manner in which the user interacts with the articles in the document, and based on the time spent, the interaction techniques used (e.g. scrolling, peeking at, maximizing, resizing), it tries to estimate the user's interest and modifies the user's profile suitably."); *id.*, p. 4 ("The weight of each keyword represents the system's reckoning of the user's interest in the keyword. It is computed when feedback is given. Feedback provides a score for the

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	whole article which is then used to compute scores for individual keywords in its document-vector. Then it is integrated into the user's profile."); *id.*, p. 7 ("Layout is a function of several parameters: the score that each article receives based on the user's profile (the user score), the average score received by each article over the community of users (the community score), and also the size and composition of each article . . . The order of articles . . . for a user is decided by each article's score, and the score is a function of the user's score and the community score."); *id.*, p. 8 ("all these interactions give feedback about the relevance of the article to various degrees . . . When the user scrolls, peeks at, maximizes, resizes, or saves an article to a scrapbook, the Krakatoa Chronicle increments the user's interest in the article by a corresponding amount, and subsequently changes the personal profile.")
Edwards, Bayer, Green & Payne, *Experience with Learning Agents which Manage Internet-Based Information*, AAAI Technical Report SS-96-05, 1996 ("EDWARDS")	*See e.g.*, EDWARDS, p. 31 ("An alternative solution is to build a *profile* which reflects the user's preferences when using an application, such as a World-Wide Web browser."); *id.*, p. 33 ("The architecture can be divided into two broad areas: the *Profile Generation Phase* and the *Classification/Prediction Phase*. The Profile Generation phase is responsible for inducing the user profile . . . Actions performed by the user on a document (news article, Web page, etc.) are recorded together with the text of the document. Features are extracted from these observations, and used to create a training instance. The training instances are then used to induce the user profile. . . . The Classification/Prediction phase is responsible for determining the actions to be performed on new documents. . . . Features are extracted from each document, and the user profile employed to generate a classification (with an associated confidence rating). The confidence rating is used by the Prediction Stage to determine whether a prediction should be made."); *id.*, p. 35 ("LAW (Bayer 1995) is a system that helps a user find new and interesting information on the World-Wide Web. It provides assistance in two ways: by interactively suggesting links to the user as they browse the Web; and through the use of a separate Web robot that autonomously searches for pages that might be of interest.").
Lieberman, *Letizia: An Agent That Assists Web Browsing* ("LIEBERMAN")	*See e.g.*, LIEBERMAN, p. 2 ("This paper introduces an agent, *Letizia*, which operates in tandem with a conventional Web browser such as Mosaic or Netscape. The agent tracks the user's browsing behavior – following links, initiating searches, requests for help – and tries to anticipate what items may be of interest to the user. It uses a simple set of heuristics to model what the user's browsing behavior might be."); *id.* ("Letizia uses the past behavior of the user to anticipate a rough approximation of the user's interests."); *id.*, p. 3 ("The goal of the Letizia agent is to automatically perform some of the exploration that the user would have done while the user is browsing these or other

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	documents, and to evaluate the results from what it can determine to be the user's perspective."); *id.* ("One of the strongest behaviors is for the user to save a reference to a document, explicitly indicating interest. . . . Following a link is, however, a good indicator of interest in the document *containing* the link. . . . Repeatedly returning to a document also connotes interest . . . a link that has been 'passed over' can be assumed to be less interesting."); *id.*, p. 4 ("it is Letizia's job to recommend which of the several possibilities available is most likely to satisfy the user."); *id.*, p. 6 ("the agent serves the role of remembering and looking out for interests that were expressed with past actions.").
Lam, Mukhopadhyay, Mostafa, and Palakal, *Detection of Shifts in User Interests for Personalized Information Filtering*, SIGIR'96, ACM 1996 ("LAM")	*See e.g.*, LAM, p. 317 ("Information filtering is concerned with the problem of delivering useful information to a user while preventing an overload of irrelevant information. Information selected for presentation is commonly based on descriptions of user preferences called profiles. Typically, the user profile is not known in advance, and can also change with time. The user may choose to provide a limited amount of feedback information concerning the relevance of specific items. The objective is to estimate the user profile from the feedback data so that the filtering system can effectively choose and present information as relevant to the user as possible."); *id.*, ("in the case of text-based document filtering, the overall problem of information filtering may be broadly posed as learning a map from a space of documents to the space of real-valued user relevance factors. . . . a finite set of documents can always be rank-ordered and presented in a prioritized fashion to the user."); *id.*, p. 318 ("a user profile learning module that learns user interests over the document categories, based on on-line user relevance feedback and a reinforcement machine learning algorithm."); *id.*, p. 320 ("The user profile learning module consists of a learning agent that interacts directly with the user and sorts the incoming documents according to its belief of the user preferences for the various categories of documents. To accomplish this task, the learning agent maintains and updates a simplified model of the user.").
O'Riordan and Sorensen, *An Intelligent Agent for High-Precision Text Filtering*, CIFM '95, ACM 1995 ("O'RIORDAN")	*See e.g.*, O'RIORDAN, p. 205 ("We present here an overview of a research project aimed at reducing information overload for individual computer users."); *id.* ("It is generally acknowledged that the volume of information which is accessible over various networks has exceeded the capability of users to sift through it in order to access that which is relevant to them."); *id.* ("an information filter was built which can be personalized by individual users and which models the user's interests so as to route through to him/her those articles which are deemed as relevant. The user may evaluate the significance of received information, thus providing *relevance feedback* which is used in fine-tuning the filter (or *user profile*) so as to improve its precision and to

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	better model a user's changing interests. In this sense, the profile learns of a user's preferences through assimilation of an initial set of interesting documents and continues this learning process via relevance feedback throughout its lifetime."); *id.*, p. 206 ("The basic assumption is that a software agent acts on behalf of the user – embodying his/her beliefs, intentions and goals – behaving as an intermediary between the user and the system with which he/she is interacting."); *id.*, p. 208 ("The comparison of a user profile with a document representation involves the localized matching of structural similarity between the profile network and incoming article networks, using profile weights to influence this comparison."); *id.*, p. 209 ("Those articles considered relevant to the user's needs are forwarded by the agent, while the others are screened out. Forwarded articles are also ranked according to estimated relevance."); *id.* ("Via the user interface, the user may provide relevance feedback on those articles routed to him/her.").
Bloedorn, Mani, MacMillan, *Machine Learning of User Profiles: Representational Issues*, Proceedings of AAAI-96, Portland, OR, Aug. 4-8, 1996 ("BLOEDORN")	*See e.g.*, BLOEDORN, p. 1 ("The goal of the research described here is to build a system for gathering comprehensible user profiles that accurately capture user interest with minimum user interaction."); *id.*, p. 2 ("Our experiments were conducted in the context of a content-based profiling and summarization system for on-line newspapers on the World Wide Web, the IDD News Browser. In this system, the user can set up and edit profiles, which are periodically run against various collections built from live Internet newspaper and USENET feeds, to generate matches in the form of personalized newspapers. These personalized newspapers provide multiple views of the information space in terms of summary-level features. When reading their personalized newspapers, users provide positive or negative feedback to the system, which are then used by a learner to induce new profiles. These system-generated profiles can be used to make recommendations to the user about new articles and collections.")
Pazzani, Muramatsu, & Billsus, *Syskill & Webert: Identifying interesting web sites*, AAAI 1996 ("PAZZANI")	*See e.g.*, PAZZANI, p. 1 ("In this paper, we discuss Syskill & Webert, a software agent that learns a profile of a user's interest, and uses this profile to identify interesting web pages in two ways. First, by having a user rate some of the links from a manually collected 'index page' Syskill & Webert can suggest which other links might interest the user. . . . Second, Syskill & Webert can construct a LYCOS query and retrieve pages that might match a user's interest, and then annotate this result of the LYCOS search."); *id.*, p. 3 ("The user profile is learned by analyzing all of the previous classifications of pages by the user on this topic. If a profile exists, a new profile is created by reanalyzing all previous pages together with any newly classified pages. Once the user profile has been learned, it can be used to determine whether the user would be interested in another page.").
Maes, *Agents that*	*See e.g.*, MAES, p. 32 ("The machine learning approach is inspired by

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Reduce Work and Information Overload, Communications of the ACM, July 1994 ("MAES")	the metaphor of a personal assistant. Initially, a personal assistant is not very familiar with the habits and preferences of his or her employer and may not even be very helpful. The assistant needs some time to become familiar with the particular work methods of the employer and organization at hand. However, with every experience the assistant learns, either by watching how the employer performs tasks, by receiving instructions from the employer, or by learning from other more experienced assistants within the organization. Gradually, more tasks that were initially performed directly by the employer can be taken care of by the assistant. The goal of our research is to demonstrate that a learning interface agent can, in a similar way, become gradually more helpful and competent."); *id.*, p. 33 ("the interface learns by continuously 'looking over the shoulder' of the user as the user is performing actions."); *id.* ("A second source for learning is direct and indirect user feedback. Indirect feedback happens when the user neglects the suggestion of the agent and takes a different action instead. This can be as subtle as the user . . . not reading some articles suggested by the agent . . ."); *id.,* p. 34 ("the agent can learn from examples given explicitly by the user."); *id.*, p. 38 ("A user can create one or many 'news agents' and train them by means of examples of articles that should or should not be selected. . . . The user can also program the agent explicitly and fill out a set of templates of articles that should be selected (e.g., select all articles by Michael Schrage in the *Los Angeles Times*). Once an agent has been bootstrapped, it will start recommending articles to the user. The user can give it positive or negative feedback for articles or portions of articles recommended."); *id.*, p. 39 ("The agents are able to recommend articles to the user that concern topics (or authors or sources) in which the user has shown a continued interest.").
Sheth and Maes, *Evolving Agents for Personalized Information Filtering*, 1993 IEEE ("SHETH")	*See e.g.*, SHETH, p. 340 ("Filtering system can be viewed as a search process. It involves searching over the large and complex space of possible user profiles, for an 'optimal' user profile (or set of profiles) that match the user's different interests. This 'optimal' user profile has to vary as the user's interests change over time."); *id.* ("The system consists of a number of news categories which a user has defined. Each of these news categories consists of a population of filtering agents. These are 'organisms' that retrieve articles which match an internal representation of the type of article they are interested in. The internal representation consists of whatever the organism inherited generically from its parents (the genotype) augmented with information it learns during its lifetime. Agents are assigned a fitness value based on the user feedback regarding their performance. The user conveys whether an article that was retrieved by one or several agents was appreciated or not. The agents learn from this feedback by changing their internal representation to reflect

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	this training example. For each positive/negative feedback received, an agent gets positive/negative fitness points."); *id.*, p. 347 ("When an agent receives positive feedback, it extracts information from the corresponding article and incorporates it into its internal representation. Presently, the agent extracts most of the information provided in the header of the news article (Figure 1), in particular the author, keywords, location, category and priority fields. If, say, a keyword is already present in the internal representation, it's weight is increased, so that the agent is more likely to retrieve similar articles in the future. Conversely, in the case of negative feedback, the information is stored with negative weight, so as to make it less likely that similar articles will be retrieved in the future. The user can also manually indicate preference for particular keywords occurring in an article."); *id.*, p. 349 ("The user can give positive or negative feedback by clicking on the 'thumbs-up' or the 'thumbs down' icon respectively.").
Balabanovic, *An Adaptive Web Page Recommendation Service*, 1997 ACM ("BALABANOVIC")	*See e.g.*, BALABANOVIC, p. 378 ("In this paper we introduce the 'Fab' adaptive Web page recommendation service. . . . Running since March 1996, it has been populated with a collection of agents for the collection and selection of Web pages, whose interaction fosters emergent collaborative properties."); *id.* ("The operation of the system is as follows: users can request recommendations at any time, and will be shown the ten highest-ranking Web pages according to their profile."); *id.*, p. 380 ("All agents maintain a profile: each user has a selection agent, which maintains their user profile; each collection agent maintains a search profile which is used to guide it in its collection of web pages."); *id.* ("At regular intervals collection agents submit the pages they have gathered which bets match their search profiles to the central repository, replacing the pages they previously submitted. Thus at any time the repository contains each collection agent's best pages (in their own opinions). When a user requests their Fab recommendations their selection agent (of which there is one per user) picks, from the entire repository, those pages which best match the user's personal profile. The user then rates these pages. These ratings are used as feedback for the agents to learn from, and the resulting rankings are used for evaluation purposes (discussed in section 4). The selection agent uses the feedback to update the user's personal profile (using the function *u*). It also forwards the feedback, via the central repository to the originating agent *A*, which will update its search profile in the same way."); *id.* ("A brand new user to the system is shown a selection of pages which are randomly chosen from the repository. However the repository contains pages which various agents believe will best match the current user population. Thus the new user is already starting from a much higher level than would be expected from an empty profile, especially if the system is deployed in

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	an organization or special interest group where there will be significant overlap between users' interests."); *id.*, p. 381 ("Rather than actually searching the Web, these agents attempt to construct queries for existing Web indexes in an attempt to avoid duplicating work. The indexes used are Alta Vista, Inktomi and Excite."); *id.*, p. 382 ("The highest-scoring pages are shown to the user, with the proviso that no two are identical or from the same site, and that the user has not seen an identical page in the last month."); *id.* ("On a day-to-day basis the system supplies the user with a number of documents it thinks the user will rate highly. It uses the resulting scores in order to perform relevance feedback and improve the user profile.")
Fox, Hix, Nowell, Brueni, Wake, and Heath, *Users, User Interfaces, and Objects: Envision, a Digital Library*, Journal of the American Society for Information Science, 44(8):480-491, 1993 ("FOX 1993")	*See e.g.*, FOX 1993, p. 485 ("The Query Window has two categories of use: . . . Access to previously completed (old) queries and the results of the related searches are provided. Old queries may simply be viewed or they may be revised and used for another search. Results of searches from old queries may also be redisplayed via a query history feature."); *id.* ("As queries are stored or related searches are performed, the user establishes a history that is accessible through the Query History field across the top of the window . . . The Query History provides access to the results of previous searches, means to redisplay the full content of previous queries for possible revision, and a mechanism for combining the results for completed searches.")
Little, *Commerce on the Internet*, 1994 IEEE ("LITTLE")	*See e.g.*, LITTLE, p. 75 ("On-line services can incorporate customer preferences and use history, such as past purchases or chapters read, to provide a personal environment to the customer, saving access time."); *id.*, p. 76 ("For example, a customer might, through an interactive form, indicate current age, number of children, expendable income, and home value to identify investment options for a mutual fund buying service. Using that information, the service might steer the customer to performance indices that help in choosing investments."); *id.* ("Once interaction is supported, data on individuals can be maintained both by direct customer involvement (for example, updating the name and mailing address) and by monitoring the documents accessed. A personal profile can capture basic demographics as well as individual information and environmental preferences. This information can be used for a number of interesting purposes, including 1. to configure the interface presentation 2. to fuel Web 'agents' who actively search the net or site based on the profile, and 3. to tailor and select site-specific information to present to the customer (for example, showing children's ads to children and adult-oriented ads to adults).").
Adam and Yesha, *Strategic Directions in Electronic Commerce and Digital Libraries:*	*See e.g.,* ADAM, p. 822 ("From a consumer's perspective, EC/DL systems require *decision agents* that can learn an individual consumer's preferences, seek out appropriate providers and negotiate requests for further information (e.g., to bring to the user's attention)

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Towards a Digital Agora, ACM Computing Surveys, Vol. 28, No. 4, Dec. 1996 ("ADAM")	or initiate purchases.")
U.S. Patent No. 5,933,811 to Angles et al. ("'811 PATENT")	'811 PATENT at Abstract, "The present invention is a system and method for delivering customized electronic advertisements in an interactive communication system. The customized advertisements are selected based on consumer profiles and are then integrated with offerings maintained by different content providers. The preferred interactive communication system interconnects multiple consumer computers, multiple content provider computers and multiple Internet provider computers with an advertisement provider computer. Whenever a consumer directs one of the consumer computers to access an offering existing in one of the content provider computers, an advertising request is sent to the advertisement provider computer. Upon receiving the advertising request, the advertising provider computer generates a custom advertisement based on the consumer's profile. The custom advertisement is then combined with the offering from the content provider computer and displayed to the consumer. The advertisement provider computer also credits a consumer account, a content provider account and an internet provider account each time a consumer views a custom advertisement. Furthermore, the advertisement provider computer tracks consumer responses to the customized advertisements." '811 PATENT, e.g., Col. 2, "As the popularity of the Internet and the World Wide Web has increased over the years, more companies are trying to find ways of promoting their product in a cost-effective manner. Thus, there has been a tremendous proliferation of corporate advertising across the Internet. For example, some companies such as Yahoo Corporation offer free services, such as the ability to search for particular sites on the Internet, but post advertising messages to consumers to help offset the cost of their service. Unfortunately, there is so far no effective way of targeting particular advertisements to those consumers most likely to use the product or service being offered. Therefore, a tremendous amount of advertising is wasted on promoting goods or services to an improper audience. As the number of people accessing the Internet increases, it will become more important to specifically target advertising to those individuals most likely to purchase the goods or services being offered. It will also be important for advertisers to know how effective a particular ad has become by tracking the responses of individual consumers. Unfortunately, there is currently no convenient mechanism for predetermining which users might be interested in a particular

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	category of advertised goods or services. There is also no current method for tracking consumer responses to particular advertisements." '811 PATENT, e.g., Summary of the Invention; Claims 1, 4, 6, 12; Figures 1-11
BROADVISION	Press Release (1.22.96)[13], e.g., "One, the first application system for dynamic personalized marketing and selling on the Internet's World Wide Web. Over two years in development, the BroadVision One-To-One software product transforms static "brochureware" Web sites into interactive, one-to-one marketing communities. These online communities, built around consumer brands, virtual malls, or value-added services, will enable businesses to build long-term relationships with their customers through personalized content, services and promotions. Using the product's innovative Dynamic Command Center feature (for which the company has a pending patent), marketing, advertising and Web content managers, can: Personalize editorial content, advertising and incentive programs based on individual consumer demographics, psychographies and usage patterns; Observe consumer interactions in real time to identify and seize opportunities based on understanding and responding to consumers' online activity; Foster virtual communities by easily integrating electronic mail bulletin boards and online forums to One-To-One applications; Establish collaborative online dialogues with customers to improve long-term satisfaction and retention. Press Release (1.22.96), e.g., "According to Don Peppers, a well-known marketing consultant and co-author of the best-selling book "The One-To-One Future," the most important challenge facing marketers today is to build life-long customer relationships. "But to achieve this goal and realize the enormous potential of the Web, marketers need more than cool graphics and secure transactions. To keep consumers coming back, Web sites must 'learn' from interactions and remember from visit-to-visit the unique preferences and interests of each individual," Peppers said. "Savvy Web marketers will use sophisticated software like BroadVision One-To-One to progressively enhance the quality of information exchange with their customers, resulting in strong one-to-one relationships that deliver increasingly greater benefits to both producer and consumer.""

[13] PRESS RELEASE (1.22.96) shall refer to Personalized Marketing and Selling on the Internet Unleashed by BroadVision One-To-One Application System Helps Marketers Build Long-Term Relationships Through Personalized Content, Services and Promotions," dated Jan. 22, 1996.

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	Press Release (3.21.96)[14], e.g., "Broadvision Inc is to offer personalised Web sites based on individual user profiles with its One-to-One on-line marketing database. One-to-One, which has been two years in development, offers a three-tier environment enabling businesses to tailor their World Wide Web sites to individual customers by tracking their preferences as they move around the site. In this way, companies can build up very detailed 'psychographic' profiles of their customers, enabling them to target specific advertising and promotions to individuals." Press Release (3.21.96), e.g., "Chen admits that interactive, personalised marketing is not new, but says that the Internet is enabling it to be practised on a very large scale. Broadvision is looking at the complete life-cycle, from attracting customers to the site, encouraging them to buy over the Internet, offering incentives to give their details to the company and finally supporting the actual payment transaction." Press Release (5.15.95)[15], e.g., "BroadVision Inc. today proposed the definition of a new category of software critical to manage the buying and selling of products and services via interactive networks. The new category, Interactive Commerce Management System (ICMS), is a comprehensive solution for electronic commerce that allows interactive service providers to conduct interactive marketing, ordering and billing online. BroadVision, based in Los Altos, Calif., is currently designing and developing the first ICMS product for delivery by year-end 1995." Press Release (5.15.95), e.g., "An ICMS employs object technology to enable traditional database marketing and new interactive marketing practices, including tracking consumer usage and interests. Service providers can evaluate the effectiveness of a particular promotion to reward repeat customers or determine peak shopping times. Since an ICMS uses objects to represent business rules and processes, it can reflect the unique business models of the service providers and still respect the specific 'look and feel' of the storefronts, allowing for

[14] PRESS RELEASE (3.21.96) shall refer to "Broadvision Uses Its On-Line Marketing Database To Deliver Personalised World Wide Web Sites," dated Mar. 21, 1996.

[15] PRESS RELEASE (5.15.95) shall refer to "BroadVision Developing First Interactive Commerce Management System To Support Online Sales & Marketing Process; New Software Category Necessary to Interactive Network Architecture," dated May 15, 1995.

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	change over time." Press Release (5.15.95), e.g., "Examples of electronic commerce applications that can be offered to consumers over an interactive network include full-service electronic malls, independent electronic retailing, personalized advertising, travel services, movies-on-demand, time-shifted TV, pay-per-view, automated ticket sales, educational programs and online games."
C/NET	Press Release (12.18.95)[16], e.g., "C/net unveiled a new system that allows advertisers to target narrow audiences by delivering different ads to different site visitors in real time. The technology, called DREAM (Delivery of Real-Time Electronic Advertising Messages), went into operation on c/net's two web sites Dec. 15. DREAM allows c/net to categorize visitors to its site based on demographic information (taken from site registrations) and hardware and software data gathered on the fly. "We know certain things about the people coming into our site,~ said Scott Waltz, c/net's vice president of marketing. ~we know what kind of platform they're coming with, their connection rate, their browser type, and so on. We use that information to affect how our database serves content." DREAM allows an advertiser to display different banners to different users. Waltz explained, "If I know someone's coming in with a Mac instead of an Intel platform, I can tailor the software or peripherals that I offer to that person so I have a much higher chance of speaking to that person and offering them something that they want." In another example, a bank could present a standard credit card offer to all customers except those from .edu domains. Visitors from .edu -- many of which are college students -- would see a special first card offer."
APTEX	www.aptex.com[17], e.g., "Aptex provides text analysis software to enhance mission-critical, real-time business processes and decisions. Using proprietary Content Mining™ technology, Aptex develops and markets intelligent solutions for online publishing, market intelligence, customer response, and educational publishing. Aptex products include Convectis™, an intelligent document categorization and routing server, and VITAL ResourceMiner™, an interactive tool for correlating educational content to state and local instructional

[16] PRESS RELEASE (12.18.95) shall refer to "Online Marketing: C/Net Introduces Customized Web Advertising," dated Dec. 18, 1995.

[17] WWW.APTEX.COM refers to webpages accessed through www.aptex.com homepage, available through www.archive.org (last accessed on May 19, 2014).

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	standards. SelectCast™, an intelligent advertising and audience management server for World Wide Web content providers, is scheduled for delivery in the second half of 1996." www.aptex.com, e.g., "SelectCast is a Web advertising placement server with unique predictive modeling capabilities for increased advertising effectiveness. When integrated with a Web site, the SelectCast advertising server will present visitors with intelligently-placed, individually-tuned advertising and promotions. Using proprietary Aptex neural network techniques and Content Vector™ data model, SelectCast will develop self-adjusting, predictive models of user behavior. By correlating these user profiles with advertising performance, demographic databases, and content provider feedback, SelectCast will continually improve advertising placement effectiveness." Press Release (5.6.96)[18], e.g., "Infoseek Corporation, a leading Web search service, and Aptex, a newly formed division of HNC Software Inc., today announced a long-term development and marketing partnership. Under the terms of the agreement, HNC's Aptex Division and Infoseek will jointly design and market SelectCast™, an intelligent advertising and audience management server for the World Wide Web, based on HNC's text analysis technology. Infoseek will also use the Aptex division's Convectis™ product, a neural network-based text analysis server, to automatically update the directory portion of Infoseek Guide, Infoseek Corporation's flagship Internet service. . . When integrated with Guide, SelectCast is designed to present visitors with intelligently disseminated, individually targeted advertising and promotion. Using proprietary neural network techniques and the HNC patented Context Vector™ data model, SelectCast is intended to deliver self-adjusting, predictive models of user behavior. . . To expand and enrich the user's Web experience, Infoseek will also employ the HNC/Aptex Convectis server as an "intelligent librarian" aide to its experts who categorize and summarize Web pages into thousands of categories within Infoseek's Guide directory. Convectis is expected to allow Infoseek's Guide directory to scale continually with the growth of the World Wide Web."

[18] PRESS RELEASE (5.19.14) refers to "HNC Software and Infoseek Announce Web Partnership," dated May 6, 1996.

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	Press Release (12.3.96)[19], e.g., “Aptex Software Inc. Tuesday announced the availability of SelectCast for Ad Servers, an intelligent software solution that revolutionizes Internet advertising by maximizing ad clickthrough and selectively targeting specific audiences. Press Release (12.3.96), e.g., “"Online advertisers are asking for higher response rates and more audience selectivity," said Michael Thiemann, President and CEO of Aptex. "SelectCast for Ad Servers delivers on both counts, with what we believe are the highest sustained clickthrough rates and most selective ad targeting available on the Internet." Aptex developed SelectCast for Ad Servers in partnership with Infoseek Corp. (NASDAQ: SEEK) to deliver industry-leading capabilities for a new Infoseek advertising service currently in development. Infoseek expects to use SelectCast technology throughout its service and the Infoseek Network. Early versions of SelectCast have been in use at Infoseek since the summer of 1996. "SelectCast capabilities represent the state of the art and a major improvement in ad serving technology," said Robin Johnson, Infoseek CEO. "We selected Aptex as a strategic partner because we believe their software is far superior to other technologies we evaluated for personalization and ad serving."” Press Release (12.3.96), e.g., “SelectCast for Ad Servers improves clickthrough rates by continuously evaluating user profiles as users click ads, and then delivering the same ads to similar users. SelectCast for Ad Servers delivers clickthrough increases of up to 50 percent compared to word- and topic-matching selection techniques -- until now the bestperforming technology available -- and up to 25 percent when measured against aggregated matching and general rotation results. SelectCast for Ad Servers targets audiences by developing profiles for all site visitors, analyzing and grouping profiles to identify users with similar interests, and then delivering designated ads consistently to users in selected groups. This "affinity modeling" process also identifies new audiences automatically as they emerge. SelectCast for Ad Servers provides comprehensive, site-wide user profiling while maintaining persistent, multi-visit profiles for every site visitor, and updating these profiles immediately with every user action. SelectCast for Ad Servers acts as an "intelligent observer,"

[19] PRESS RELEASE (12.3.96) refers to “Aptex announces SelectCast "turbocharger" for advertising servers,” dated Dec. 3, 1996.

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	mining the context and content of all actions -- including clicks, queries, page views and ad impressions -- so that no explicit user feedback or "taste" judgments are ever required. By irreversibly encoding all user profiles, SelectCast for Ad Servers ensures user privacy. Personal information is never requested or stored, and profiles cannot be reverse engineered to determine specific user actions. SelectCast for Ad Servers is based on Aptex's patented Content Mining technology, which employs neural networks and a Context Vector data model to optimize relationships between users and content. Future SelectCast products are expected to enhance the performance of other types of commercial servers - including those for electronic commerce, one-to-one marketing, online publishing, and community creation -- by personalizing the selection of product and service information, news and entertainment, forums and chat sessions, and other forms of content."
HYPER-TARGETED MARKETING	Press Release (12.4.96)[20], e.g., "Hyper-Targeted Marketing precisely targets marketing efforts based on user profiles and choices made while browsing a Web site. Hyper-Targeted Marketing is based on Alpha Base Interactive's Metropolis Database and Web Hypertext Applications Processor (WHAP), a complete system that builds sophisticated web services that are automatically customized to the interests of subscribers and customers. Together with the company's EZ-ID browser plug-in, which automatically provides user identification, the system keeps track of customer preferences, service history, and interests they have shown on previous visits to a WHAP-supported web site. "The ability to precisely target marketing efforts is one of the most compelling advantages to marketing on the Web," said Steve Fecske, CEO of ABI. "In a world of information overload, customers will respond best to companies that can match individuals to products and content of specific interest to them.""
CYBERGOLD	"The CyberGold Service," e.g., "Upon logging in to the Net, Karen is presented with a short list of ad titles. Each of them involves a product or service in which she has actively expressed an interest either through her previous use of CyberGold facilities or through the user profile she filled out when she joined CyberGold Today's list contains ads for medium price hotels in New Orleans (where Karen's family is plaruting a vacation), a makeit-yourself telescope kit (a possibility for her husband's upcoming birthday), recently released movies (she's a

[20] PRESS RELEASE (12.4.96) shall refer to "Alpha Base Interactive Provides Hyper-Targeted Marketing Service," dated Dec. 4, 1996.

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	fan), some new nonfat organic dessert items (she's on a diet), and family minivans (with the new baby, the family has outgrown their present car). Not only are the subjects of the ads keyed to Karen's interests, but certain aspects of their style and depth are as well This permits the design of ads that are virtually custom-fitted to Karen's preferences, thus ensuring her attention The ad messages will be welcomed and attentively viewed. For the minivan ads, Karen has requested straightforward technical specs of models and configurations (she does not need to be sold on the idea of this kind of vehicle; she already knows she wants one). For the movie ads, Karen might request a film clip, while another subscriber might ask for a plot summary. Some consumers might prefer the entertainment value of ads like those generally found in the mass media, while a subscriber viewing an ad for food or drink might ask for a list of ingredients or nutrients." "The CyberGold Service," e.g., "Advertisers will find their potential customers through patent-pending "demographic routing" technology, which will steer ads directly to interested and willing buyers, as defined by the personal profiles in the CyberGold database. A welcome side-effect of this type of routing is that advertising will become 'orthogonal,' that is, unlinked to the editorial content of entertainment and information on the Net. When advertisers aim their messages at individual consumers rather than at demographic segments of the population ('blue-collar urban women under 30') they no longer need to worry about whether the editorial content of a particular magazine or television show is likely to attract potential buyers. Advertisers using orthogonal sponsorship typically would not even know what content they are sponsoring. Instead, they would simply explicitly delineate their target audience, provide ads, and offer some form of compensation directly to those viewers willing to view the ads. This unlinking between advertising and content is likely to be beneficial to consumers, advertisers, and society." "The CyberGold Service," e.g., "The CyberGold Marketing System is a more effective way of advertising for four reasons: * Reach: advertisers can entice more customers to interact with their advertising by rewarding customers directly for their attention. * Targetability: CyberGold makes more efficient use of advertising dollars by targeting customer by demographic, psychographic or behavioral characteristics. *Accountability: advertisers only pay customers who interact with their ads. CyberGold

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	provides information on the characteristics of the customers the ads have reached. * Integration: on-line promotional mechanisms including coupons and rebates are encapsulated into a single, easy-to-use system. CyberGold handles the complexity of electronic commerce for advertisers."
FREELOADER	Press Release (9.30.96)[21], e.g., "Beginning today, FreeLoader, a unit of Individual Inc. (NASDAQ:INDV), will make version 2.0 available for free downloading from the FreeLoader home page (http://www.freeloader.com). Among the unique features of the new version are: - User-defined, custom channels in addition to the "subscriptions" of version 1.0. These channels allow users to personalize exactly how they would like to retrieve selected Web content - "Premium" branded channels of content from popular Web sources including: MSNBC (www.msnbc.com), NewsPage (www.newspage.com), Pathfinder (www.pathfinder.com), Slate (www.slate.com), Sony Music Entertainment (www.sony.com/Music), Sportsline USA (www.sportsline.com), and ZD Net (www.zdnet.com). - Enhanced, easier-to-use interface -Support for Microsoft's Internet Explorer, as well as Netscape Navigator - Ability to track user clicks and preferences to offer valuable advertising and editorial content personalized for each user" Press Release (9.30.96), e.g., "FreeLoader provides an advertiser-supported, free service which automatically retrieves and categorizes content from pre-selected Web sites at user-defined times. Unlike other offline services, FreeLoader employs intelligent agenting technology to passively create a user profile based on clicks and selections, providing one of the only platforms for advertisers to customize a marketing message at a specific and well-defined audience. The server side database keeps track of the statistics received from the user such as age group, sex, zip code, country, first name, e-mail address, occupation and salary group."

[21] PRESS RELEASE (9.30.96) shall refer to "FreeLoader releases Personalized Web Content Delivered Redesigned Interface And Screen Saver," dated Sep. 30, 1996.

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HYPER SYSTEM	"Hyper System: Patent Pending," e.g., "What is Hyper System? Hyper System employs message display application software called "Hot Cafe"' to transmit advertising and messages to precisely targeted audience of Internet. Hyper System can run simultaneously. with any Internet communications application, including WWW browser. It allows advertisements, information, and messages to be displayed continuously during a user's dial-up session. This will be forwarded to the providers via a leased line." "Hyper System: Patent Pending," e.g., "What is Hot Cafe? When using Hyper System, in addition to the web browser window on a user's screen, a section of the screen is devoted to another window "Hot Cafe" where advertising and information messages from corporations or individuals are continuously displayed. This information is updated every minute, irrespective of the Internet communications application. A feature of this "Hot Cafe" gives · advertisers the option of incorporating buttons with link capabilities to their messages, which enable users to easily dick onto the web page of the advertiser or infomation sender with their web browser. The application software, "Hot Café", is distributed to users free of charge." "Hyper System: Patent Pending," e.g., "Establishing User Profile. When users register on-line, in addition *to* providing their names and addresses, users are asked to complete a detailed questionnaire about hobbies, interests and so on. Although no personal data is ever released, the questionnaire responses are plotted to create a statistical profile of Hot Cafe users. HYPER NET establishes a Database Center in Japan to match user profiles with the targeted data required by advertisers. This center will be connected to providers by a leased line to deliver advertising and information to users. Bendits of Using Hyper System. Hyper System has benefits for everyone: Providers have a new source of cash flow, advertisers and infonnation providers have a new direct marketing tool, and users can save their connection fees." "Hyper System: Patent Pending," e.g., "Benefit for Advertisers. Advertisers benefit in several ways using Hyper System. Information and advertising messages can be targeted precisely at a specific audience, whose composition is determined by the responses to the questionnaire. Since the advertising messages are interactive, an efficient response can be obtained and the results of advertising can be measured accurately and quickly."

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I/PRO	"About I/Pro," e.g., "With I/COUNT; site owners can monitor aspects of site usage such as number of visits, most frequently accessed files, and geographic and organization origin of visitors. I/COUNT has been commercially available since May 15." "About I/Pro," e.g., "I/ CODE: How It Works On Your Site The Exchange of Value The I/CODE system is based upon a value exchange between the user and the site. By providing you with their demographic profile, and potentially their identity, I/CODE members are sharing very valuable information. For sites, this demographic data translates into real dollars for I/CODE enabled sites who can interpolate content, exposure, and advertising potential from it. Sites should therefore be willing to compensate I/CODE members for their time and information with give-aways, sweepstakes, discounts and other benefits. Free Demographic Data. I/CODE provides sites with raw demographic data about all I/CODE members who sign-on at their site absolutely free. If you would like someone to provide data analysis, I/CODE offers analysis and reporting services on this data (see I/CODE Reports for more information, but the raw data is supplied to all participating sites at no cost." "About I/Pro" (5.8,1996), e.g., "The I/ CODE Universal Registration System is an enabling product which benefits both content providers and Internet users. Sites benefit by obtaining detailed demographic data while avoiding redundant site-specific registration that negatively impacts traffic. *Raw Demographic Data on all I/CODE members who sign-on at your site is provided free of charge. * Obtain: data on age distribution, income levels, gender mix, and other characteristics. * Gain insights into the depth of repeat visits to your site. *Access aggregated audience demographics for all I/CODE members (not just those who register at your site). · * Allow visitors to share their anonymous demographics while respecting their privacy. * Understand audience preferences and their reaction to your site's content."
F.J. Burkowski, "Delivery of Electronic News: A Broadband Application" ("BURKOWSKI")	BURKOWSKI, e.g., Abstract, "The system will provide selective content delivery based on individual and group profiles, hypertext links into archival and external data, continuous coverage of news stories, interactive objects, and "smart" advertising. BURKOWSKI, e.g., at 2, "Such systems typically provide two types of

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	services: retrieval of stories (documents) in response to user queries and personalized clipping services (i.e., selective dissemination of information) based on user profiles." BURKOWSKI, e.g., at 3, "The information content and functionality of such a system will include 1. Core content: This comprises the stories and advertisements considered important for all readers. It is transmitted to all users and is accepted by all clients for display. 2. Stereotyped content: Group profiles or stereotypes can be generated based on demographic information linking readers to various sections of the newspaper. Readers will be categorized by one or more such stereotypes and will receive various special interest sections, features, advertisements, etc., that meet the constraints of these stereotypes. 3. Supplemental content: While reading the news, a reader may request additional information by invoking a hypertext link or by querying a multimedia archive. Such an archive could be supported directly by the publisher of the newspaper, it could be a private archive held locally by the reader, or it could be a distributed archive on the Internet. 4. Individual profiles: The client subsystem will actively gather and filter information in accordance with an individualized reader profile. Such a profile might include gender, age, interest areas, income level, occupation, ethnic background, lists of products in which the reader has shown an interest, and reading habits such as preferred depth of news analysis. These last profile attributes will be updated dynamically as the client monitors the user's reading activity. 5. Advertisements: The system will feature customized, interactive advertisements that catch the attention of and involve the reader. These advertisements could gather information about the reader so that products and product advertising can be customized and targeted. This supports the trend to maintain marketing databases that keep track of customer related information." BURKOWSKI, e.g., at 3, "The proposed architecture consists of three layers, n a distributed client/server environment; the news sources layer, the news packagers layer, and the readers layer. The news sources layer consists of news producers that generate the news items and supply them in some agreed upon markup format. The news packagers layer consists of client/servers that accept items from the news sources and produce electronic editions of "the news", including advertisements, etc., based on stereotypes. The

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	readers layer consists of the end-user client/servers. These accept editions of the news and produce the individual editions of "the news". This includes, dynamic layout and assembly and requesting supplemental material based on the profile or end-user actions. Current work, not discussed in this paper, is focussing on the details of such an architecture, scalability, and networking." BURKOWSKI, e.g., at 4, "An abstract data representation was defined and applied to the source data. Using an abstract representation divorces the display and manipulation of the news items from the original format of the source. A reader stereotype was defined for the prototype, as per demographic data supplied by *The Chronicle-Herald*. The client selected data from the abstract representation and processed and formatted it to produce the news display for the reader, based on the stereotype. The client has control over the display and order of items in the sections and the order of access to sections, but in this case, not over content of the sections or the order of the news items in the sections." BURKOWSKI, e.g., at 5, "An extremely important feature of such a system will be the two-way communications available. Ads will be able to track who views them, how often, and for how long, and will be able to report this information to the advertiser. . . In summary, we feel that the delivery of electronic news is well suited to exploit the promised high bandwidth, switched, interactive communication facilities of the information highway. The presentation of such news will be based initially on a newspaper metaphor and will exploit communication and multimedia technologies to integrate other news sources, such as newscasts and video clips, with the text backbone. The system will provide selective content delivery based on individual and group profiles, hypertext links into archival and external data, continuous coverage of news stories."
Tim O'Reilly, "Publishing Models for Internet Commerce," Vol. 39, No. 6 (1996) ("O'REILLY")	O'REILLY, e.g., at 82, "2. There is clear feedback to the advertiser about what works and what doesn't, in the form of access logs. This feature tends to drive advertisers toward providing valuable content rather than hype. (Unfortunately, many of the people who followed our lead into net advertising haven't yet learned that lesson!) In addition to varying the content of their advertising, advertisers can experiment with—and get detailed feedback on—the context in which advertising is most effective. For example, many advertisers are looking at the *click rate*---the rate at which readers actually click on an advertising hyperlink----as well as the overall page views or impressions in evaluating sites for advertising placements."
NAQVI WO	NAQVI WO, p. 3 – "It is a further object of the present invention to

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	provide a method and system for advertising on a computer network in which advertisements are more focused and targeted, for example, by user queries and user profiles, including the past history of the user's interactions with the system." NAQVI WO, p. 4 – "The present invention provides a new process and system for online advertising. This new process will be referred to throughout this application as query-based advertising ("QBA"). In the QBA process, advertisements are primarily triggered by user queries. User queries, as used herein, refer to requests from an information consumer for one or more pages of information from a computer network. As a result of a query, a user is exposed to advertisements with the present invention, i.e., the query triggers advertisements." NAQVI WO, p. 5 - "When the user requests a certain page or a certain topic of information, the relevant pages are retrieved from the computer network and shown to the user. The present invention, upon receiving the user's request, retrieves advertisements that are related to the user's action, dynamically mixes the advertisements with the content of the pages according to a particular layout, and displays the pages with focused, targeted advertisements as a part of the page. The advertisements can be made to satisfy a set of constraints requested by the advertiser, as well as the constraints of the publisher of the page, as further discussed below. The advertisement triggering mechanism of the present invention is not random or coincidental, but rather, is prespecified in advance. This specification will be referred to in this application as a contract. A contract specifies the marketing rules that link advertisements with specific queries. For example, a diet soft drink advertisement may be shown when a user asks for a page about exercising equipment. These rules are specified by advertisers implementing the concept of "focus" or "relevance" of advertisements and help the advertisers to target a specific audience. Owners of pages specify the focus content of their pages through special tags within a page. These tags are not displayed to the information consumer; the tags are used to decide what advertisement can be shown when the page is requested by a consumer."" NAQVI WO, p. 15-16 – "Initially, a user requests a particular piece of

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	information through one of the clients 17. The user's 10 request is given to the WWW Daemon 16, which passes the information to the gate 15. The gate 15 at this point decides what piece of information is being requested by the user and finds other relevant pieces of information that can be commingled with what the user has asked. The user, 15 for example, might ask the system to see certain car dealers, to find a phone number of a car dealer, or to get a page of a particular magazine. The gate 15 at this point gives the request to the matching rule engine 18 ("MRE"). The purpose of the MRE 18 20 is to look at the content of the user's query and to find a category within its active index SIC 19 that matches the same type. If the user has asked for car dealers, the MRE 18 invokes its rules to determine that car dealers are part of a class of things relating to transportation. Based on 25 the classification determined by the MRE 18, the system now knows that the user is asking about cars or about transportation or about whatever else that the user might be interested in. The MRE 18 at this point then returns to the gate 15 30 the category index of the user's query. If the user had asked about cars or about family sedans or about sports cars, at this point the MRE 18 would have figured out that the user's interest falls into a certain category. Based on the user's interest category, the system then retrieves the advertisements that are relevant to that category. Thus, the purpose of the MRE 18 is to figure out what the 5 user requested, to place the user's request in a category of a classification system (i.e., the active index SIC 19) and, based on that classification, to retrieve relevant advertisements." NAQVI WO, p. 20 – "During the computation of the advertisements and all the other computations that the system of the present 5 invention performs, a logging module 22 of the system performs extensive logging of what the user has asked, what advertisements were shown, how long the advertisements were shown, and which advertisements were shown to which user. The logging module 22 then stores these logs in a SYS logs 10 database 23. Various scanned reports can be produced and defined using the information in the SYS logs database 23." NAQVI WO, p. 26-27 – "The "focus" arrows 43 shown in Fig. 2 indicate that a certain focus is associated with each category. The query may have been directed to a category of listings or a particular vendor. In both cases there is a "focus"

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	associated with the content of the query (e.g., automobiles, physicians, lawyers, etc.). In addition, there may be a focus associated with the geographic 5 location of the user to permit advertisers to target users in particular geographic regions. The focus process plays a major part in the present invention. No advertisements are shown unless it can be determined that the advertisements are in some way focused or related to the 10 content of what the user requested." NAQVI WO, p. 40 – "The user may also be asked to provide certain demographic or profile information. For instance, the user can require that his advertisement be shown only to people in age group 30 to 40 or only to people living in Morristown, NJ or any other geographic location. The last item that the user is asked to specify is the contract. The various contracts available to the advertiser are explained above. When the user is finished entering all of this information, the system updates the ad info database 3 0 (step 115) ." Figures 1, 2, 7, 10, 11 (and associated text)
BULL	BULL at Col. 3 - "The user is presented with a variety of search, display and output options. The search options include: 1) Search using keywords or combinations; 2) Use of complex software text search agents that have been predefined by the information aggregation and synthesization system site operators. These agents take advantage of the expansive subject matter experetise in understanding which search parameters will best serve the user's search needs; 3) Use of search patterns and agents from this user's previous sessions, perhaps expanded by available specials and promotions; 4) Natural Language Query; and 5) Some combination of 1), 2), 3) and 4). During a user session or when a user completes a session, the user's looking activity is analyzed for patterns, preferences and trends and the profile annotated or updated so that when they next use the information aggregation and synthesization system, the nominated searches will be customized to their individual desires." BULL at Col. 3 – "The user logs on to the system either by name, address, etc. or with some pseudoonym (or some combination). This allows the user's activity to be tracked and establishes a log of the user's activity during the current online experience (session). The user is also asked for explicit profile information concerning preferences.

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	These preferences will be used to narrow the information retrieval." BULL at Col. 4 - "Along with displays, including those for data entry, searches, search results, information retrieval, the user will be presented with advertisements and/or coupons based on criteria entered by advertisers. This criteria may take the form of simple logic, linking an ad/coupon with a display or be derived from complex software text search agents that analyze one or more of the following: The user's looking pattern, the user's psychographic profile, the user's personal profile, the availability of the advertiser's/couponer's goods or services at the instant in time that the criteria is being exercised. The placement of the ad/coupon will be logged along with user profile information and provided to the advertiser/couponer in some form of report." BULL at Col. 5 – "IV. Automated Profile Generation. Presently, user's profiles are collected based on explicit entry by the user, and extraction from demographic data collected from a variety of sources. In the present invention, the searching patterns of the user on the Internet are monitored. A set of software text agent profiles is developed and may be integrated with explicitly collected profile information. The automated profile generation will have both explicit profile information gathering and implicit profile information gathering capabilities. As the user uses the information aggregation and synthesization system, the pattern of information being viewed is analyzed and the user presented with search ideas as well as promotions and specials from suppliers based on these patterns." BULL at Col. 6 – "A theme or definition of a class of information (e.g., central California travel and tourism or new automobiles) is identified. Data sources (Local DataStores (500 . . . N) and Network Accessible DataStores (300 . . . N)) are screened for relevance, quality of information and appropriateness (or may be included de facto based on their title or description). These are indexed using a text indexing software tool 2981 and the indices stored on the system index DataStore 220. An initial set of Preestablished Software Text Agents are defined. These agents are words or combinations of words that form a word based search pattern. This initial set of agents is relevant to the searches that might be performed against the class of information that was indexed. (i.e., Agents about automobiles would be developed to search a class of indexed information about new cars). These are

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	stored in the Preestablished Software Text Agent DataStore 231. The System 200 uses any multipurpose computer central processing units with the ability to handle multiple inputs and outputs with the necessary hard disk storage and to run World Wide Web (WWW) or other network server software." BULL at 7 - "Login and Profiles: Users using a user access system 100 access the infor mation aggregation and synthesization system 200 through the Internet or other public or private network. The user either logs in by name or by pseudonym or from data previously stored in the user access system 100. New users create an account on the user profile datastore 210. Previous users are identified to an existing account. The user is presented with a variety of options to create or update profile information in the user profile datastore 210. This involves a single data entry option or many mini-options based on the browsing activity." BULL at Col. 7-8 – "The user is also presented with browsing options based on: activity from a previous session in the browsing activity datastore 240; predeveloped software text agents and personalized software text agents (developed in the Post Session Activity) stored in the Personal Search Text Agent DataStore 232; or combinations of all as well as situational opportunities developed by the user greeting subsystem 291. The user selects the search options to be used (or simply enters search criteria directly). This search criteria is used to search the index datastore 220 and a list of data sources is presented to the user for selection. The user indicates the information to be viewed. The user will also be presented with options to refine his search through the altering of search agent criteria (Search Reduction System 293)." BULL at Col. 10 - "User Profile DataStore This contains data about the user, preferences, situational preferences, accounting information, psychographic profile, personal profile and other relevant information related to the user by individual identifier." BULL at Col. 10 – "232 Personal Search Text Agents These are complex software text search patterns that may be individual words or word sets and/or combinations of words and Preestablished Software Text Agents 231 includ

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	ing the results of the post session analysis 2921 that provide individually customized searching of the Index DataStore 220. BULL at Col. 12 – "IV. Automated Profile Generation Browsing patterns of the user are analyzed and these patterns update profiles automatically. FIG. 7 illustrates a how diagram for the Automated Profile Generation. The looking patterns of the user are monitored to develop a set of software text agent profiles that are integrated with explicitly collected profile information to assist the user in narrowing down information for future sessions as well as suggesting references, merchandise or services during the current session. This is accomplished by statistical analysis of the text stream. The searching patterns of the user on the Internet are monitored by monitoring the text stream. A set of software text agent profiles is developed and may be integrated with explicitly collected profile information. The explicit infor mation is gathered by queries to the user. The explicit and implicit data are merged to develop software text agents that support the user's future shopping sessions." BULL at Col. 12 – "Certain criteria will be entered which delineates a pattern that is requested to be monitored. When this pattern is seen (or is in close match) in the user's WWW activity, the insertion mechanism is activated. If a certain web page is requested, the present invention will display a particular advertisement. The ad will be inserted based on the content of the existing web page being read. An analysis of the text stream of the user's interactive session will be performed online. When certain text patterns are observed (or close matches are observed), an advertisement is inserted into the display. The advertising may be static or connected to the adver tiser's computer datastore which designates specific ads or coupons based on the pattern match and other conditions which may be required. The software agent criteria is entered by the merchant in the agent data store 230 which delineates a pattern that needs to be monitored. As an example, if the user accesses web pages for "Holiday Inns on the West Coast", the insertion mechanism Would be established to automatically insert ads for "Hilton Inns on the West Coast."" BULL at Figs. 1 - 7 (and associated text)

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KOHDA '96	KOHDA '96, §1: "An advertising agent is placed between the advertisers and the users. Advertisements fetched from advertisers' Web servers are merged with Web pages from ordinary Web servers by the agent, and the merged pages are displayed on the users' Web browser. Thus, the users see advertisements on any server around on the Internet. Moreover the agent has chances to deliver appropriate advertisements which suit each user's taste." *Id*., §2.2: "Note that the agent is aware of the identity of the user and which page the user is about to read on the browser, so the advertising agent can tailor advertisements for *individuals and their current interests*. Thus it prevents the user from having to see advertisements that are unrelated to their current interests." *Id*., §3.1: "At invocation, environment information is passed to each filter program as invocation parameters. The environment information includes at least the identity of the user and information about the selected anchor. The contents of a Web page designated by the anchor are input into the pipe of filters, and the output from the pipe is displayed on the browser's window as an HTML document." *Id*., §3.2: "The filter keeps in memory the contact path (URL) to the agent's Web server. When it is invoked, it forwards the invocation parameters passed from the browser to the agent's Web server, and waits for a reply."
KOHDA '853	KOHDA '853 at 6:56 to 7:3: "The user inputs data for use in obtaining requested retrieved information (for example, articles from a newspaper relating to a specified item) through the input/output unit 1. Then, the information retrieving apparatus 100 obtains the retrieved information from the information retrieving server through the retrieved information obtaining unit 3, automatically obtains additional information such as advertising information from the information server through the additional information obtaining unit 4, incorporates the obtained information into the retrieved information obtained from the information converting unit 2, and outputs the result on a display unit." *Id*. at 7:32-43: "The information retrieving apparatus 100 can be widely applied to, for example, advertisements through the WWW. That is, sufficient advertising effect can be gained even when access is concentrated on a very small number of popular information servers, and a large number of other information servers are rarely accessed.

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	Therefore, a sufficient number of advertisers can be collected. In the WWW, information users are individuals and there are not a large number of users concentrated in one access operation. However, since the advertising information has been preliminarily selected by the user, the user is interested in the provided advertisement in most cases." *Id.* at 14:16-54: "The additional information use history storage unit 51 stores an actual use history of the user corresponding to the additional information. That is, the additional information use history storage unit 51 stores a private history in its memory if the data required to obtain retrieved information from the retrieval condition input unit 11 is in the additional information…. The frequency of uses refers to the number of times the information is used. Especially if the additional information is advertising information, it is also recorded whether the product in the advertisement has been purchased through the additional information. … For example, when the additional information describes a new personal computer of a specific manufacturer, it can be obtained as the detailed information about the practical specification, appearance, etc. of a desired model. The information is instructive for the user, and is also useful for the advertiser because it improves an advertising effect for the product." *Id.* at 18:64 to 19:4: "The use of such additional information is recorded in the additional information use history storage unit 51. For example, the number of times the information is used is recorded '+2' because the detailed information is obtained from the advertisement, and the contract information is obtained from the detailed information. When a purchase contract is signed for the advertised product, it is also recorded." *Id*. at 15:65 to 16:2: "the information server 102 or advertising agent server 102A reads the additional information use history at predetermined intervals to be informed of the tendency of liking of the user."
"Firefly Licenses Targeting Technology," by Debra Ahe Williamson, December 9, 1996, available at adage.com/article/news/firefly-licenses-targeting-technology/75969. ("WILLIAMSON")	*See e.g.*, WILLIAMSON, p. 1 (identifying Yahoo! as licensing Firefly's technology; "Firefly users provide basic demographic information, such as age, gender, ZIP code and e-mail addresses. As they traverse a site, entering different content areas and rating their interests, that information is added to a user profile."); *id.* ("Participating sites will use Firefly's Passport software to register visitors and build individual profiles based on visitors' activity on a site.")

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"Firefly Network and Yahoo! Offer Consumers Ability to Intelligently Navigate the Web; My Yahoo! Features Firefly Tools to Offer Personalized Recommendations for Web Sites and Build Dynamic Communities," Dec. 11, 1996 ("FIREFLY NETWORK AND YAHOO! OFFER CONSUMERS ABILITY TO INTELLIGENTLY NAVIGATE THE WEB")	*See e.g.*, FIREFLY NETWORK AND YAHOO! OFFER CONSUMERS ABILITY TO INTELLIGENTLY NAVIGATE THE WEB, p. 1 ("Using Firefly software tools, customer sites can register and recognize Firefly PassportTM holders, deliver personalized recommendations, create relevant and dynamic communities, serve targeted content and ads and more accurately measure and report on site activity."); *id.*, p. 2: "The Passport Office also enables Firefly software tools customers to deliver targeted content and advertising, as well as, accurate measurements and reports regarding site activity."
"Boston.Comment Today's topic Shadow advertising," *The Boston Globe*, November 14, 1996. ("BOSTON GLOBE")	*See e.g.*, BOSTON GLOBE, p. 1 ("Firefly offers advertisers, a movie studio, for example, the opportunity to deliver an ad plugging a new Bruce Willis movie only to users who have rated previous Bruce Willis movies highly.")
ABOUT NETGRAVITY ADSERVER	*See e.g.*, ABOUT NETGRAVITY ADSERVER, Getting Started, p. 1 ("AdServer uses a sophisticated scheduling algorithm to select the ad to show, reading the ad and scheduling information from its database. AdServer evaluates many scheduling criteria for choosing an ad, including . . . user profile targeting."); *id.*, NGAPI Basics, p. 1 ("Such custom functions may perform the following actions: target ads to users based on browser cookie information or lookups in a custom database"
Lang, "NewsWeeder: Learning to Filter Netnews," 1995 ("LANG")	*See e.g.*, LANG, Introduction ("the user can also use NewsWeeder's *virtual newsgroups*. For example, user Bob might go to the virtual newsgroup *nw.top50.bob* to see NewWeeder's personalized list of the top 50 out of all articles, according to learned preferences for Bob. He is then presented with a list of one-line article summaries, sorted by predicted rating. The user selects a group of articles from these summaries and reads them sequentially. After each article is read, the user clicks on a rating from one to five . . . NewsWeeder collects the user's ratings for *active feedback* on the user's interests. . . . Each night, the system uses the collected rating information to learn a new model of the user's interests.")
Green, Bayer & Edwards, "Towards Practical Interface	*See e.g.*, GREEN, Introduction ("The agent is given a minimum of background knowledge, and learns appropriate behavior from the user and perhaps other agents. The use of machine learning methods to

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Agents which Manage Internet-Based Information, 1995 ("GREEN")	develop a profile of user preferences allows the agent to adapt to changes in user behavior, as well as eliminating the need for explicit programming with rules or scripts. A common method of developing a user profile is by observing and analyzing user behavior."); *id*. ("The user profile is then employed to generate classifications for the new documents, such as a user's interest rating in a USENET news article or a World-Wide Web page."); *id.*, Section 4 ("LAW helps a user find new and interesting information on the World-Wide Web. It provides assistance in two ways: by interactively suggesting links to the user as they browse the Web and through the use of a separate Web robot that attempts to find pages that might be of interest.")
MEEKER	MEEKER at v.: "However, that same marketer should get even more interested if a Web site (such as CNET, at www.cnet.com) can route advertisements to a demographic group that includes only males who are at least 35 years old, have household incomes in excess of $100,000, live in California, and use Pentium PCs with Netscape Navigator." *Id*. at 3-13: "However, for direct marketing, the Internet offers the ability to target and deliver messages to an audience with specific demographics and interests, and allows the user to interact instantly with that message. In essence, direct response advertisers sell goods and services to customers individually, and no other medium affords users such immediate access at the point of sale." *Id*. at 6-2: "Each time the page is downloaded by a user, a designated space on the page (in the example in Figure 6-1, a rectangle across the top) is automatically filled with a banner. The method by which a site determines which ad to put into which download may depend on agreements or contracts with advertisers, the capability of the technology involved, the demographics of the user, and other factors." *Id.* at 6-3: "This brings us to the concepts of inventory management and allocation, and ad tracking and rotation. The most important goal of advertising is to deliver to each person the message most appropriate to their tastes, buying habits, and so forth, and with the most effective frequency — in other words, to execute a campaign tailored to each individual. To this end, many Web sites use software packages to impose ad delivery schema over on-the-fly allocation of advertising inventory. By schema, we mean sets of rules governing which ads get delivered when. This software can be either off-the-shelf (from companies like Net Gravity, Bellcore, and Accipiter) or developed in-house (as HotWired and CNET, for instance, have done). The importance of the quality, flexibility, and reliability of ad management software is simple: more targeted, reliable, and verifiable

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	advertising delivery translates directly into the ability to charge more per impression…. Targeting gives advertisers the opportunity to filter messages to selected audiences based on certain criteria. This may be the most powerful aspect of the Internet as an advertising medium — the ability to dictate the exact composition of an advertisement's audience…. This targeting ability has two pieces: 1) the process for ad delivery and measurement is precise and directed (e.g., each ad is individually delivered in response to a user-generated request — there is no TV- or radio-like "shotgun" delivery — followed by statistical sampling and averaging to determine the actual composition of the receiving audience); and 2) each individual delivery can be tailored, based on user information. The power of the second aspect is increased substantially with more detailed user data, potentially collected through registration or in the course of using the site. Thus, with the right user information, one could know that every advertisement delivered is received by teenage women using a Macintosh, or by college-educated middle-age men in specific (perhaps high-income) zip codes, and so on. Essentially, it's a marketer's dream." *Id.* at 6-6: "Search engines, by definition, use text input by users to conduct searches of relevant content on the Web. Since advertisements are displayed along with the search results, these companies allow advertisers to buy "key words," which display the advertiser's banner when a user searches for the word purchased. It follows that the word or words purchased are generally related in some way to the advertiser's products or services. Infoseek and Yahoo! charge $1,000 per month per keyword, and based on a target of 20,000 impressions, this would yield a CPM of $50. For example, Figure 6-3 shows how the results of a search for the word "router" yielded a typical list of sites but also netted an advertisement for Cabletron Systems (a maker of switches, considered an alternative to routers). In fact, any time this word was searched for, the same ad came up. A search for "hub" consistently resulted in a different ad for the same company. (Yes, we searched for "beer," and each time we got a Miller Genuine Draft ad)." *Id*. at 6-10: "We reiterate our belief that the ability to marry content to creative will be a key driver of pricing. Essentially, this requires that the advertising be targeted at the audience for the particular site's type of content. The next logical step in this process would then be to tailor not just to the audience, but also to each individual user according to his or her buying and browsing habits. Several makers of personalization software, most notably Firefly Network (formerly Agents, Inc.), provide products that personalize ad delivery based on a user's past behavior or profile. If a user has come to an advertiser's

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	site three times, looked at the same item each time, but has yet to purchase it, delivering an ad for that product as the user again enters the site would certainly be more valuable to an advertiser than the delivery of that ad indiscriminately. Once again, the more targeted the audience delivered, the higher the price advertisers will pay." *Id*. at 7-11: "Another development in this area is the use of cookies, wherein a server-specific file is sent by a Web site server and automatically stored by a browser on a user's hard disk. This cookie file's data can be anything, like a date/time stamp, an IP address, or a unique user ID. Once a cookie is received from a given server, whenever that browser makes a request to that server for an HTML page, it will include the cookie with the request. The browser will only send a cookie to the server site that originally sent it, so it is not possible for one Web site to look at or request cookies from other sites. Cookies provide a signature, so that Web sites can track an individual's number of visits and the path he or she took through a site. This information can be employed in a number of creative ways, including obtaining behavioral data, crafting marketing messages for a site owner's or advertiser's products, keeping track of purchasing activity at a site (if you visit and read all of my pages on espresso makers, but don't buy one, I can still show you the product each time you return), and overall personalization of the user's experience at the site. Some potential downsides to the use of this technology is the possibility of tampering by users or third parties. Cookies are located on a user's local hard drive, and if altering the cookie data is beneficial enough to a user, it is likely that many will attempt to do so. In addition, third-party sites might have cause to tamper with the cookie data of competitors (or partners), or invade the privacy of users by reading their stored data for behavioral, purchasing, or other purposes. Despite these potential security and privacy issues, this tailored marketing approach adds significant value, we believe, that may be enhanced further by demographic information gained through user registration data, which are collected at such sites as CNET, ESPNET SportsZone, *The Wall Street Journal* Interactive, and the online services. In our view, it would make a very compelling value-added proposition if advertisers could be certain of the age, gender, occupation, or purchasing preferences of each person who views an ad." *Id*. at 10-10: "**Firefly Network (formerly Agents, Inc.; Cambridge, Mass.; www.firefly.com)** was founded in 1995 and provides software that uses advanced algorithms based on certain collaborative filtering technologies to make recommendations to users based on their preferences. In January 1996, the company (then called Agents, Inc.)

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	launched this intelligent agent technology on the Web in the form of Firefly. As a user continues to visit the network, Firefly's technology "learns" his or her likes and dislikes, can compare and contrast these with other users' patterns, and is able to offer members personalized recommendations for music, movies, and so forth. This technology therefore offers marketers the ability to target messages and advertisements based on an individual's preferences and interests. As a result, marketers can maximize efforts on a prequalified audience and offer a more relevant experience for consumers. The company currently has 95 employees and more than 500,000 registered members. Firefly Network's customers and partners include: Yahoo!, Ziff Davis's ZD Net, Reuters, Rolling Stone, Newbury Comics, The All Music Guide, Hits World, and Muzak's Enso Audio Imaging Division. They have raised in excess of $18 million from investors, including: Atlas Ventures, Dun & Bradstreet Enterprises, Merrill Lynch, PAFET, Softbank, Trident Capital, Goldman Sachs, and Reuters New Media."
U.S. Patents No. 6,183,366 to Goldberg et al. ("'366 PATENT")	'366 PATENT, e.g., Abstract, "The present invention is an information service and advertising providing system for presenting interactive information services together with interactive advertising on a communications network such as the Internet and LANs. The information service may be a game played interactively on the network while advertising is communicated between users and an advertising network node. However, other interactive services, such as are available on the Internet, are also accessible for concurrent use with advertising presentations. Advertising or promotionals may be selectively presented to users by comparing archived user profiles with demographic profiles of desired users. User responses to advertising may be used for evaluating advertising effectiveness such as for test or microtarget marketing. Compensation to users for viewing advertising may also be provided. For instance, users may be provided with subsidized Internet access for receiving advertising while concurrently interacting with an Internet service. Users may also be provided with various games and/or game tournaments via interactive network communications. Thus, users may respond to advertising while being entertained (e.g., via games), or while interacting with another network service." '366 PATENT, e.g., Summary of the Invention, "The present invention is a computerized interactive advertising system (i.e., method and apparatus) for exchanging information regarding goods and/or services between a first population of users (hereinafter also known as "players" or "users") and a second population of users (hereinafter also

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	known as "sponsors" or "advertisers"). In particular, the sponsors or advertisers may present information related to goods and/or services to the players using the present invention and the players may view this information while, for example, interacting with the present invention for playing a game such as blackjack, craps, roulette, poker, pai gow or the like. Moreover, a player may also interact with the present invention so that the player has the capability for responding to sponsor or advertiser presented questionnaires, as well as for purchasing or viewing sponsor goods and/or services. Thus, the present invention provides an information exchange service within a gaming context for enticing players to view and/or interact with sponsor presentations such as interactive advertisements. It is also an aspect of the present invention that each player or user is presented with advertisements for products and/or services, wherein it is believed the player will be receptive to the advertisement. That is, the present invention selectively presents advertisements to each player, according to stored characteristics and preferences of the player that the present invention has determined from, for example, player supplied personal information, player responses to questions, and/or analysis of player interactions such as player requests for additional information related an advertisement. Thus, such a selective presentation of advertisements allows a sponsor or advertiser to provide information related to relatively extensive or expensive promotionals (e.g., demonstrations, samples, discounts, trial subscriptions, prizes, bonuses) to players most likely to subsequently purchase the advertised product or service. Consequently, such selectivity can greatly increase the cost effectiveness of advertising, wherein the term, advertising (or advertising presentation), as used herein is understood to include not only product or service presentations that are merely informational, but also more interactive advertising presentations such as promotionals wherein discounts, free samples or a trial usage may be offered. . . It is a further aspect of the present invention to require each player to use a distinct identification provided when the player "registers" with the present invention before playing any games so that a network site for the invention may be able to identify each player. Accordingly, it is an aspect of the present invention during registration, that each player provides personal information about him/herself both for gaming identification and/or use as selection criteria by sponsors or advertisers for presenting particular presentations. For example, in the case of an Internet embodiment of the present invention, such registering can be performed via the Internet prior to play of any games at a gaming/advertising web site. Thus, players may be required to provide the present invention with information about themselves such as name, address, E-mail address, age, sex, and/or other player characteristics

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	deemed pertinent to one or more sponsors or advertisers. Accordingly, the present invention provides a sponsor or advertiser with the capability to target its presentations substantially only to players or users having selected characteristics as, for example, determined from player information provided when registering with a network site for the present invention." '366 PATENT, e.g., Claims 1, 2, 3 '366 PATENT, e.g., Figures 3, 4A-E, 6A-B, 7 (and associated text)
U.S. Patents No. 7,496,943 to Goldberg et al. ("'943 PATENT")	'943 PATENT, e.g., Abstract, "A networked system is disclosed for presenting advertising during on-line interactions between a user and a service of a network (e.g., the Internet, interactive cable, and/or a LAN). Advertisements (ads) are presented to a networked user unrequestedly during user interactions with the service. The user can activate the ads (via hyperlinks) for receiving additional advertising. The system gathers user data and/or develops user profiles for selectively presenting ads, promotionals, discounts, etc. targeted to receptive users. In exchange for viewing such selective presentations, on-line access to the service is provided, the service including, e.g., (a) playing on-line interactive games (e.g., blackjack and poker), (b) providing access to the network itself (e.g., an Internet service provider), and/or (c) providing access to substantially any interactive service accessible via (b). The system can provide free/reduced cost network services to the user for viewing unrequested advertising. The system can be provided for a casino." PATENT, e.g., Summary of the Invention, "he present invention is a computerized interactive advertising system (i.e., method and apparatus) for exchanging information regarding goods and/or services between a first population of users (hereinafter also known as "players" or "users") and a second population of users (hereinafter also known as "sponsors" or "advertisers"). In particular, the sponsors or advertisers may present information related to goods and/or services to the players using the present invention and the players may view this information while, for example, interacting with the present invention for playing a game such as blackjack, craps, roulette, poker, pai gow or the like. Moreover, a player may also interact with the present invention so that the player has the capability for responding to sponsor or advertiser presented questionnaires, as well as for purchasing or viewing sponsor goods and/or services. Thus, the present invention provides an information exchange service within a gaming context for enticing players to view and/or interact with

Reference	Disclosure
	sponsor presentations such as interactive advertisements. It is also an aspect of the present invention that each player or user is presented with advertisements for products and/or services, wherein it is believed the player will be receptive to the advertisement. That is, the present invention selectively presents advertisements to each player, according to stored characteristics and preferences of the player that the present invention has determined from, for example, player supplied personal information, player responses to questions, and/or analysis of player interactions such as player requests for additional information related an advertisement. Thus, such a selective presentation of advertisements allows a sponsor or advertiser to provide information related to relatively extensive or expensive promotionals (e.g., demonstrations, samples, discounts, trial subscriptions, prizes, bonuses) to players most likely to subsequently purchase the advertised product or service. Consequently, such selectivity can greatly increase the cost effectiveness of advertising, wherein the term, advertising (or advertising presentation), as used herein is understood to include not only product or service presentations that are merely informational, but also more interactive advertising presentations such as promotionals wherein discounts, free samples or a trial usage may be offered. Moreover, it is an aspect of the present invention that each player may interact with and play a game at a time and pace (i.e., tempo) substantially of the player's choosing. In particular, the player is not bound by a required order or sequence of play involving other players, even though the player may be in competition with other players. In fact, a player may cease play for an extended time while in the midst of a game and subsequently continue the game at the point where the player ceased to play. Thus, if the present invention is easily accessible, then players may interact with the present invention at their leisure. . . "t is a further aspect of the present invention to require each player to use a distinct identification provided when the player "registers" with the present invention before playing any games so that a network site for the invention may be able to identify each player. Accordingly, it is an aspect of the present invention during registration, that each player provides personal information about him/herself both for gaming identification and for use as selection criteria by sponsors or advertisers for presenting particular presentations. For example, in the case of an Internet embodiment of the present invention, such registering can be performed via the Internet prior to play of any games at a gaming/advertising web site. Thus, players may be required to provide the present invention with information about themselves such as name, address, E-mail address, age, sex, and/or other player characteristics deemed pertinent to one or more sponsors or advertisers. Accordingly, the present invention

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	provides a sponsor or advertiser with the capability to target its presentations substantially only to players or users having selected characteristics as, for example, determined from player information provided when registering with a network site for the present invention." '943 PATENT, e.g., Claims 1, 2, 9, 11-14 '943 PATENT, e.g., Figures 3, 4A-E, 6A-B, 7 (and associated text)
U.S. Patents No. 6,712,702 to Goldberg et al. ("'702 PATENT")	'702 PATENT, e.g., Abstract, "The present invention is a game playing method and apparatus for automating games such as blackjack, poker, craps, roulette, baccarat and pai gow, wherein players may play continuously and asynchronously, and information related to advertised items can be exchanged between players and advertisers. In one embodiment, each instance of a game is likely unique from all other current game instances. The games do not require a manual dealer and in one embodiment, played in a gaming establishment using low cost gaming stations. The present invention may also, be used to play such games on the Internet or an interactive cable television network wherein a game controller communicates with players at network nodes in their homes and at their leisure since there is no game tempo requirement. During a game, advertising is selectively provided by comparing player personal information with a desired demographic profile. Player responses to advertising are used for evaluating advertising effectiveness. The invention is useful for test marketing of products, advertisements, and reduces advertising costs." '702 PATENT, e.g., Summary of the Invention, "he present invention is a computerized interactive advertising system (i.e., method and apparatus) for exchanging information regarding goods and/or services between a first population of users (hereinafter also known as "players" or "users") and a second population of users (hereinafter also known as "sponsors" or "advertisers"). In particular, the sponsors or advertisers may present information related to goods and/or services to the players using the present invention and the players may view this information while, for example, interacting with the present invention for playing a game such as blackjack, craps, roulette, poker, pai gow or the like. Moreover, a player may also interact with the present invention so that the player has the capability for responding to sponsor or advertiser presented questionnaires, as well as for purchasing or viewing sponsor goods and/or services. Thus, the present invention provides an information exchange service within a gaming context for enticing players to view and/or interact with

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	sponsor presentations such as interactive advertisements. It is also an aspect of the present invention that each player or user is presented with advertisements for products and/or services, wherein it is believed the player will be receptive to the advertisement. That is, the present invention selectively presents advertisements to each player, according to stored characteristics and preferences of the player that the present invention has determined from, for example, player supplied personal information, player responses to questions, and/or analysis of player interactions such as player requests for additional information related an advertisement. Thus, such a selective presentation of advertisements allows a sponsor or advertiser to provide information related to relatively extensive or expensive promotionals (e.g., demonstrations, samples, discounts, trial subscriptions, prizes, bonuses) to players most likely to subsequently purchase the advertised product or service. Consequently, such selectivity can greatly increase the cost effectiveness of advertising, wherein the term, advertising (or advertising presentation), as used herein is understood to include not only product or service presentations that are merely informational, but also more interactive advertising presentations such as promotionals wherein discounts, free samples or a trial usage may be offered. Moreover, it is an aspect of the present invention that each player may interact with and play a game at a time and pace (i.e., tempo) substantially of the player's choosing. In particular, the player is not bound by a required order or sequence of play involving other players, even though the player may be in competition with other players. In fact, a player may cease play for an extended time while in the midst of a game and subsequently continue the game at the point where the player ceased to play. Thus, if the present invention is easily accessible, then players may interact with the present invention at their leisure. . . "It is a further aspect of the present invention to require each player to use a distinct identification provided when the player "registers" with the present invention before playing any games so that a network site for the invention may be able to identify each player. Accordingly, it is an aspect of the present invention during registration, that each player provides personal information about him/herself both for gaming identification and for use as selection criteria by sponsors or advertisers for presenting particular presentations. For example, in the case of an Internet embodiment of the present invention, such registering can be performed via the Internet prior to play of any games at a gaming/advertising web site. Thus, players may be required to provide the present invention with information about themselves such as name, address, E-mail address, age, sex, and/or other player characteristics deemed pertinent to one or more sponsors or advertisers. Accordingly, the present invention

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	provides a sponsor or advertiser with the capability to target its presentations substantially only to players or users having selected characteristics as, for example, determined from player information provided when registering with a network site for the present invention." '702 PATENT, e.g., Claims 1, 3, 4, 12 '702 PATENT, e.g., Figures 3, 4A-E, 6A-B, 7 (and associated text)
PHILLIPS BUSINESS	PHILLIPS BUSINESS at 1: "But most vendors also have more to offer than just high volume, thanks to such approaches as "narrow casting," or placing ads based on key words entered in a search. These capabilities allow advertisers to target audiences through search engines like no other medium. "Not only can the engines track the things you're searching on, they can suggest target ads. This is one-to-one marketing," Julian said." PHILLIPS BUSINESS at 1: "While search engines can personalize ads based on search terms, another effective model is to personalize entire sections based on geographic and demographic factors. Vendors can not only index content for a targeted population, they can sell advertisers a guaranteed demographic."
DEDRICK 1994	*See e.g.*, DEDRICK 1994, p. 57: "Consumer demographic and psychographic data are important to advertisers, because these are the data that allow an advertiser to target specific consumers. Demographic data include variables such as age, sex, income, marital status. Psychographic data include likes and dislikes, color preferences and personality traits that show consumer behavioral characteristics. The better the demographic and psychographic data available on a set of consumers, the better an advertiser is able to target an advertisement to this set of consumers."); *id.*, p. 59: "dad, a male, age 40-50, earning $70,000+ annually, may be presented with a portion of a Mt. FunSki ski resort advertisement concerning booking a reservation, along with a list of fun things to do. However, the consumer's son, male, age 12-17, interested in girls, moguls, and hot tubs, may consume a presentation based totally upon on [*sic*] the 'fun things' that Mt. FunSki has to offer."); *id.* ("consumers will have personal profiles residing within their consumption devices. These personal profiles may contain demographic and psychographic variables as well as other data. Such data may included a preferred payment method (Visa, Amex, etc. card numbers) enabling consumers to easily participate in electronic commerce. Other included data

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	might include key words and other variables used by consumption agents to go out on the network and find both electronic content and electronic advertisements that have a certain "hit-rate" when matched against a consumer's profile. Additionally, the consumption device may have resident software that monitors consumption behavior on an ongoing basis, allowing a consumer's personal profile to be automatically build and maintained. . . . they may begin to see advertisements that focus on their favorite subjects, presented primarily in their favorite colors. Also, consumer's agents may report the availability of electronic content and advertisements matching their personal profiles."); *id.* ("Acting upon the consumer's personal profile data, an agent might send out queries to electronic yellow pages service providers, either locally or with a wider scope of interest."); ("consumer's agents may report the availability of electronic content and advertisements matching their personal profiles."); *id.*, p. 60 ("Additionally, the consumption device may have resident software that monitors consumption behavior on an ongoing basis, allowing a consumer's personal profile to be automatically build and maintained. . . . they may begin to see advertisements that focus on their favorite subjects, presented primarily in their favorite colors. Also, consumer's agents may report the availability of electronic content and advertisements matching their personal profiles."); *id.*, p. 60 ("More advanced agents may be given access to a consumer's credit information and authority to use the credit information, enabling the agent to conduct electronic commerce on behalf of the consumer."); *id.*, p. 62-63 ("the currently suggested attribute extension list is as follows: . . . Access control attributes, to limit access to electronic advertisements not available to all consumers, such as advertisements for alcohol, tobacco, and adult products, . . . Scope attributes, describing global, national, regional, and local preferences for distribution and announcement to yellow page services, Language support attributes, detailing which languages are supported by each object and providing network pointers to parallel objects authored using different languages . . ."); *id.*, p. 63 ("Consumer's personal profiles may include such variables as a collection of the consumer's consumption characteristics, a collection of demographic and psychographic variables, bank account and credit card account numbers.")
DEDRICK 1995	*See e.g.*, DEDRICK 1995, p. 43 ("As another example of attribute extensibility, an element made available to a consumer could depend on that particular consumer's target characteristics. For example, Dad, a male age 40 to 50, earning $70,000-plus annually, might see part of a Mt. FunSki ski resort ad about booking a reservation . . . However, the consumer's son, male, ate 12 to 17, interested in girls, moguls, and hot tubs, might see a presentation based totally on the 'fun things' that Mt.

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	FunSki has to offer. . . ."); *id.*, p. 45 ("consumers will have portable personal profiles tied into their consumption devices. These portable profiles may contain such data as a preferred payment method (credit card numbers, for example) enabling consumers to easily participate in electronic commerce. Other profile data might include key words and other variables used by consumption agents for finding both electronic content and electronic ads that have a certain 'hit rate' when matched against a consumer's profile."); *id.*, p. 45 ("a manual profile modification program is also required to enter personal data such as name, address, telephone numbers, credit card and bank account numbers, and the like . . . The consumer can use the manual profile modification program to correct such deviances from the actual electronic content consumption preferences."); *id.*, p. 45 ("2. When a consumption device presents one of these labeled electronic ads to a consumer, all input and output between the consumer and the multimedia element currently being consumed is monitored. 3. Each of these I\O interactions is correlated to the labels associated with the particular multi-media element being displayed on the consumption device. 4. Relations between the elements of the electronic ad that are not chosen for interaction by the consumer are also correlated with the labels associated with each multimedia element. 5. The correlations made in the previous steps are entered into the consumer's profile, representing data on what a consumer likes and dislikes."); *id.*, p. 46 ("Acting upon the consumer's personal profile data, an agent might send out queries to electronic yellow pages service providers, either locally or with a wider scope of interest."); *id.*, p. 46 ("As personal consumption profiles become more robust, consumers might begin to see ads focusing on their favorite subjects, presented primarily in their favorite colors, sizes and shapes. Also, their agents might report the availability of electronic content and ads matching their personal profiles."); *id.*, p. 46 ("If a cost or rebate is attached to each available element, the agents could report the monetary units involved with potential consumption. The agent could leave the final busy/sell decision up to the consumer, or perform the transaction if programmed to act on the consumer's behalf.")
GALLAGHER	*See e.g.,* GALLAGHER, p. 3 ("Current technology provides the capability to develop sophisticated and detailed profiles of individual users of information services based on individual characteristics and past patterns of behavior in using the information service."); *id.* (" It is possible to target users very precisely because data can remain associated with individuals, so advertisers can select exactly the users to whom they wish their advertising to be exposed."); *id.*, p. 4 ("the model requires that users be assigned unique identifiers . . . Users also complete an online questionnaire the first time they use the information service. The questionnaire allows data to be collected on

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	several dimensions, including: (1) demographic attributes such as geographic location, income, family lifecycle stage, occupation, and sex; (2) psychographic attributes such as travel patterns and hobbies; and (3) product and brand usage attributes. This element of the basic model permits a banner advertisement to be directed to users (and only those users) who fit certain criteria, assuming data were collected on relevant attributes."); *id.* ("Each time a user connects, his/her profile is compared to all target audience profiles from all advertisers. The user's profile will actually match some subset of those profiles."); *id.* ("In summary, the basic model has three elements: individual user profiles, individual advertisement target audience profiles, and a selection mechanism for presenting advertisements to specific users who match the target audience profile."); *id.*, p. 5 ("In the enhanced model, we propose that patterns of search and browsing behavior exhibited by users while using an information service determine which advertisements are shown to that user during current or future sessions."); *id.*, p. 5 ("As before, this model relies on assigning a unique identifier to each user for recording his/her searching and browsing activities while using the information service. Each session constitutes a 'record,' consisting of data such as: sites visited in order; pattern of navigation through a hierarchical structure (as in Yahoo!); choice of search terms in keyword-based searches; and reaction to previously exposed targeted banner advertisements (e.g., which linked Web sites are selected and visited by the user and which ones are ignored). The aggregate of such records for each user provides a profile from which preferences can be implicitly generated. As a simple example, if a user has made several searches using keywords such as 'Atlantic salmon' and 'fly fishing,' and has visited the site of the Angling Club Lax-a of Iceland . . ., s/he may be targeted for a banner advertisement for a fishing lodge in Alaska."); *id.*, p. 7 ("Profiles accommodate the possibility that some users within the region of acceptability may be more desirable to an advertiser than others. Hen, a distance metric capturing the relative desirability of a user with respect to an ideal profile is possible. . . . recognizing a notion of distance allows the possibility for advertisers to 'bid' for the opportunity to display an advertisement to a user. Such bids would be determined by the advertiser, based on variables such as the user profile . . . and advertising budget."); *id.*, p. 8 ("When bids are received, they can be ranked. The banner advertisement corresponding to the winning bid is displayed to the user. Other advertisements may be displayed according to their ranking if there is an opportunity to display additional advertisements (e.g., if the user engages in several search or browse activities during a session).")
NETGRAVITY ADSERVER CHOSEN BY	*See e.g.,* NETGRAVITY ADSERVER CHOSEN BY GNN ("NetGravity, the leader in Internet advertising technology, today announced GNN, a

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GNN	service of America Online Inc., will take advantage of the NetGravity AdServer technology for WebCrawler. . . . This allows GNN to . . . dynamically deliver targeted ads. . . . Now, through NetGravity's relationship with I/Pro, Web sites will be able to develop and place advertising much more effectively using management tools with demographic profiles for targeted ad placement.")

Table B5: Fuzzy Logic

To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B5, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B5 references listed below because: it would have yielded predictable results; using the techniques of the Table B5 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B5 references to improve primary or obviousness references would have yielded predictable results.

Reference	Disclosure
U.S. Patent No. 6,119,101 ("PECKOVER")	*See*, *e.g.*, PECKOVER, 19:3-32: A Preference Manager function 54 maintains data about the preferences of the user. Preferences indicate items of interest to the user, such as favorite brands, interest in sports, etc. Within Agent System 10, preference data also includes "demographic" data. Demographic data indicates facts about the user, such as whether the user is a homeowner, the user's gender, the user's age group, etc. Although marketing industry usage of the term "demographics" may include a person's name, address, or other identifying data, a Preference Manager's demographic data does not include data that identifies the particular user. Preference data may be entered manually by the user using, for example, a form on a Web page, or data may be loaded by a System Administrator. Preferences may also be updated automatically by the system as, for example, when the user instructs the system to "remember" a product brand name from a product search. Preference Manager 54 uses preference data to order search results, so that items that are more likely to be preferred by the user will be displayed first when the results are delivered to the user. Referring now to FIG. 5A, each preference datum 68 comprises not only a value 72, but also a key 70 for ease of searching. Referring to FIG. 5B, a small sample of preference data illustrates the kind of data that might be used. A particular user typically will have much more preference data. Some values are shown as "rank m in n" to illustrate that ranking data may also be stored. The specific keys of any particular set of preference data depends on what the user has entered, etc. Only keys that are relevant to a particular user are included in that user's preferences, and the

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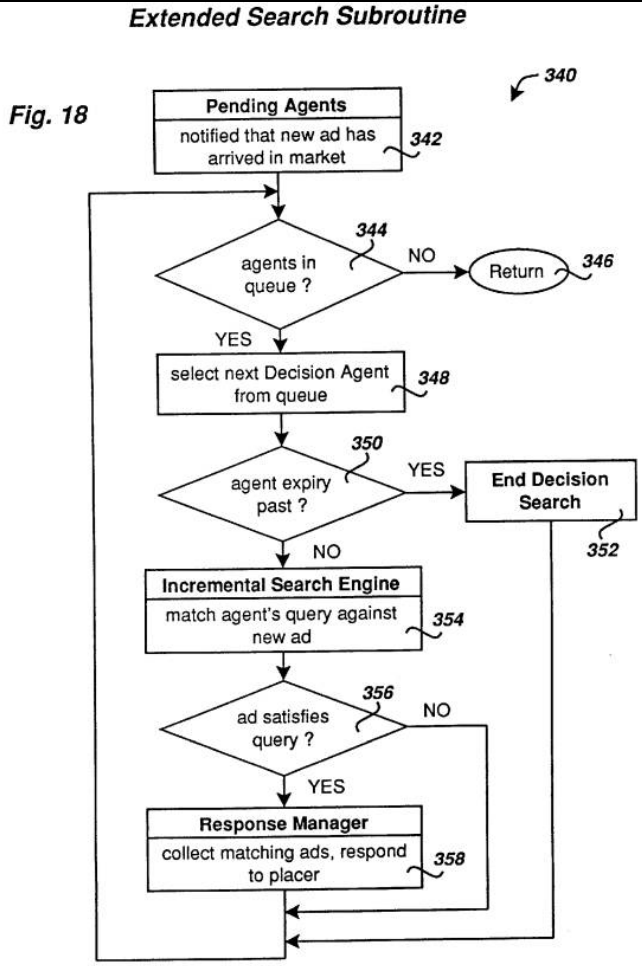
	specific data maintained will change over time. PECKOVER, 20:65-21:4: Referring again to FIG. 4A, a Target Manager function 66 assists the user in identifying Personal Agents to which targeted ads may be delivered. Target Manager 66 can identify Personal Agents based on preferences, demographic characteristics, and Decision Agent activity. Target Manager 66 does not have access to private data of consumer Personal Agents 12 such as name, address, etc. PECKOVER, Fig. 5B:

Key	*Value*
Age	34
Homeowner	Yes
Gender	Male
Cats	interested
brand name 1	like
brand name 2	dislike
brand name 3	neutral
brand name 4	like > *brand name 3*
brand name 5	a favorite
email Consideration Fee	greater than $1.00
alpine skiing	dislike
cross country skiing	like
MSG in food	dislike
delivered pizza	No
phone solicitation	never
favorite color	blue, red
health and fitness	interested
weight lifting	rank 1 in 10
stair climbing	rank 3 in 10
swimming	rank 10 in 10

Fig. 5B

PECKOVER, Fig. 18:

Reference	Disclosure
	
U.S. Patent No. 6,374,237 ("REESE")	REESE, 3:45-58: The invention contemplates that the matching server 120 works with the client user profile request 100 to pare down the data delivered to the client. The matching server 120 pre-selects an aggregate of data that is determined to be the most relevant to different sets of user profile requests 100. The matching server 120 does this by searching various content sites 130, 140, 150, 160 on the Internet or other network. A user profile request 100 is applied against the matching server 120 aggregate of data like a sieve, and only data matching the user profile request 100 is returned to the client 110. The invention contemplates that the matching server 120 need not match the user profile 100 exactly, but can accommodate a user's designated acceptable range of variability, i.e., a quality factor. REESE, 5:55-6:8: The user profile form 600 includes a Search Type field 630 that allows a user to select whether the user wants an exact match of the user profile with the search data or whether the

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	user will accept some lesser amount of exactness as acceptable for retrieved data. The user profile form 600 further allows the user to enter demographics specific to the user. In FIG. 6, the demographics include area code 640, zip code 650, state 660, sex 670, age 680, and some other identifiers 690. Once the user enters the appropriate data in the user profile form 600, the user is instructed to save the profile by a "Save Profile" 694 button. This allows the user to save his user profile and include the user profile in subsequent searches at subsequent times without having to repeat the steps of completing a user profile for each search. Once the form is completed, the user may submit the user profile by indicating its submission with the "Submit Profile" 696. In this case, the user profile will be submitted with the search request as either a POST or GET method request as specified above with reference to FIGS. 3-5 and the accompanying text. REESE, 7:53-8:2: When assessing the database constructed by the matching server to the user profile, the matching server may require an exact match or a non-exact match. For an exact match, it is contemplated that each and every element of the user profile match that of the data collected in the query database on the matching server. If such stringent requirements are not necessary, the user may designate a lesser standard of stringency and retrieve data that is not an exact match to the query data and the user profile. In FIG. 9, for example, if the user profile contained ten distinct data categories, i.e., demographic specifics, a user might designate a non-exact match 934 and then only require a level of stringency 936 of between 20 and 80 percent matching. If the user demanded only two of ten elements of the user profile correspond to the retrieved data, the user might designate a non-exact match of 0.2 or 20 percent. Similarly, if the user wanted 80 percent accuracy, the user designates 0.8. REESE, 8:4-24: Instead of a match/non-exact match system, the invention contemplates that the retrieved data be associatively matched to the user profile. For instance, the user profile can specify as a profile increment "fruit". The matching server would retrieve matching data that includes the various kinds of fruits, i.e., apples, oranges, etc. In such case, the matching server must be intelligent to know that an apple or an orange is a "fruit". It is known in the art to employ various methods to accomplish artificial intelligence with computer systems, wherein artificial intelligence may be described as a system in which a computer

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	is able to reach conclusions based on certain inputs after it has been trained or instructed in a certain set of rules or experiences. The most popular artificial intelligence systems are the so called "heuristic search" models as well as "associative memory" systems and "connectionist" models. An associative memory system, for example, solves a current problem by examining symptoms or characteristics of the problem and comparing those systems to previous solutions to the problem. The invention contemplates that an associative user profile may be implemented with known artificial intelligent systems.
U.S. Patent No. 5,710,884 ("DEDRICK PATENT")	DEDRICK PATENT, 7:40-52: When sufficient data has been collected for a particular consumer variable, then content adapter 25 uses that data to customize received electronic content to the end user. The amount of data which is sufficient is dependent on the particular consumer variable. For example, once personal profile database 27 has collected ten consumption format selections from this end user and all ten have been for video format, content adapter 25 may determine that this is sufficient data to customize incoming electronic information. However, content adapter 25 may determine that sufficient data has not been collected to customize colors if this end user has selected ten different fields, six of which were purple and four of which were green. DEDRICK PATENT, 7:53-64: In one embodiment of the present invention, the end user is able to override any compiled user profile data. For example, even though the end user may select a field with the color purple most frequently, the end user is able to modify the user profile data to indicate that green is the preferred color. In one implementation, the statistic compilation process 26 uses this input by the end user for its data compilation. Alternatively, the statistic compilation process 26 may use the data collected by client activity monitor 24 for its data compilation, or the statistic compilation process 26 may utilize both the end user and the data collected by client activity monitor 24. DEDRICK PATENT, 8:32-15: In one embodiment of the present invention, statistic compilation process 26 compiles electronic content-specific information for return to the metering server 14. This information includes, for example, how much time the end user spent consuming the electronic content, and how much of the content was consumed. For example, a particular advertisement may include ten different screens which are

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	displayed to the end user. If the end user spends 15 seconds viewing the first screen and 15 seconds viewing the second screen and then tenninates the advertisement, the statistic compilation process 26 transfers information to the metering server 14 indicating that an individual with this end user's user profile data spent 30 seconds viewing the electronic information and that the content was 20 percent consumed (that is, two screens out of ten were consumed). Additionally, information indicating the specific elements of the advertisement that were consumed (that is, the first two screens in this example) is also transferred to the advertiser. Note that, as discussed above, this aggregate information does not reveal the identity of the end user who consumed the advertisement. DEDRICK PATENT, 9:28-45: When requesting electronic advertisements, the data returned to the end user is dependent on the end user's request. For example, the end user may define certain results which should occur based on how well the electronic information matches the search criteria. The appraisal agent 28 may electronic ed to return the title of the electronic advertisement if it is only a 5% match to the search criteria, an abstract if it is a 25% match to the search criteria, and the entire advertisement if it is a 95% match to the search criteria. Alternatively, the appraisal agent 28 may be programmed to return only titles, regardless of how well the advertisements match. In addition, the appraisal agent 28 may know, based on the user profile data stored in personal profile database 27, that the end user only wants to consume five electronic advertisements per day. The appraisal agent may then retum titles of 25 electronic advertisements to the end user, and allow the end user to select which advertisements he or she will consume.
Wilms, *A Natural Language Interface For An Intelligent Document Information And Retrieval System* (1988) ("WILMS")	WILMS, p. 3: The natural language interface catches obvious misspellings and employs fuzzy logic techniques to automatically translate user specifications like "very", "especially," or "not" into weights. The interface also employs a transparent synonym lookup to improve category matching. WILMS, p. 12: However, an interface based on key word matching and fuzzy set techniques is proposed, which is able to handle relatively unconstrained natural language queries and thus eliminate the need for mastering a formal query syntax. WILMS, p. 17-18: The chronology base also contains synonyms ("after" = "beyond" = "past" = "since"), and establishes concrete

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	values for fuzzy specifications ("recent" = after 1986) (see Figure 4). Many of these concrete values are dynamic, and depend onthe current year (recent means different things in 1987 than in 1989) and on the oldest document in the collection (if the oldest document was published in 1957 or in 1976 "earliest papers" takes on quite a different meaning). It may even mean different things to different users (i.e., while "recent" means "the last two years" for one researcher, it may mean "the last two months" for another. The value of "now" (as in "all papers from 84 till now") also depends on the current year, of course. It may even be possible to retrieve "new" documents, if the system keeps track of updates to the document collection since the last interaction with the IIRS. When intensifiers are used in combination with fuzzy specifications (e.g., "very recent"), the interface uses a dynamic weighting scheme (e.g., 1986 (0.6) 1987 (0.8) 1988 (1.0)) (See Chapter Four). WILMS, p. 37-38: These search terms consist of "crisp" items ("marketing," "practice"), imprecise terms ("recent"), and fuzzy quantifiers ("very"). The last two are considered fuzzy because they convey imprecise information, and do not have sharp distinctions between membership or non-membership. To handle these uncertainties, each concept is given a weight, which is determined by fuzzy logic [ZADEH 81]. These weights range between -1.0 and1.0, and are used by the retrieval component in addition to weights stored in the inverted files to identify relevant documents (see step 6 in Figure 8).
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, 21:19-34: If the string entered by the user matches a keyword existing on one of the keyword tables, and is thus associated with a specific PTO, RS 400 fetches and displays associated objects of the partitioned applications and builds the entry page in accordance with the page composition dictated by the target PTO. If the string entered by the user does not match a specific keyword, RS 400 presents the user with the option of displaying the table of keywords approximating the specific keyword. The approximate keywords are presented as initialized, cursorable selector fields of the type provided in connection with a Index command. The user may then move the cursor to the nearest approximation of the mnemonic he originally selected, and trigger navigation to the PTO associated with that keyword, navigation being as described

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	hereafter in connection with the RS 400 native code. FILEPP, 34:25-39: Data collection manager 441 gathers information concerning a user's individual system usage characteristics. The types of informational services accessed, transactions processed, time information between various events, and the like are collected by data collection manager 441, which compiles the information into message packets (not shown). The message packets are sent to network 10 via object/communication manager interface 443 and link communications manager 444. Message packets are then stored by high function host 110 and sent to an offline processing facility for processing. The characteristics of users are ultimately used as a means to select or target various display objects, such as advertising objects, to be sent to particular users based on consumer marketing strategies, or the like, and for system optimization.
Another Search Engine? Hotwired Introduces Hotbot, Powered By Inktomi, PR Newswire, May 20, 1996 ("ANOTHER SEARCH ENGINE")	*See*, *e.g.*, ANOTHER SEARCH ENGINE, p. 1: "'The rules of the search engine game have changed. Internet users thought they'd get what they needed from traditional search engines, but they found the result to be thin on content, rigid in context, and often totally irrelevant,' said Andrew Anker, president and CEO of HotWired Ventures. 'Our quest to find a better search engine led us to Inktomi. By combining the best technology, the most relevant searches, and an innovative interface, we created HotBot -- a bigger, better, smarter way to search the Web.'" ANOTHER SEARCH ENGINE, p. 2: "HotBot includes a number of unique features. Users can get the most current information quickly, efficiently view and use that information, and interact with the search engine in a personal manner. Daily Updates: The HotBot spider crawls the Web every day, offering users the most current information. Reliable and Fast: HotBot's fault-tolerant engine reliably delivers query results in seconds, without frequent downtime. Convenient Previews: HotBot allows users to preview documents without leaving the search page, reducing search time. Personal Searching: The HotBot interface allows users to personalize their search engine to fit their own surfing style." ANOTHER SEARCH ENGINE, p. 2: "HotBot identifies, customizes, and ranks millions of Web documents using an algorithm developed by a team of the world's leading experts in information retrieval. HotBot recognizes that users desire varying levels of information detail, so it allows users to control the amount and type of information searched. The computing power available to HotBot enables the user to define a search query using a wide range of criteria in a way that is not possible with more traditional search engines."
https://web.archive.org/	The first commercial application of Inktomi's innovative technology is

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web/1996110 6235936/http:// www.inktomi.com/	the HotBot™ search engine service, offered in conjunction with HotWired, Wired magazine's electronic sibling. By leveraging this scalable technology, HotBot was the first search engine to index and search the entire World Wide Web, and represents the only search engine technology in existence that can expand to match the Web's growth as it doubles and doubles again. SmartRelevance. Based on algorithms developed by information-retrieval experts at the University of California at Berkeley, HotBot's SmartRelevance technology exploits syntactic clues in documents and relationships between documents, to rapidly identify the most meaningful information.
Sadaaki Miyamoto, "On Fuzzy Information Retrieval," *Japanese Journal of Fuzzy Theory and Systems*, Vol. 3, No. 1 (1991) ("MIYAMOTO")	MIYAMOTO, e.g., p. 93, "The book by Salton and McGill (1983) is a basic introduction to the field which divides the study of databases and information retrieval into five areas: (1) information retrieval, (2) database management systems, (3) operational information systems, (4) decision-making assistance, and (5) query response systems. Information retrieval also includes the study of scientific documents. We will pay attention to the above classifications while discussing fuzzy information retrieval. . . The study of fuzzy information retrieval was begun in the early 1970s. It was not until the 1980s that realization of fuzzy information retrieval seemed promising. To accomplish this it was necessary to have faster hardware, software, and database storage, and propagation of workstations, databases, etc. The importance of fuzzy information retrieval is now understood by researchers, who are primarily concerned with ordinary documentary information retrieval. This was made possible by the clearly stated methodical framework of fuzzy theory (Zadeh, 1973)."
Development of the Coder System: A Testbed for Artificial Intelligence Methods in Information Retrieval ("Fox")	*See*, *e.g.*, FOX, p. 349: Fifth, it is possible to combine natural language processing (as in group 4) with special query evaluation methods. CALIN, IOTA, and PROBIB-2, all mentioned above, have a natural language query-handling capability and distinctive document representation schemes. In addition, Biswas et al. [1 19,120], in their work on knowledge-assisted document retrieval, consider both the natural language interface and the retrieval components. They developed a modular design, and plan to carry out a variety of experiments with the System. Their natural language interface can handle a restricted query sublanguage through its augmented transition network and can determine the number of documents desired, the time range of interest, and the subject matter or content [I19]. The retrieval component uses fuzzy set theory and one of several combination of evidence schemes [I20]. FOX, p. 351:

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	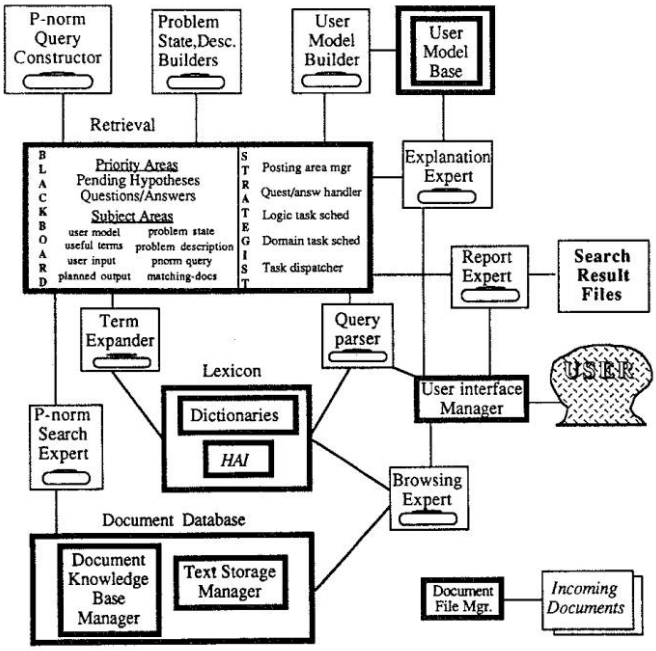 Fig. 4. Overview of CODER system. The diagram is an approximate representation, aimed at conveying essential features rather than exact details. Owing to space limitations, the analysis/blackboard strategist and related experts are not shown. FOX, p. 352: Retrieval is prompted by an explicit (or default, from the user model base) query. User model building, problem state transformation, and building of the problem description all proceed. When some terms are available, the lexicon can be accessed by a term expander to obtain other related terms that can be browsed or automatically used to help construct a query. Eventually a p-norm or other query is constructed, a search is made, and a report is prepared for the user. FOX, p. 352: Since development of CODER involves research assistants, students working on MS projects, and students completing class proiects, it is difficult to characterize precisely the status of implementation. The initial lexicon, the knowledge administration complex, the blackboard/strategist complex, the communications enhancements to MUProlog, a time/date handler, a p-norm search expert, and two versions of the user interface manager do function and are all nearly complete. initial versions of the document-type expert and the user model builder are being further developed. The document analyzer and some of the specialists it uses are partially complete. FOX, p. 357: 5.2. p-norm search expert The p-norm query notation, which extends Boolean expressions to allow relative weights to be attached to terms

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	and clauses and which allows "p-values" on the AND and OR operators to indicate the strictness of interpretation of the operation, is discussed in a work by Salton et al. [I42]. While other schemes for "soft Boolean evaluation" have been proposed [I43], none has been shown to perform as effectively as the p-norm method [i44]. p-norm query processing has been incorporated in both the SMART and SIRE systems [I45]. Because of its expressive power, the p-norm query form has been adopted in CODER as one of the canonical query forms. As can be seen in Fig. 8, a p-norm search expert has been developed that supports calls through the blackboard to attend to the "pnorm_query" area. The result of normal processing is to generate hypotheses for documents best satisfying the query expression, estimating the degree of relevance they have to the query.
Architecture for Agent-Mediated Personal News Service ("TURPEINEN")	TURPEINEN, p. 3: Agents can be considered as mediators [Wiederhold92] that refine and forward information from heteregenous data sources to the users. Multi-agent intercommunication methods enable message passing between agents in a network environment. The consumer agent transmits user requests for potential producer agents and filters messages according to user preferences. The producer agent acts as an information broker that has a domain model of its own expertise [Fikes95]. The producer agent can advertise the services to the consumer agents in the network. Agents negotiate how, when, and which information items should be transmitted. Agents are also able to consult other agents for suggestions and further information. Finally the agents assist in completing necessary data transfer tasks and financial transactions. TURPEINEN, p. 6: 1. User modeling. Consumer's preferences are maintained in a user model. The maintenance can be done explicitly by the user or automatically a by a learning mechanism in the consumer agent. 2. Content queries and promotion. Consumer agent sends a query to the producer agent to receive items that match the user interests. Also parts of the consumer's user model can be sent to be used in social information filtering performed by the content producer. Producer advertises its services to consumer agents. TURPEINEN, p. 9: The system uses a combination of content-based filtering and social filtering techniques [Malone87, Shardanand95]. The news selection service is based on a user profile that

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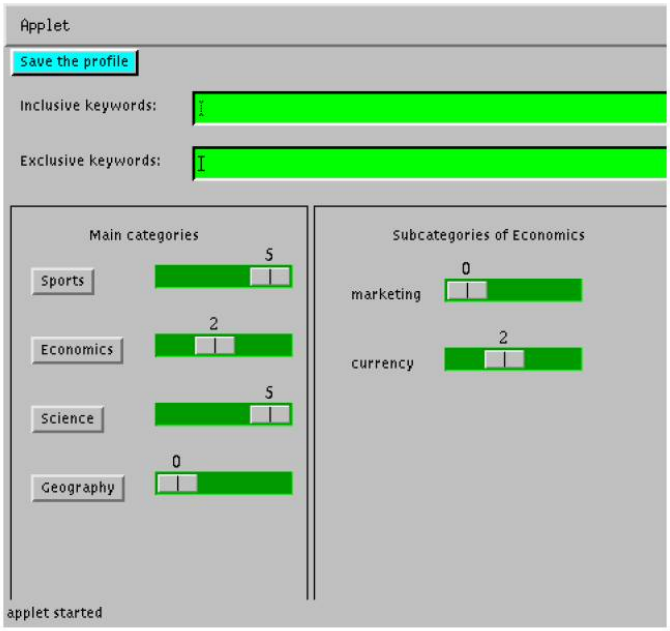
	consists of: • keyword-based query profile on user-specified topics; • semantical matches based on predefined categories; • trusted agents that send recommendations to each other. TURPEINEN, p. 10: The keyword-based selections are defined entirely by the user. These are normally used to cover short-term information needs. Each topic is identified by a topic header, producer agent and a collection of keyword/weight -pairs. The keyword weight is measured as a value in the range between 0 and 1. The weight can be adjusted by the user or by the learning module of the consumer agent. Also exclusive keywords can be entered to discard articles. TURPEINEN, p. 352:  Figure 6. A premilinary version of the profile builder applet
P. Bosc, "Fuzzy querying in conventional databases," *Fuzzy Logic Management of Uncertainty* (1992) ("BOSC")	BOSC, e.g., at 646-47, "We now make prech;e the meaning of "flexibility" assumed in the following. A system is flexible in so far as it allows imprecise terms in user queries. Consequently, it becomes necessary to determine to what extent a certain element matches more or less the query more than another element, which leads to a classification or ranking of the selected elements. According to this dermition, we are essentially concerned with items 4 and *5* of the above list. However, since very often an implicit objective is to avoid empty answers, the approaches reported hereafter are also connected with cooperative answers. Several approaches allowing imprecision in user queries can be imagined and some of them have been proposed and implemented in research prototypes. One idea is to consider queries made of two parts: a Boolean qualification selecting elements

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	and an imprecise condition intended for the ranking of these elements. Another approach is to allow imprecise queries. Then, two main cases appear depending on the interpretation of imprecise conditions. As a matter of fact, we can imagine translating an imprecise condition into a Boolean one expressing intervals of acceptance and such that some kind of "distance" is computed for each selected element. An alternate view is to use fuzzy sets as a basis for the evalution of imprecise conditions. Here again, some kind of distance is computed for each element, but this framework is more general than the previous one. In fact, we shall see that the central point of a system depends on whether or not it is based on the Boolean logic."
Mark Lager, "Spinning a Web Search," (1996) ("LAGER")	LAGER, e.g., "The presentation is targeted toward WEB searchers, in particular, reference librarians and those who navigate the Internet on a frequent basis. This presentation will look at search engines, comparing search techniques and noting differences. The workshop will identify use of new computing strategies for information retrieval within each engine." LAGER, e.g., "As Brian Pinkerton states, "The World Wide Web is decentralized, dynamic and diverse; nativagion is difficult and finding information can be a challenge." (Pinkerton, 1994). The useful and the innocuous are lumped together in this huge collection. Academic information (e.g., journal articles and course materials) is combined with social culture information and with personal home pages. There is no separation. Mark Nelson calls this information anxiety - the overwhelming feeling one gets from having too much information or being unable to find or interpret data. (Nelson, 1994). To be of any information value, the data must first be organized and retrievable, providing some structure. Search tools have begun to put some organization to these uncharted waters. Current trends in information retrieval offer better opportunities to make more efficient use of this information resource." LAGER, e.g., "The search engine provides more control for the user in performing a search. Engines use the index to fetch terms of the query. This means that the more data in the index, the higher the recall. Indexing every word or the most used words can lead to higher recall depending on the search query. The larger the index, the more possibility of hitting upon the words of the query. And, with the size of the Web, the more often the index is updated, the greater the number of hits. Search engines on the Web incorporate a number of

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	techniques to assist in both recall and precision. There are search engines that employ traditional methods like thesauri or Boolean searching. Rather than being only a keyword search, the engine will make logical connections to a thesaurus to enhance recall. Using Boolean logic (and, or, not, adjacency operators) search engines can assist in making the query more precise. Different engines have different defaults. Natural Language Processing: Relevancy feedback/weighing probabilistic logic: query by example fuzzy logic: query expansion Bayesian networks: case-based reasoning parallel computing (Inktomi): concept based searching" LAGER, e.g., "Will it rain today? What is the possibility of my car needing an oil change? Or, what is the chance of getting an A on my history test?. There are many questions like these that cannot be answered with an affirmative or negative answer. Uncertainty reigns. In an effort to make a decision which accounted for such doubt, in the midst of chaos, a branch of logic was defined to study probability. Since the 16th and 17th centuries, **probability theory** has been used to explain chance. Such questions rely on a factual information as history coupled with probability. In information retrieval, the same applies. By setting up a formula, an algorithm, that places values on words, their interrelationships, proximity, and their frequency, the computer can be used to help locate relevant sites. By computing these terms together, the search engine can produce a relevancy ranking that is then displayed to the user. (De Bra, 1995) Probabilistic logic is founded on the presumption that certain factors can be established logically and mathematically to focus a search. It is similar to fuzzy logic where the central notion is that truth values (in fuzzy logic) or membership values (in fuzzy sets) are indicated by a value on the range [0.0, 1.0], with 0.0 representing absolute Falseness and 1.0 representing absolute Truth. (Brule, 1985)" LAGER, e.g., "A survey of the Search Engines available from Netscape's Net Search will help in explaining some of the techniques discussed. By conducting a search for current trends in information retrieval, differences can be seen in the structure and techniques of each engine. **Alta Vista** {http://www.altavista.com/} Techniques and features Boolean - must use and, or, not, near (10 words) in Advanced Search Allows user-influenced results ranking Ranking: title words or first few words

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	Closer to each other Document has more of the words More copies of the words throughout Parentheses for nesting Can restrict to field (qualifiers) **Excite** http://www.excite.com/ Techniques and features Concept based searching-use statistical strength of interrelationships between words Creates its own knowledge base (or internal thesaurus) QBE - "similar documents" Boolean searches Keyword searches Relevance - marked with red X Robot is called Architext **Infoseek** {http://infoseek.go.com/} Techniques and features Weight terms (required, desirable, undesirable) Similar pages - QBE Boolean operators Natural language Search mechanisms **Lycos** {http://www.lycos.com/} Techniques and features Probabilistic retrieval Indexes top 100 words and 20 lines of abstracts Keyword searching Boolean searching Automatic truncation Spinning a Web Search : Trends in Information Retrieval Page 7 of 10 http://misc.library.ucsb.edu/untangle/lager.html 4/22/2014 Adjacency 0.0 - 1.0 Results categorized Terms in bold Relevancy: early on vs. farther down **Magellan** {http://magellan.excite.com/} Techniques and features Reviewed by writers Boolean searching Green light for information for all age groups Web, ftp, gopher, newsgroups, telnet sites

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	Browse directory or Use search engine Relevancy = frequency of words Browse button Robot named Verity Lists up to 20 pages at the bottom of the screen **Open Text** {http://www.opentext.com/omw/f-omw.html} Techniques and features Boolean searching Field operators: anywhere, summary, title, first heading, URL Query-by-example." LAGER, e.g., "Information search and retrieval is of major importance in locating relevant materials. The ability to aid and assist a user in finding relevant information is the goal of librarians and information scientists. On the Web, search engines have made the pr ocess easier by incorporating a number of newer techniques which include artificial intelligence, Bayesian statistics and probability theory, weighting, and query by example. With the goal of finding relevant materials, these new techniques locate infor mation and also refine the search query. Since search engines have different criteria in creating the indexes, it is most useful to use more than one engine in searching the Web to gain relevant information. As a rule, the more critical or focused the q uery, the more engines should be applied. With advances in the tools for information retrieval, the future holds exciting possibilities for searching on the World Wide Web."
Henrik Larsen and Ronald Yager, "The Use of Fuzzy Relational Thesauri for Classificatory Problem Solving in Information Retrieval and Expert Systems," IEEE Transactions on Systems, Man, and Cybernetics, Vol. 23, No. 1 (Jan./Feb. 1993) ("LARSEN II")	LARSEN II, e.g., Abstract, "The problem solving strategy applied in knowledge based systems may ofted be characterized as classification. Central to classification is computation of the degree to which an object is an instance of a given class (concept, category). Two kinds of problems are distinguished, object-querying and classquerying, as exemplified by, respectively, information retrieval systems and expert systems. In the first kind, the problem is to identify the objects (e.g., documents) to which a given concept (the query) applies. In the second kind, the problem **is** to identify the concepts (categories) that apply to a given object (the observation). A fuzzy-set-based scheme for construction of efficient problem solving systems of the two kinds is developed. The problem of vocabulary mismatch is considered in information retrieval, and introduce the scheme as a solution to this problem. The knowledge base applies a term-centered representation form called a "fuzzy relational thesaurus." To avoid recomputation of deductive information in problem solving tasks, we derive initially the deductive closure of the knowledge base. This closure is computed in ***O(n3)*** time as the transitive max-star closure of the fuzzy implication relation represented by the knowledge base; *n* is the number of terms

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	in the knowledge base. An upper bound for the closure is computed in only *O(* m log m) time by an algorithm that pai-titioning the terms into similarity classes; m is the number of pairs of terms for which a relationship is represented in the knowledge base."
Peretz Shoval, "ERSE : An Expert Retrieval System for Electronics Databases," in *Expert Systems for Information Management*, Vol. 3, No. 2 (1990) ("SHOVAL")	SHOVAL, e.g., Abstract, "This paper describes an expert system for information retrieval in electronic databases: ERSE. The objective of the system is to support engineering professionals in formulating proper queries and submitting them to a retrieval database. The system consists of: (a)a knowledge-base, which is a thesaurus of terms and semantic relationships, implemented as a semantic network; (b) a search and evaluation mechanism: the inference-engine, which conducts a guided search aimed at finding appropriate query terms. While doing so it invokes relevant knowledge, evaluates it, and suggests final findings to the user; (c) a database of patents in the domain of error-correction codes, implemented with a relational database management system (DBMS); (d) a retrieval mechanism, which measures the similarity between the system generated weighted query, and the index terms of patents, and returns a rank-ordered set of patents. The user is then able to provide feed-back and improve his query accordingly; (e) user interfaces, including system capability to explain its findings/decisions. The system is implemented in Pro log, C and INGRES, under Unix . The system design is described, and examples of its operation and evaluation of its performance are given." SHOVAL, e.g., at 88-90, "ERSE takes this fourth approach for integrating expert and IR systems. However, ERSE is actually a complete system for information retrieval, including the other components: an interface, a database, and a retrieval mechanism. Other major features of the system are: (a) It accepts a user query composed of a list of weighted terms, and it generates an appropriate weighted query which is submitted to a retrieval database. Consequently it returns a set of rank ordered documents, using a fuzzy approach. (b) The thesaurus is built as a semantic network which is particularly suitable for representing declarative, conceptual knowledge. (c) Both the database of documents, and the knowledge-base of the expert system, are stored in a relational database. This allows the handling of large databases and knowledge-bases. (d) A convenient user interface is provided, enabling the system to explain and justify its decisions, and enabling the user to feedback and affect system behaviour. ERSE is based on and extends an earlier system that has been

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	developed by the first author for the domain of business administration11,12 and that has since been utilised in medicine. The principles and components of that system are described in Section 2. The domain used for our system is electronics, and specifically patents in error-correction codes technology. This domain is typical of many technological areas in which users often have specific and directed information needs. Section 3 discusses the specific information retrieval needs in electronics, which led us to develop ERSE. Section 4 details the architecture, components and processes utilised in ERSE, emphasising the specific contributions it makes, compared to its predecessor. Section 5 presents an annotated example of the system operation. Then Section 6 presents an evaluation of the performance of the system, based on a set of case-study queries. Section 7 highlights some implementation issues, and Section 8 points to future developments.
Sameer Singh, "Fuzzy Pattern Recognition for Knowledge-Based Systems," *Proc. 6th International Conference on Data and Knowledge Systems for Manufacturing and Engineering (DKSME'96),* Tempe, Arizona, USA, pp. 1-10, (24-25 October, 1996) ("SINGH")	SINGH, e.g., Abstract, "Knowledge-based systems have been severely restricted in areas where the speed of processing is a key factor. This is especially evident in large systems where the speed of knowledge-base searches is important. This paper proposes a fuzzy pattern recognition technique which identifies data patterns using possibility distributions and documents a fuzzy algorithm which is implemented. The technique is based on the theory of possibility. The results obtained using sensor data in manufacturing are encouraging: the fuzzy technique outperforms non-fuzzy techniques convincingly. The results for comparison with non-fuzzy techniques include shell-sort and quick-sort with binary search. The fuzzy technique identifies the correct pattern in the sensor database with nearly 99% accuracy. These results highlight the role of new fuzzy technologies for making knowledge-based systems more attractive in areas where they are currently limited by speed considerations."
Lotfi Zadeh, "The Role of Fuzzy Logic and Soft Computing in the Conception and Design of Intelligent Systems" ("ZADEH")	ZADEH, e.g., Abstract, "As one of the principal constituents of soft computing, fuzzy logic is playing a key role in the conception and design of what might be called high MIQ (Machine Intelligence Quotient) systems. There are two concepts within FL which play a central role in its applications. The first is that of a linguistic variable, that is, a variable whose values are words or sentences in a natural or synthetic language. The other is that of a fuzzy if-then rule in which the antecedent and consequent are propositions containing linguistic variables. The essential function served by linguistic variables is that of granulation of variables and their dependencies. In effect, the use of linguistic variables and fuzzy if-then rules results – through granulation - in soft data compression which exploits the tolerance for imprecision and uncertainty. In this respect, fuzzy logic mimics the

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	crucial ability of the human mind to summarize data and focus on decision-relevant information.
Donald Kraft, "Research into Fuzzy Extensions Retrieval" ("KRAFT")	KRAFT, e.g., Abstract, "Modern computerized information retrieval systems consist of mechanisms to acquire, describe (e.g., index), and store "documents", and to receive, analyze, and respond to queries for information for users. A key element is the index language, by which the users (or user intermediaries) and indexers can communicate. Modern technology allows natural language processing mechanisms to begin to be incorporated in the sense of matching terms found in the free text specification of the query and the free text within the document. Various models of retrieval have evolved over time. The vector space model treats both documents and queries as points in the Cartesian space formed as the product of all possible index terms. Then, documents deemed "near" the query, i.e., "similar" to the query, are retrieved. Work has been done on clustering "similar" documents to facilitate the retrieval processing. A second model incorporates probability into the retrieval system by attempting to evaluate the likelihood that each document is relevant to a given query." KRAFT, e.g., Abstract, "One key element in both these approaches is that the index terms assigned to the documents can be weighted. These weights may be derived from relative frequencies of term occurences or from subjective estimates of likelihood of relevance. Another weighting scheme can be considered that allows the incorporation of Boolean logic into the query mechanism; that of fuzzy set theory. This theory lets the concept of imprecision be entered into the model, and is well-known, albeit controversial." KRAFT, e.g., Abstract, "One can extend the fuzzy Boolean model by generalizing to weights being assigned to the query terms as well. This can cause problems with the fuzzy Boolean l a t t i c e , however. One must consider such c r i t e r i a as s e p a r a b i l i t y , generalization, and self-consistency when designing query processing mechanisms. A mechanism for considering these query weights as thresholds solves some of these problems, but the semantics of the weights, especially as the low end, is not clear." KRAFT, e.g., Abstract, "Extensions of the vector space and probability models have been considered by other researchers to try to incorporate Boolean logic. In addition, this has allowed consideration of adding relevance feedback to the fuzzy Boolean model. Another issue is to generate means of evaluating a fuzzy Boolean retrieval system. One

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	can obviously try to generalize recall and precision. However, the real problem is to properly incorporate rank ordering, which the weighting and fuzzy query processing mechanism provide."
G. Bordogna et al., "Fuzzy Inclusion in Database and Information Retrieval Query Interpretation" (1996) ("BORDOGNA")	BORDOGNA, e.g., Abstract, "Abstract. In this paper, a short review of the role of the inclusion operator in the interpretation of queries addressed to databases and Information Retrieval Systems (IRSs) is analyzed. Some properties and semantic aspects of various definitions of fuzzy, inclusion are discussed and applied to interpret queries in Data Base Management Systems and IRSs" BORDOGNA, e.g., at 548, "This basic model of IR has been extended to tile main aim of providing a flexible matching mechanism able to evaluate the degree of relevance or satisfaction of each retrieved document with respect to the query. These models are based on two main ideas the association of a weight with both each term in the representation of documents (index term weights) and each term in the query (query term weight). Index term weights express the significance of terms in representing the document contents, while query term weights indicate the importance that terms should have in the desired documents." BORDOGNA, e.g., at 551, "In this paper the role played by the inclusion operation in both the division of fuzzy relations in DBMSs mid in weighted query evaluations in extended Boolean Information Retrieval is investigated. Some fuzzy approaches presented in the literature are reformulated in the unified framework of fuzzy inclusion. Future developments of this work will cone, era two points: i) the weakening of the universal quantifier implied in the division of fuzzy relations and ii) the consideration of more general queries (not only conjunctive) in IRSs."
"Automatic Thesaurus Construction Supporting Fuzzy Retrieval of Reusable Components," (1995) ("DAMIANI")	DAMIANI, e.g., Abstract, "Effective access to repositories of reusable: components should rely on retrieval functionalities based also on imprecise queries. This paper presents a fuzzy retrieval model based on keywords describing the functionalities of reusable components. Fuzzy weights are assigned to these keywords automatically. Retrieval is supported by a Thesaurus where a fuzzy synonymia relationship is used to c:ompute adaptability of reusable components to the needs expressed by the user fuzzy query. The adaptability index is ameliorated along time via a quality function reporting feedback on the system usage."

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	DAMIANI, e.g., at 542-43, "Software reuse needs effective retrieval techniques to make development with reusable components more convenient than development from scratch [Kru92]. To th,is aim, components should be appropriately described and user 'queries should allow for a degree of uncertainty in order to isolate a set of components that can be adapted to the new application [Pri93]. Many of the existing software libraries or repositories exhibit both the classification problem (description of components), and the retrieval problem [Ban93. Bat92. Dev91]. This paper proposes a technique for Thesaurus-based software retrieval from a repository. The technique D based on software descriptors containing keywords weighted with fuzzy values to describe the behavioral proprties of reusable components. Central to this approach is Thesaurus automatic construction starting from the software descriptors. The approach supports imprecise queries through the use of fuzzy logic [Kli88, Kos92]. The descriptors are assumed to be constructed from. the code and from its accompanying documentation. The object oriented SIB (Software Information Base) repository is considered, whose descriptors are classes [Con93]. SIB classes have a usual class attribute part, and an additional keyword-list based part at the basis of the retrieval model. The model is given in terms of weighted pairs of related keywords (features) interpreted as open class keywords [Maa describing the component functionalities. The fuzzy weight associated to each feature expresses the degree of imprecision that characterizes the description. For the fuzzy weights in the SIB, the paper proposes an assignment algorithm employing a Feature Weighting Function (FWF) adapted from a classical term weighting function used for document retrieval [Sal88]. The retrieval model enables to pose imprecise queries, asking for a set of characteristics expected from the component. Imprecise queries are lists of features, describing the characteristics of the needed component and fuzzy weight in the query specifying how relevant each feature is for the developer. Returned candidates are ranked according to their degree of aduptabilify to the required limctionalities. Retrieval is assisted by a Thesaurus containing unique terms and synonyms. Terms are single keywords taken from descriptors in the SIB. or added by the Application Engineers in charge of SIB maintenance. Terms are organized in the SIB and in the Thesaurus by conrexrs (or facets [Pri87] or categories [Gib90]) acting as search environments. A term in a context gets a fuzzy value of relevance representing how significant the term is in that context. The automatic construction of the Thesaurus consists in extracting terms from the SIB descriptors and in computing the fuzzy relevance of each term in the contexts using a Context Relevance Function (CRF).

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	Terms are linked to one another via a fuzzy synonymia relationship which is interpreted as the adaptability index of the software components described by the synonyms. The adaptability is computed dynamically taking into account the fuzzy weight of synonymia between terms in the ThesaurusBoth the SIB weights and the Thesaurus weights are mantained automatically and ameliorated along the system life cycle employing a Quality Function (QF) which observes the user reactions to query answers from the system, and in batch mode, slowly variates the fuzzy weights. A QF is proposed in the paper which. exploiting the theory of fuzzy sets, implements an adaptative retrieval system (Kli88. Mun94], tunable with use along time. The paper is organized as follows: a general view of SIB descriptor is provided with the technique of fuzzy weighting of descriptors. The concept of adaptability between components is defined and applied to retrieval. Automatic Thesaurus construction and syonymia computation are presented." DAMIANI, e.g., at 546, "This paper has presentes an approach to fuzzy retrieval of components from a repository based on fuzzy-weighted keyword pairs (features) describing the component functionalities. A method for automatic assignment of weigths to features has been described. The approach relies on a Thesaurus of terms used to describe the reusable components. The basic relation in the Thesaurus is synonymia which is also fuzzy; its connection to the retrieval model has been shown and a method for automatic construction of fuzzy synonyms in the Thesaurus has been illustrated. At the user interface level a prototype [Fau93] has been experimented using ranged values to simplify the user interaction. Evaluation of the software retrieval operations is undergoing using code and design documents. In particular. assuming that "nice" features are contained in the SIB descriptors and suitable contexts are initialized within the Thesaurus, we are evaluating the approach using a library of object-oriented code and a library of conceptual application schemas based on the E/R model."
Duncan Buell, "Performance Measurement in a Fuzzy Retrieval Environment," 1981 ("BUELL")	BUELL, e.g., at 56, "Measuring the extent to which a computerized document retrieval system fulfills the goals set for the system is a complex problem that involves everything from initial goal specification to the actual underlying computer software. An average user will view the system as a "black box." The user makes requests; the system responds. Numerous factors will thus affect the evaluation of the system by such a user. These include such varied aspects as physical ease of use, the user's ability to understand how to formulate requests, the coverage of the desired topic by the collection (and the

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	coverage of new or old material at the user's appropriate level), and even the user's own knowledge of the topic in which he is interested. We emphasize that we are investigating only a narrow aspect of retrieval system evaluation. We consider not the "human engineering" required to provide the average user with the information he desires, but the establishment of quantitative standards by which to measure the ability of the mathematics and logic of the retrieval decision mechanism to select for retrieval in response to a request the same set of documents which would have been selected by a human expert unaided by the automated system. [9, 16, 18] Among these standards are recall and precision and associated measures and various measures of "value" returned in comparison to the search length. These measurements are well-defined for systems with Boolean indexing and standard Boolean query-to-document matching functions." BUELL, e.g., at 58, "One problem which immediately arises in measuring performance is that, if the RSV's are no longer simply 0 and i, then a new interpretation must be made of "about" and of "retrieved." The first problem is resolved if a set-theoretic, indeed fuzzy settheoretic, interpretation can be placed on all numerical values involved. [7, 20] In a system in which RSVIs are not simply 0 and i, however, it is no longer the ease *that* one would simply retrieve a subset of the documents. The user might instead be given information on a ranked list of documents, for example, and asked to specify a threshold above which to actually retrieve. Or, following the ideas of Cooper [6], the user might be given the ranked list and allowed to retrieve one document at a time until he decided that he had seen enough . There are several possibilities; the problem remains the same--the set RT is definable not by the RSV, but by system convention or, worse yet (from the point of view of predictability for use in numerical measurement), by user whim. By a generalized retrieval system, then, we shall mean a system in which either 1. the indexing function is Boolean, the queries resemble Boolean queries, but the RSV's are not Boolean (this would include retrieval mechanisms such as the cosine coefficient); or 2. the indexing function is fuzzy, queries resemble Boolean queries, and RSV computations follow normal fuzzy subset rules (this would be a simply fuzzysubset system, as described by Sachs, Tahani, and others [i0, ii, 15, 17]); or 3. the indexing function is fuzzy, the queries have weights or thresholds attached to terms and/or subexpressions, and RSV computation is not necessarily simply a fuzzy-subset MF computation (this would include systems such as those suggested by Bookstein [i],

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	Buell and Kraft [4, 5], Radecki [12, 13, 14], and others).” BUELL, e.g., at 61, “We have seen that the usual performance evaluation measures of recall, precision, fallout, and generality have analogues in retrieval environments in which decisions about "retrieval" and "relevance" are no longer Boolean. Although problems do exist in interpreting the numerical values which will be obtained from these measures and in comparing those values to those obtained from Boolean retrieval systems, the problems can be overcome by taking into account the nature of the indexing function. Finally, we have raised the question as to whether rank-order comparison measures might not be more appropriate for evaluating those systems whose natural output consists of rank orderings of documents.”
Gerard Salton, “Extended Boolean Information System,” *Advances in Information Retrieval*, ACM 82 Panel Session (“SALTON”)	SALTON, e.g., Abstract, “In conventional information retrieval Boolean combinations of index terms are used to formulate the users' information request. Boolean queries are difficult to generate and the retrieved items are not presented to the user in any useful order. A new flexible retrieval system is described which makes it possible to relax the strict conditions of Boolean query logic thereby retrieving useful items that are rejected in a conventional retrieval situation. The query structure inherent in the Boolean system is preserved, while at the same time weighted terms may be incorporated into both queries and stored documents; the retrieved output can also be ranked in strict similarity order with the user queries. A conventional retrieval system can be modified to make use of the flexible metric system. Laboratory tests indicate that the extended system produces better retrieval output than conventional Boolean or vector processing system's.”
Bill Buckles, “An Information Retrieval Perspective on Fuzzy Database Systems,” *Advances in Information Retrieval*, ACM 82 Panel Session (“BUCKLES”)	BUCKLES, e.g., Abstract, “Database in which domain values are not crisp and precise exhibit properties normally associated with information retrieval systems. For instance, a boolean query induces a membership value for each tuple (i.e., record) that is analogous in function to a similarity measure. Thus, precision and recall measures are legitimate areas of interest that pertain to fuzzy databases but not ordinary databases. These ideas will be expounded in the context of a database for expert advice on national energy policies.”
Donald Kraft, “Generalizations of Boolean Query Processing,” *Advances in Information Retrieval*, ACM 82 Panel Session (“KRAFT	KRAFT II, e.g., Abstract, “Substantial work has been done recently applying fuzzy subset theory to the problems of document and query representation and processing in retrieval systems. The motivation has often been to generalize Boolean query processing to allow for non-Boolean index weights or measures of importance to be attached to the individual terms in the document or in the query representation. The problems of generalizing the Boolean lattice structure have been

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II")	noted. Criteria have been generated for query processing mechanisms with relevance weights in the query, but these have been shown to be inconsistent. An alternative approach using thresholds in the query has been suggested, with the generation of appropriate document evaluation criteria for Boolean query processing. Problems remain unsolved. The exact form of the function to be used for the query processing mechanisms must still be specified and appropriate parameters must be obtained. Some researchers still prefer a vector space approach, others suggest alternatives to Boolean queries, others work on probabilistic approaches, and still others propose new lattice structures for weighted retrieval. These various models must he reconciled with each other and with an overall generalization that encompasses each and allows for analysis and comparison. Moreover, evaluation mechanisms must be sought for fuzzy systems, and it is necessary to generate a fuzzy concept to the notion of "retrieval" itself."
George Baklarz, "Using Neural Nets to Optimize Retrieval in a Fuzzy Relational Database" ("BAKLARZ")	BAKLARZ, e.g., Abstract, "This paper examines the theory behind Fuzzy Sets and Back-Propagation Neural Nets, and how neural nets can be used to replace fuzzy sets and improve the query performance in a Fuzzy Relational Database (FRDB)." BAKLARZ, e.g., at 191, "In most database systems, information is assumed to be exact, correct, well formulated , with no provisions for considering otherwise[l] . Because fuzzy set theory gives us a basis to manipulate real-world data in a formal way, this technology can be adapted to relational databases . By extending fuzzy set theory to relational databases, the user has the added benefit of: • Not having to state precisely the attributes of a query • The data can be represented in a fuzzy state • The relationships can be tailored to the individual user" BAKLARZ, e.g., at 192, "This paper examines how fuzzy-set theory can be used in a relational database to better model the information and facts available to the user. Although there have been various implementations of Fuzzy Relational Data - bases, the implementation described here optimizes information retrieval by using neural nets as a replacement for relations." BAKLARZ, e.g., at 200, "Merging fuzzy-set theory with database technology is a powerful tool for manipulating imprecise information. By combining fuzzy set extensions to Structured Query Language (SQL) statements, a user can retrieve data based on imprecise information . Finally, introducing neural nets as a replacement for

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	membership functions, dramatically reduces the retrieval speed and further enhances the usefulness of a fuzzy relational database. The existing prototype has highlighted a number of areas that warrant further research : • Neural net selection The back-propagation neural net was chosen due to its storage capacity and for its ability to learn a variety of equations, but other neural net models may be more suitable. • Training Techniques The training time of the neural net needs to be improved. • Parallel Processing The back-propagation algorithm is well suited to parallel implementations, and implementing the algorithms on a parallel machine will highlight the performance benefits of using neural nets. Neural nets have proven to be a very useful replacement for relations in a Fuzzy Relational Database. Fuzzy set theory and neural nets complement one another, and this knowledge should lead to more applications where neural nets can replace fuzzy membership functions to improve performance."
P. Subtil et al., "A Fuzzy Information Retrieval and Management System and Its Applications," (1996) ("SUBTIL")	SUBTIL, e.g., Abstract, "This paper presents a fuzzy information retrieval and management systems (FIRMS) we have developped for handling fuzzy objects. The originalities of this system consist of : *i)* the possibility to describe object with fuzzy aggregate attributes and to retrieve them at different description-levels of these attributes, *ii)* the definition of nuanced domain which gives the possible values of a fuzzy attribute, *iii)* the using of a fuzzy thesaurus and an associated grammar to go through its links in order to retrieve objects. In another hand, this paper explains how to build an *application* with this system and shows some real applications of FIRMS." SUBTIL, e.g., at 537, "Vagueness and uncertainty are usual in the human knowledge and reasoning. Then it is necessary to handle these fuzzy data in databases when they are the only information known about the world to model. During the last years, several approaches (see [9] and [3] for example) have proposed extension of databases to take into account this imperfection of real world. Allmost of this approaches use the concept of fuzzy set [10] and possibility theory [11]. In this paper, we present our approach about a fuzzy information retrieval and management system called FIRMS. In the first section, we present the basic concepts of our system whence the original concepts of aggregate attribute and fuzzy thesaurus. In the second section, we present the modelling process of an application, an application being a set of fuzzy object. In the last section, we present real applications of FIRMS in economic fields."

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	SUBTIL, e.g., at 537, "FIRMS allows to describe a set of objects defined by a collection of attributes. For instance, John is an object defined by the attributes *Name, age,* . . . . An attribute can take a fuzzy value called a nuanced value. In the first subsection, we give th three kinds of attributes used by FIRMS. In the second, we explain the concept of nuanced domaingrouping the possible values of an attribute. In the third subsection, we introduce the notion of fuzzy thesaurus as a particular nuanced domain. In the last subsection, we show the description of a fuzzy object." SUBTIL, e.g., at 540, "Comnent of an european research system, the panel of Lorraine PME-PMI (Lorraine is a kind of state in France and PME-PMI designates firms under 500 employees) is a very important piece of a program developed by Institut Commercial de Nancy (commercial institute of Nancy) and the *Conseil Rdgional de Lorraine.* This panel must allow to know the management method of firms more precisely. It groups data on more 400 firms from 1989 to 1993. Each firms is defined by 700 variables about the following subjects : product, rivalry, export, human resources, strong and weak points, innovation, national assistance, ...Among these themes, we have selected those which present some interest for the representation of vague and/or uncertain information : strong and weak points, export, human resources and performance. We use the system FIRMS essentialy for two reasons. Firstly, the system allows a reality representation more reliable with the inherent vagueness and uncertainty. Secondly, the system allows rapidly and simply verification of hypothesis by the use of profiles." SUBTIL, e.g., at 540-41, "The Institut Commercial de Nancy has developed an expert system in 1989 to formulate dignosis about the statement and the development of a firm. This analysis uses dynamic contextual factors which continually have an influence on firms framework. But the expert, using a set of simple rules, was not efficient because it cannot handle vagueness. For instance, it cannot take into account the following rules determined by an human expert to qualify an emergent firm. **If** roduction cost = high) and (customs experience = low) and (existence of infrastructure = low) and (strategic uncertainty = high) then emergent firm FIRMS has been used to solve the problem of vagueness and uncertainty. A firm is described by a list of attributes : production cost, customs experience, existence of infrastructure, strategic

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	uncertainty, technological resources, technological uncertainty, ... All attributes has the same nuanced domain." SUBTIL, e.g., at 541, "FIRMS is a flexible system allowing the handling of vagueness and uncertainty. Among the basic concepts, two are very important. The first is the concept of aggregate attribute. It allows an user to describe two objects with different precision levels. The second is the concept of fuzzy thesaurus. It determinates a set of weighted linked terms and uses a grammar to go through it contrary to other approaches [4][5]. An iterative and incremental process allows to describe the basic elements of an application. The experiences with real data in economic fields has shown the flexibility of FIRMS."
C.T. Yu, "An Approach to Probabalistic Retrieval," (1981) ("YU")	YU, e.g., Abstract, "The objective is to relate the effectiveness of retrieval, the fuzzy set concept and the processing of Boolean query. The use of a probabilistic retrieval scheme is motivated. It is found that there is a correspondence between probabilistic retrieval schmes and fuzzy sets. A fuzzy set corresponding to a potentially optimal probabilistic retrieval scheme is obtained. Then the retrieval scheme for the fuzzy set is constructed." YU, e.g., at 46, "The effect of term weights on the performance of queries was analyzed in [24] , where it was shown that queries whose terms having higher "precision values" are assigned heavier weights yield better retrieval results than queries whose terms are assigned the same weights, under the assumption that terms are distributed independently. Thus, the precision value of a term characterizes the usefulness of the term in retrieval. This result was supported in [13], whre it was shown that if terms of a query are assigned weights proportional to the logarithm of their precision values, then optimal retrieval results are obtained under the same term independence assumption. When terms are distributed dependently, the incorporation of the term dependence into the retrieval process yields better retrieval results [9,20,23]. Even more general condition exists for the construction of the optimal queries [5,8,21]. The above results assume that certain parameter values (e.g. those needed to compute the term precision values) are known. When these values are not known, they may be estimated by relevance feedback [5,7,15,22] where the user identifies each retrieved document as either relevant or irrelevant, and input the information to the system. Where relevance feed back can not be employed (e.g. a user submits a query the f i r s t time), various attempts have been made [6,17,18,25] to yield reasonable retrieval results. All these techniques are used when the user's queries are expressed as sets of keywords."

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	YU, e.g., at 46, "The use of a probabilistic retrieval scheme (PRS) is motivated. It is applied to the processing of Boolean queries. Our aim is to obtain a potentially optimal PRS. To achieve this, a correspondence between PRS and fuzzy sets is established. A process to obtain a fuzzy set corresponding to a potentially optimal PRS is presented. Then, a potentially optimal PRS is constructed from the fuzzy set. Finally, the performances of some natural retrieval schemes are compared using a partial ordering deduced from a given Boolean query. The main contributions of the work presented here are (1) a relationship between a retrieval scheme and its retrieval effectiveness is established analytically; (2) the use of fuzzy set, which has been employed by earlier researchers but not related to the effectiveness of retrieval, fits into the development of (1) naturally; and (3) a conceptually very simple process to obtain a potentially optimal PRS is provided. This procedure is independent of the given partial ordering. Thus, if a better partial ordering (than the one given here) is obtained by another interpretation of a Boolean query or by re-evance feedback, the procedure given here can still be applied."
Gary Mooney, "Intelligent information retrieval from the World Wide Web using fuzzy user modelling," Library and Information Research News, Vol. 21, No. 67 (1996) ("MOONEY")	MOONEY, p. 25 – "This article investigates the effects of applying fuzzy logic and user modelling techniques to the process of information retrieval from the WWW, a major part of the Internet. This is a novel AI approach to the process of IR. To perform the investigation, a prototype system, the Fuzzy Query Modelling Assistant (FMQA), has been developed. The focus of the investigation was whether the results achieved by using the FMQA would improve upon those returned by using an existing search tool, specifically LycosTM (Mauldin, 1996), alone. To answer this question a user study of the FMQA is being performed and its early results are reported." MOONEY, p. 25 – "A major problem with IR lies in the vagueness and lack of precision of the prospective searcher's information need. This vagueness and lack of precision leads to the aforementioned problems and these are exacerbated by the nature of the WWW. The problem of information overload is one example. A search with the tool LycosTM using the search string 'information retrieval' produced 61 ,000+ hits (Mauldin, 1996). However, information about the user's experiences and knowledge of the search subject and of the WWW in general can be used to modify the query intelligently and produce better IR results.

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	User modelling research has shown that adaptive user stereotypes are often used to represent different sorts of user and their characteristics (Rich, 1979). Fuzzy logic, with its inherent ability to capture and represent partial know ledge, is a valid AI technique to use in IR-a process involving the representation of information needs as queries, with all the attendant vagueness and semantic ambiguities (Zadeh, 1993). Here, the user stereotypes are represented as fuzzy sets to ensure flexibility and adaptivity. This concept is at the heart of the prototype system, the FMQA." MOONEY, p. 25 – "The FMQA is not designed to act as a *new* 'intelligent' search engine. Within the field of distributed AI and computing in general there has been much research and development into the notion of searching and intelligence through the development of agents.(Wooldridge & Jennings, 1995). The FMQA seeks to alleviate IR problems through 'intelligently' assisting the user in a search. In this sense it is similar to the concept of *interface agents* defined in Maes(1994) but the FMQA applies fuzzy logic and user modelling to the query formulation of searches. The aim is to refine a query before it is submitted to an existing search engine. This refinement is based on knowledge about the user's beliefs and experiences (in the Internet and the subject domain of AI) captured through an on-line interactive session." MOONEY, p. 25-26 – "The captured user knowledge is used to adapt default user models in order to represent an individual user. This representation is then combined with the user's query to produce the refined query. The knowledge is captured from two on-line interactive questionnaires. Each question is represented by a fuzzy set. The FKB combines the answers to these questions to produce two sets which represent the individual user model. The defuzzified values from these sets are used to refine the query. The user is then given the option to submit either the original or the refined query to LycosTM. Presently, the user must choose the original query from a list of topics representing different areas of AI but this is just a facet of the prototype. The system could easily be expanded to include other fields of interest and eventually to allow the user to enter the query words themselves. Additionally, the final fuzzy sets are lost when a user finishes accessing the FMQA and new sets are produced with every new session. However, the system could easily retain these sets and use the information they contain in future sessions." MOONEY, p. 25-26 – "A user study has been performed in which a

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	number of DMU undergraduate students from the first year intake of two courses accessed the FMQA and provided feedback on its use and performance. . . .The study took place over a number of weeks with each user accessing the FMQA at a similar time each day. This ensured that each user's reaction to the system was not unduly influenced by differences in the Internet network traffic speeds. Each user was asked to submit the original topic they chose as a query and the refined query produced by the system. This is equivalent to using Lycos alone to search for the AI topic and then using the same FMQA-modified AI topic and allows the results to be used to answer the central question of the study. As part of each session, the user was presented with an e-mail form and asked to list the best and worst results for each query, and to rank these as well by giving them a score between 1 and 10. They were also asked to comment upon the results, in terms of usefulness and relevance, and upon the system, in terms of ease of use and design." MOONEY, p. 25-26 – "Early results form the study indicate that the FMQA does indeed improve upon the IR results achieved by using LycosTM alone. . . . During a query looking for 'Fuzzy Logic', which afterwards the user remarked that the modifed results were more relevant, the best result for the modfied query was a website dedicated to fuzzy sets and systems (Brown, 1996). The dedicated website contains many WWW links to general sites of interest to fuzzy logic reserachers and would be a good starting point for a novice to the area, which was the category this user was placed in by the FMQA." MOONEY, p. 25-26 – "This article has examined the application of fuzzy logic and user modelling to the process of IR from the WWW, the concept being to assist intelligently the user in searching for information and reduce the problems commonly associated with IR in general, eg irrelevance and redundancy. A prototype system, the FMQA, was developed, which realises the concept by employing knowledge about the user to modify queries before they are submitted to an existing WWW search tool. This knowledge is represented in fuzzy sets which act as adaptive user stereotypes. Early results from a live user study of the FMQA show that, in the opinion of the users, the results achieved from using the system do improve upon those obtained from using the search tool alone."
Henrik Larsen and Ronald Yager, "Query	LARSEN, p. 1 - "The ascendancy of the Internet, and in particular the World Wide Web, is making the development of intelligent

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Fuzzification for Internet Information Retrieval," (1996) ("LARSEN")	information retrieval an extremely important issuer. An information retrieval system[1] is a system to retrieve relevant information objects from an *information base.* The information base stores a collection of objects some of which are of potential interest to the users. Each object is represented by an item which can be seen to be made up of two components. The first component is the index and the second component is the body. The index usually consists of highly organized pieces of information that can be used to help identify and select the objects that may be relevant to a user. The body consists of information which may not be organized but it contains the material that is of interest to the user. The fundamental problem in information retrieval is to find the subset of objects in the information base that is relevant to a given user. In a fuzzy information retrieval system, one can supply the list of relevant items with an ordering as to their potential interest to the user. Figure 1 shows a top-level view of the information retrieval system processes. In the first step the user enters a request in terms of features of interest employing the keywords in the indexing system used to describe the objects. The information in this query is then used by the information retrieval system to select items that may be potentially relevant to the user. The final step is a process where the user looks at the items suggested by the system and decides the ultimate relevance of the items. This final step greatly reduces the burden of the information retrieval process, for it allows the *user* to look at the items selected and decide the ultimate relevance. This means that not all the knowledge about the decision has to be formalized in a manner that can be manipulated by the computer. The user must only supply the information that is used to search through the index. As an example, we will consider the problem of selecting a house for purchase and assume that the user has access to an information base consisting of a collection of houses for sale. Here the user would express desired properties about the kind of house desired (price, size, location, etc.) in the query. The system would then search the information base and produce a listing of houses which closely match the user's request. This information could include text, more detailed information about the house as well as perhaps a picture of the house. The user then looks at this information and then decides which houses he wants to visit. In making this decision, the user may use all kinds of subjective criteria which may be hard to quantify and not necessarily specified in his query." LARSEN, p. 2-3 – "In this paper we shall describe an information

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	retrieval system which uses fuzzy sets to help in the selection process, this kind of system can be viewed as an intelligent inquiry system. Figure 2, which is an expansion of the information retrieval system box of Figure 1, illustrates the steps involved in the information retrieval process. In the first step the crisp information provided by the user is softened with the aid of fuzzy sets. Using the index and a modified version of the requirements ("crisp envelope", step 2), we search through the information base (step 3), to find a subset of objects in the information base that can be considered as potentially relevant to the user. Step 3 can be based on an ordinary crisp querying language. The set of objects found in this step is called the "crisp envelope" answer. The final step in the process is a ranking of the elements in this crisp envelope which is then presented to the user." LARSEN, p. 4 – "An important characteristic of many of the criteria supplied in a user query is that the needs they intend to represent are not crisp. If persons looking for a house indicate their desire to spend between $100,000 and $140,000 for the house, it is not the case that they will be totally uninterested in a house costing $145,000. They may be less satisfied but not completely unsatisfied. The central observation here is that the boundary between a criteria being completely satisfied and not being satisfied is fuzzy rather than crisp. In building intelligent information retrieval systems we must take advantage of this fuzziness in the criteria. As we shall subsequently see, we use this fuzziness in two ways. *First,* we use it to soften the user query to allow potential interesting items to be retrieved, even if they do not directly satisfy the original user query. In particular, we shall use it in providing a query envelope, that is, a crisp query applied to retrieve the potentially most interesting items from the information base. The *second* way we shall use this fuzzy characteristic is to provide an ordering (ranking) of the items according to the degree to which they satisfy the softened user query." LARSEN, p. 5 – "While many of the criteria in a user query can be softened (fuzzified) with the aid of fuzzy subsets some criteria are not amenable to this kind of softening. For example, the desire to have a fireplace or two bathrooms is not easily fuzzified." LARSEN, p. 17 - In the preceding, we discussed the issue of criteria aggregation. We shall now specialize this to the ranking of objects for an information retrieval system. We discussed two classes of

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	aggregation, MOM and MAM operators. We recall that the MOM operator is a generalized *or*-like aggregation while the MAM operator is a generalized *and*-like operator. In information retrieval systems we see the criteria specified by the user as being connected by an *and*-like operator, assuming the user generally wants all the criteria satisfied. That is, a person desires to obtain further information about houses in a certain price range *and* in a particular location *and* having certain amenities. Thus, the appropriate family of operators are the MAM operators." LARSEN, p. 20 – "We presented an approach to a weighted multi-criteria information retrieval system that uses fuzzy subsets as mechanism to allow for the flexible evaluation of user requirements. Although we focused on numerical criteria, the approach is also applicable for non-numerical criteria (concepts, terms)—in the first case, the semantic similarity utilized relies on the numerical scale, in the second case, it relies on a similarity relation. We discussed the potential use of MAM and MOM operators as a tool for the aggregation of user requirements. Finally, we illustrated the application of the mechanism and tools in an application for a real estate agency. Our an approach is in particular interesting for retrieval through the Internet WWW. In this situation, the semantic elasticity supported by our approach allows the user to retrieve the most interesting objects, even when the description applied in the information base does not directly match the query formulation chosen by the user." LARSEN, Figures 1, 2, 3
Tadeusz Radecki, "Fuzzy Set Theoretical Approach to Document Retrieval" *Information Processing & Management*, Vol. 15, pp. 247-259 (1979) ("RADECKI")	RADECKI at Abstract - "The aim of a document retrieval system is to issue documents which contain the information needed by a given user of an information system. The process of retrieving documents in response to a given query is carried out by means of the search patterns of these documents and the query. It is thus clear that the quality of this process, i.e. the pertinence of the information system response to the information need of a given user depends on the degree of accuracy in which document and query contents are represented by their search patterns. It seems obvious that the weighting of descriptors entering document search patterns improves the quality of the document retrieval process. A mathematical apparatus which takes into consideration, in a natural manner, the fact that the grades of importance of the descriptors in document search patterns are of the continuum type, that is an apparatus adequate to the description of a retrieval system of

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	documents indexed by weighted descriptors is-among known mathematical methods-the theory of fuzzy sets, formulated by L. A. Zadeh. It is the aim of this paper to present a new method of document retrieval based on the fundamental operations of the fuzzy set theory. We start by introducing basic notions, then the syntax and semantics of the proposed language for document retrieval will be given and an algorithm allocating documents to particular queries will be described and its properties discussed. The basic advantage of the use of the fuzzy set theory for document retrieval system description is that it takes into consideration, in a simple way, the differentiation of the importance of descriptors in document search patterns and the differentiation of the formal relevance grades of particular documents of an information system to a given query. Documents of the highest grades (in the given information system) of formal relevance to the given query may be retrieved by means of the application of simple operations of the fuzzy set theory." RADECKI, p. 2 - "Of the known mathematical methods, the method best fulfilling the postulates formulated above, and therefore adequate for an analysis of document retrieval systems is the theory of fuzzy sets, whose bases L. A. Zadeh has given in [12-151. The idea of the theory of fuzzy sets is that the grades of membership of particular elements of the universe in a given fuzzy set are determined by the so-called membership function which is a generalization of the characteristic function. The transition from membership to non-membership of the universe elements in the fuzzy set, in contrast to the ordinary set theory, is continuous. Many papers have already been written on investigations into the possibility of creating a uniform document retrieval system theory based on the theory of fuzzy sets. Besides the present author[16-201 many other specialists have also dealt with this question[21-271. In paper[21] C. V. Negoita used the theorem on the separation of fuzzy sets[l2] to divide a set of document search patterns into clusters where each cluster is made up of those document search patterns whose grades of membership in that particular cluster are not smaller than the established threshold value. The idea of using the theory of fuzzy sets, or, to be precise, the concept of the similarity relation to formulate an algorithm for the division of a set of document search patterns into clusters has also been used in[lS, 22, 25'1. In[22, 25]-making direct use of

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	the definition of the max-min composition[l3] of fuzzy relations- a way is suggested of dividing the set of document search patterns into clusters where each cluster is made up of those document search patterns whose grades of similarity are not smaller than the established threshold value. One disadvantage of the way of organizing the document file, suggested in these papers, is that in the case of a large set of documents the process of dividing the set of document search patterns into clusters is very time-consuming and also expensive. This inconvenience can be significantly attenuated by using the method of organizing the document file proposed in paper [181 based on the notion of the maximum spanning tree. In paper [23] as in paper[24] C. V. Negoita defines the response of an information retrieval system as a fuzzy set and describes the relationships between various responses of the system in terms of the theory of fuzzy sets. Retrieval methods of documents indexed by weighted descriptors, which are a natural generalization of the set theory methods, have been described in papers[l6, 17, 19, 201 by the author. In paper[26] W. M. Sachs draws attention to the possibility of defining associative retrieval in terms of the fuzzy set theory, but does not provide any new solutions however. On the other hand, paper [27] by V. Tahani, based on an idea similar to that expressed by the author in paper[l6], contains a description of the organization of document file and a strategy for the retrieval of documents using basic notions and operations of the theory of fuzzy sets. The aim of the present paper is to describe a generalized method (in comparison to the strategies presented in papers [16, 271) of document retrieval. In the writing of this paper ideas contained in previous papers by the author[16, 17, 19,20,28] were utilized. Before entering a detailed description of the proposed method of document retrieval, we will present the basic notions used in the rest of the paper. We will then describe the proposed document retrieval language and present an algorithm for the allocation of documents to particular queries and describe the properties of the language and the algorithm. The proposed document retrieval strategy will also be illustrated by an example. Finally the results of the present paper will be summarized and modifications to the document retrieval method presented will be discussed."
Chris Buckley, "Implementation of the SMART Information Retrieval System," Department of Computer Science,	BUCKLEY, p. 2, "The SMART information retrieval package is a set of programs composing a fully automatic document retrieval system. It allows easy creation, maintenance, and use of on-line document collections. As more information is being kept on-line every day; it becomes more essential to have methods of easy, natural access to the information. The SMART package is primarily a tool for investigating

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Cornell University (May 1985) ("BUCKLEY")	some of these methods. In addition, it is quite usable itself for many applications." BUCKLEY, p. 2-3, "This implementation of SMART contains few new or radical concepts. Instead, it attempts to provide a solid framework for future work in information retrieval. The two major goals of the current version are to 1. Provide a flexible experimental system for research in information retrieval. See [6] for a discussion of desirable system capabilities and design principles for experimental work. 2. Provide a fast, portable, interactive environment for actual users. These two goals naturally conflict with each other; the current SMART design is an attempt to satisfy each as much as possible. The system is concerned with three major types of users: the experimenters, the database administrators, and the naive users. The experimenters need the ability to easily change system parameters and to easily add or replace program modules. The database administrators must be able to create and maintain a collection of documents without worrying about the peculiarities of the particular. collection. It should be possible to initially specify the features of the collection and not worry about them again. The users need to be able to enter a query and view the results without knowing anything about the internal parameters of the system, being aware only of the collection features which are relevant to them such as the type of information contained in a document). An interactive help facility is necessary for the casual user. The current system is a first step in satisfying these goals. The major lack at the moment is a satisfactory user interface. There is a usable interface here at Cornell, but more work is needed." BUCKLEY, p. 3, "The design of the SMART system concentrates on two types of flexibility. The first is complete flexibility at a number of levels in specifying the parameters for all operations. All parameters have reasonable default values. In addition they (possibly) can be given values within a collection dependent specification file. This means a database administrator can tailor the parameters to one particular database application. These values, in turn, can be over-ridden at command execution time by specifying a parameter and its value on the command line. At the program design level, flexibility is achieved by allowing very easy expansion of the most commonly used modules. For example, if an experimenter wishes to add a new procedure for computing the similarity between two vectors, two lines in one "data" file needs to be changed and the retrieval program needs to be re-linked." BUCKLEY, p. 5-6, "Users come to the SMART system with an

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	information need and try to convey this need to the system. Their initial statement of their need can be a piece of natural language text, a query using Boolean connectives (AND, OR), a list of keywords, etc. The system assigns a *query* representative for the need, either a simple list of concepts and weights like the document representatives, or something a bit more involved which gives more structure to the representative. A retrieval function within the system then calculates the *similarity* of the query representative to each of the document representatives. (In practice, not every document needs to be examined - depending on the similarity function.) The documents are presented to the user in order of their similarity to the query. It is hoped that the similarity order will have some correspondence to likelihood that the user will judge the document useful.At this point, the user has the option to examine some of the top retrieved documents, and give a judgement of whether the documents were *relevant* to their information need. If the user desires more documents, a new query representative can be automatically constructed from the old representative and some of the concepts occurring in the relevant documents. This process is known as *relevance feedback.* The new *feedback* query can then be compared against the document collection and more documents can be retrieved for the user. This process continues until the user has as many documents as they desire." BUCKLEY, p. 13, "There is only one program, retrieve, in the retrieval module, but it is a very flexible program! Retrieve runs an indexed query collection (possibly consisting of just one query) against an indexed document collection, calculating (theoretically) the similarity between each document and each query. The output is either a list of the documents which most closely match each query or a list of a given set of documents and the ranks which would be assigned them if the documents were sorted in decreasing order of similarity to the query. In an experimental research setting, this set of documents would be the known relevant documents for each query and The ranks of these relevant documents are used to evaluate the effectiveness of different retrieval methods. All of the options of retrieve are given in the retrieval specification file passed to it. These options include information like 1. Type of input query (vector, boolean tree, pnorm) 2. Retrieval method to be used (discussed below) 3. Type of output desired (just top documents, ranks of relevant documents, both) 4. The location of the input (document collection, query) and the output. 5. Etc.

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	The parameters whose values can be specified within the specification file are given reasonable default values. For most operational runs, as opposed to experimental runs, the specification file consists of a single line telling what collection is to be used. On the other hand, a complicated experimental run that, say, uses a different matching function for every type of information in the query, could run to 30 lines of parameters. The various retrieval methods form the heart of retrieve. To allow complete flexibility, there are three levels of retrieval methods: the collection access level, the vector access level, and the ctype access level." BUCKLEY, e.g., p. 26, "Two methods are defined for accessing a dictionary entry: hashing on <token,ctype> or direct access through <con>. <con> is simply the dictionary entry index that <token,ctype> hashes into when the entry is originally placed in the dictionary. Thus, a quick direct access to the token and freq values exists given the values of <con>. This is used (possibly) during retrieval and feedback operations. There may be some similarity computations based upon the token for example, experiments using fuzzy matching of dates), and the freq information is used extensively by feedback. Accessing via <token,ctype> is essential during the indexing process." BUCKLEY, e.g., pp. 35-36, "There is very little that is new about the current design of SMART. Instead, the standard information retrieval algorithms are implemented in an efficient and flexible manner. The core of the system is the set of low-level data access mechanisms that allow the rest of the system to look at stored information as sequences of tuples and to efficiently access individual tuples. The experimenter and database administrator are aided by a uniform approach to specifying parameter values. A rudimentary user interface exists that allows interactive help for many purposes. Concurrency issues in SMART are dealt with superficially, but in a manner that should be sufficient for most non-commercial uses of the system. The resulting system turns out to be quite usable for both casual and experimental purposes. A casual user can submit a query and receive back the relevant documents within a couple of seconds. The experimenter can change parameters and even algorithms with minimal effort. For example, one recent investigation into term weighting schemes involved implementing several different term weighting methods. It took 1 day (about 25 hours) to implement, run, and evaluate the methods (a total of 119 experimental runs were made). This type of investigation would previously have taken a couple of weeks. There are still a number of problems with SMART. The foremost of these is the user interface. There are clear improvements that can be made in the present interface; the need for other improvements will become

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	obvious as the system is used by more people. Another area for improvement already discussed is that of concurrency. Both the user interface and concurrency problems stem from the gradual change of SMART from an entirely experimental system to one that can be actually used. A number of the algorithms used in the implementation can be improved. In general, straight-forward algorithms were preferred. More complicated algorithms which are more efficient, especially space efficient, exist and should be implemented. The dictionary access procedures are a good example of this. The number of applications for SMART will undoubtedly increase in the next couple of years. At this time at Cornell, it is being used for 1. Searching a collection of CACM abstracts 2. Providing a help facility for UNIX. There was a lot of documentation for UNIX on-line that was inaccessible because nobody could find it. 3. Accessing a user information database (interests and hobbies as well as factual information). 4. Accessing reference databases (easy, non-factual searches of standard databases of references) 5. Searching electronic mail files (eg. the old mail to system support staff) 6. Searching archives of electronic bulletin boards (USENET news)"
NAQVI WO	NAQVI WO, p. 5-6 - "When the user requests a certain page or a certain topic of information, the relevant pages are retrieved from the computer network and shown to the user. The present invention, upon receiving the user's request, retrieves advertisements that are related to the user's action, dynamically mixes the advertisements with the content of the pages according to a particular layout, and displays the pages with focused, targeted advertisements as a part of the page. The advertisements can be made to satisfy a set of constraints requested by the advertiser, as well as the constraints of the publisher of the page, as further discussed below. The advertisement triggering mechanism of the present invention is not random or coincidental, but rather, is prespecified in advance. This specification will be referred to in this application as a contract. A contract specifies the marketing rules that link advertisements with specific queries. For example, a diet soft drink advertisement may be shown when a user asks for a page about exercising equipment. These rules are specified by advertisers implementing the concept of "focus" or "relevance" of advertisements and help the advertisers to target a specific audience. Owners of pages specify the focus content of their pages through special tags within a page. These tags are not displayed to the

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	information consumer; the tags are used to decide what advertisement can be shown when the page is requested by a consumer. The notion of a contract, however, goes well beyond just marketing rules. First of all, the advertising space on the online medium, although technically unlimited, is severely restricted by the user's attention span. Placing advertisements on the first page which constitutes the answer to a query gives the advertisements much higher probability to be seen than on later pages of the answer." NAQVI WO, p. 15-16 – "Initially, a user requests a particular piece of information through one of the clients 17. The user's 10 request is given to the WWW Daemon 16, which passes the information to the gate 15. The gate 15 at this point decides what piece of information is being requested by the user and finds other relevant pieces of information that can be commingled with what the user has asked. The user, 15 for example, might ask the system to see certain car dealers, to find a phone number of a car dealer, or to get a page of a particular magazine. The gate 15 at this point gives the request to the matching rule engine 18 ("MRE"). The purpose of the MRE 18 20 is to look at the content of the user's query and to find a category within its active index SIC 19 that matches the same type. If the user has asked for car dealers, the MRE 18 invokes its rules to determine that car dealers are part of a class of things relating to transportation. Based on 25 the classification determined by the MRE 18, the system now knows that the user is asking about cars or about transportation or about whatever else that the user might be interested in. The MRE 18 at this point then returns to the gate 15 30 the category index of the user's query. If the user had asked about cars or about family sedans or about sports cars, at this point the MRE 18 would have figured out that the user's interest falls into a certain category. Based on the user's interest category, the system then retrieves the advertisements that are relevant to that category. Thus, the purpose of the MRE 18 is to figure out what the 5 user requested, to place the user's request in a category of a classification system (i.e., the active index SIC 19) and, based on that classification, to retrieve relevant advertisements." NAQVI WO, p. 20 – "During the computation of the advertisements and all the other computations that the system of the present 5 invention performs, a logging module 22 of the system

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	performs extensive logging of what the user has asked, what advertisements were shown, how long the advertisements were shown, and which advertisements were shown to which user. The logging module 22 then stores these logs in a SYS logs 10 database 23. Various scanned reports can be produced and defined using the information in the SYS logs database 23." NAQVI WO, p. 24-25 - In using a yellow page publisher there are two broad 20 distinctions for a query. A client may be asking for a certain category of listings, or the client may be asking for a particular vendor. For example, the user could ask for car dealers in Morristown, NJ (i.e., a category of listings), or the user could ask for Morristown BMW located 25 on South Street in Morristown, NJ (i.e., a particular vendor) . The system determines which of the two types of queries or searches the user has made, as illustrated by box 32 in Fig. 2. If the query is for a certain category, the process will go to the left hand side of the flow chart 30 of Fig. 2, and if the query is for a certain vendor, the process will go to the right hand side of the flow chart of Fig. 2. The left hand side of the flow chart will be explained first. After determining the type of query, the category search engine 33 next determines which category best fits 5 the user's request. The user may have asked for "car," but the category in the yellow page provider's index may in fact say "automobile." Or, the user may have asked for "spectacles," and the category in the yellow page provider may be called "optician." The matching of these variations 10 of terms is performed by the category search engine 33." NAQVI WO, p. 26-27 – "The "focus" arrows 43 shown in Fig. 2 indicate that a certain focus is associated with each category. The query may have been directed to a category of listings or a particular vendor. In both cases there is a "focus" associated with the content of the query (e.g., automobiles, physicians, lawyers, etc.). In addition, there may be a focus associated with the geographic 5 location of the user to permit advertisers to target users in particular geographic regions. The focus process plays a major part in the present invention. No advertisements are shown unless it can be determined that the advertisements are in some way focused or related to the

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	10 content of what the user requested." NAQVI WO, p. 34 – "To start (step 80), the user enters a query. For example, the user may enter restaurants or cars as a query. The query has a focus, as described above. The system determines what the focus is and, as described above, the 25 system provides the user with a list of categories that relate to the query. For example, if the user requests restaurants, the user might be shown a list of restaurant types, such as Chinese, American, French, Italian, and so forth. The query entered by the user is evaluated by a 30 query form manager (step 81) to determine the focus of the query." Figures 1, 2, 7, 8B, 10, 11 (and associated text)
BULL	BULL at Col. 3 – "The user logs on to the system either by name, address, etc. or with some pseudoonym (or some combination). This allows the user's activity to be tracked and establishes a log of the user's activity during the current online experience (session). The user is also asked for explicit profile information concerning preferences. These preferences will be used to narrow the information retrieval." BULL at Col. 5 – "IV. Automated Profile Generation. Presently, user's profiles are collected based on explicit entry by the user, and extraction from demographic data collected from a variety of sources. In the present invention, the searching patterns of the user on the Internet are monitored. A set of software text agent profiles is developed and may be integrated with explicitly collected profile information. The automated profile generation will have both explicit profile information gathering and implicit profile information gathering capabilities. As the user uses the information aggregation and synthesization system, the pattern of information being viewed is analyzed and the user presented with search ideas as well as promotions and specials from suppliers based on these patterns." BULL at Col. 6 – "A theme or definition of a class of information (e.g., central California travel and tourism or new automobiles) is identified. Data sources (Local DataStores (500 . . . N) and Network Accessible DataStores (300 . . . N)) are screened for relevance, quality of information and appropriateness (or may be included de facto based on their title or description). These are indexed using a text indexing software tool 2981 and the indices stored on the system index DataStore 220. An initial set of Preestablished Software Text Agents are

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	defined. These agents are words or combinations of words that form a word based search pattern. This initial set of agents is relevant to the searches that might be performed against the class of information that was indexed. (i.e., Agents about automobiles would be developed to search a class of indexed information about new cars). These are stored in the Preestablished Software Text Agent DataStore 231. The System 200 uses any multipurpose computer central processing units with the ability to handle multiple inputs and outputs with the necessary hard disk storage and to run World Wide Web (WWW) or other network server software." BULL at Col. 12 – "IV. Automated Profile Generation Browsing patterns of the user are analyzed and these patterns update profiles automatically. FIG. 7 illustrates a how diagram for the Automated Profile Generation. The looking patterns of the user are monitored to develop a set of software text agent profiles that are integrated with explicitly collected profile information to assist the user in narrowing down information for future sessions as well as suggesting references, merchandise or services during the current session. This is accomplished by statistical analysis of the text stream. The searching patterns of the user on the Internet are monitored by monitoring the text stream. A set of software text agent profiles is developed and may be integrated with explicitly collected profile information. The explicit infor mation is gathered by queries to the user. The explicit and implicit data are merged to develop software text agents that support the user's future shopping sessions." BULL at Figs. 1 - 7 (and associated text)
KOHDA '96	KOHDA '96, §2.2: "Note that the agent is aware of the identity of the user and which page the user is about to read on the browser, so the advertising agent can tailor advertisements for *individuals and their current interests*. Thus it prevents the user from having to see advertisements that are unrelated to their current interests." *Id*., §3.1: "At invocation, environment information is passed to each filter program as invocation parameters. The environment information includes at least the identity of the user and information about the selected anchor. The contents of a Web page designated by the anchor are input into the pipe of filters, and the output from the pipe is

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	displayed on the browser's window as an HTML document." *Id*., §3.2: "The filter keeps in memory the contact path (URL) to the agent's Web server. When it is invoked, it forwards the invocation parameters passed from the browser to the agent's Web server, and waits for a reply."
KOHDA '853	KOHDA '853 at 38:30-35: "the advertising information server provides the advertising information automatically based upon the retrieval condition data, wherein another predetermined tag is added to the provided condition data to retrieve advertising information, and is derived from the retrieval information." *Id*. at 23:60 to 24:7: "When the user is obtaining the information about the sales conditions of the latest automobiles, the information server 100 to obtains and analyzes the retrieval information to be obtained by the user, and recognizes that the information relates to the sales conditions of the latest automobiles.... Then, the information server 102 selects the advertising information about, for example, sports cars from a large volume of advertising information relating to automobiles, and transmits the selected information to the information retrieving apparatus 100. As a result, the advertising information in which the user may be interested can be transmitted to the user, thereby enhancing the advertising effect."
Sung Myaeng and Robert Korfhage, "Integration of User Profiles: Models and Experiments in Information Retrieval," Information Processing & Management, Vol. 26, No. 6 (1990) ("MYAENG")	MYAENG, Abstract, "One difficult problem in information retrieval (IR) is the proper interpretation of user queries. It is extremely hard for users to express their information needs in a specific yet exhaustive way. In an effort to alleviate this problem, two theoretical models have been proposed to utilize user characteristics maintained in the form of a user profile. Although the idea of integrating user profiles into an IR system is intuitively appealing, and the models seem viable, no research to date has established a foundation for the roles of user profiles in such a system. Aiming at the investigation of the roles of user profiles, therefore, this study first identifies and extends various query/profile interaction models to provide a ground upon which the investigation can be undertaken. From a continuum of models characterized on the basis of interaction types, metrics, and parameters, nearly 400 models are chosen to investigate the "model space." New measures are developed based on the notion of user satisfaction/frustration. In addition, three different criteria are used to guide users in making judgments on the quality of retrieved items. Analysis of the data obtained from the experiments shows that, for a wide variety of criteria and metrics, there are always some query/profile interaction models that outperform the query alone

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	model. In addition, preferable characteristics for different criteria are identified in terms of interaction types, parameters, and metrics." MYAENG, p. 719, "The problem of retrieving information from natural language databases has been studied during the past quarter century. In traditional context, retrospective information retrieval (IR) systems are those in which a user initiates the search process by means of a set of active queries and receives a set of references to items of potential interest. One difficult problem in such systems is the transformation of the user's information need to the form of an explicit query which accurately matches the original intention, and retrieves all items of interest in the database being searched, and only those. Therefore, users often have great difficulty in using an IR system successfully regardless of the query language implementation (e.g., a vector form, a boolean expression of terms, a combination of both [1,2,3], or other retrieval models [4,5,6,7,8]). As a result, user queries are not completely satisfactory in expressing the needs in most retrieval situations. It seems natural that the output of a system based on such a query is necessarily incomplete and unsatisfactory." MYAENG, p. 720-21, "The difficulty of adequate query formulation also seems related to the subtlety of the human information seeking behavior. Widely recognized is the fact that different users usually expect different sets of items from the same query and make different relevance judgments on the same retrieved items. This means that user variability should be considered as a factor in information seeking process [121 and incorporated into the system design in some way. However, since the typical communication achieved between a user and a system is only through a set of queries and a set of retrieved items, this somewhat narrow and restricted channel inhibits the system from catering to the individual's variability in terms of information needs.It is conceivable that by maintaining characteristics of an individual user in the form of a profile, the bandwidth of the communication channel can be widened. Used as a way of improving the level of user/system communication effectiveness, the profile information is expected to allow the underlying system to understand users better and to improve the quality of a retrieval output. For instance, the profile information allows a different interpretation of a query to produce a different result, and helps the initial output to be tailored to the user's particular needs and ranked appropriately, based on the user's preference. While the use of tools such as thesauri and stemming algorithms for a priori processing of a query aims at better query interpretation by depersonalizing the query in a sense, profiles are used for the same purpose by personalizing the query [13].

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	The influence of the user profile on the quality of output depends on various factors. One important and immediate consideration is how to modulate the interaction between a query and a profile, so that reasonable quality of information is maintained. Some models of query/profile interaction have been developed and their theoretical foundations have been established [14,15,16]. Another aspect to be considered is how to maintain user profiles. Assuming that reasonably well-constructed profiles increase the system effectiveness, the nature and quality of the information in user profiles should determine the degree of improvement. Recognizing that people tend to be poor at self-description, a method of automatically and dynamically updating user profiles has been proposed to facilitate an intelligent and personalized IR system [17]. Researchers have recognized directly or indirectly the need for user modeling in various information systems. Given that information seeking is part of the problem solving process, it is difficult to study information seeking apart from a particular context or process [12]. In particular, IR system outputs need to be produced based not only on the topicality of documents and queries, but also on informativeness, often affected by such factors as novelty, understandability, the order of output presentation, and the suppression of redundancy [18], which are dependent on individual users. If an IR system is to be designed to take into account individual variability in backgrounds, interests, preferences, or other significant characteristics, it becomes obvious to develop a form of user models for individuals. Nonetheless, the possibilities for user representations have been explored only to a limited extent in experimental IR systems [191, and uncertainty about how to incorporate knowledge about users into system design is a major stumbling block in designing effective IR systems [20]. Indirect uses of the concept of user modeling in IR are found in [21] and in [22,23]. This study aims at demonstrating the superiority of IR systems with profiles, a limited form of user models, to those without profiles, and investigating the query/profile "model space" in order to develop a theory. In this paper, we first present the "model Integration of user profiles 721 space" constructed by identifying and extending the existing query/profile interaction models and then report the results of a series of experiments conducted to meet the objectives." MYAENG, p. 721, "Since this research aims at investigating the roles of user profiles in a general sense, various interaction models have been reviewed and extended to serve as a ground on which the investigation can be undertaken. Given that a profile contains information about a user's (or a group of users') interest, it may be used in three distinct ways, depending on when and how it is applied to the retrieval process. First, the interest profile can play a role in

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	preprocessing a query to produce a modified query to be used in the subsequent retrieval process. Second, the profile and the query can be considered as the same kind of entity directing the retrieval process. The third possibility is to treat the profile as a filter to postprocess outputs retrieved based on the query alone. Although each method possesses its own potential merit, the first two have been the focus of this research; they lend themselves to the theoretical framework developed to date. Even with two methods of using interest profiles, there is a continuum of models from which 396 different models have been identified and selected to investigate the "model space. " For ease of manipulation and theory development, they are organized along three different dimensions: 1. modes of query/profile interaction, 2. parameters embedded in the interaction modes, and 3. metrics used to discriminate among documents." MYAENG, p. 727, "An experimental retrieval system called PBS (profile-based system) has been developed for this research. In addition to common features such as accepting a query, searching a database, and retrieving document surrogates, it provides capabilities to handle profiles and evaluate different models based on a query and a profile. The database consists of 3703 abstracts of *Communications of the ACM* from 1958 to 1985. Some standard methods have been employed to analyze and prepare the database for the retrieval purpose. For example, a stemming algorithm was used for both database processing and query processing, and the methods of computing discrimination values and term frequency information [l] were adopted to compute weights on term-document pairs. Details of the structure and components of the PBS as well as methods used for the database process are found in 1261. Considering the large number of models being tested, the goai of the experimental design was to maximize the efficiency of available human resources and minimize the error variances, especially those which might be incurred from uncontrolled individual differences. To this end, every query was processed by all models against the document database so that systematic differences among queries, and hence among users, co&d hardly mask the actual differences among models. The experimental design had to overcome two difficulties. It is well known that sequencing of the output affects a user's judgment. That is, if document Dz is seen after document Di then the user's judgment of D2 is affected by the judgment already made on **Di .** A similar sequencing effect pertains across models: judgment of the output of a given model is affected by the judgement of prior models. To

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	minimize sequencing effects two strategies were used: the output from a11 models was merged into a single set, and the documents were presented to the user in a randomized order rather than in an order related to their presumed relevance." MYAENG, p. 728-29, "After an introductory session [26], the first non-trivial task for a subject was to construct a profile as a list of weighted terms that represent his or her real-life interests within the discipline of information and computer science and engineering. The following is an example of a profile constructed by a subject whose main interest lies in AI in general and human/computer communication interface in particular: ((artificial **7)** (intelligence **7)** (communication **10)** (interface **7)** (human **3)** (factors **3)** (network **-2)).** The last term 'network' with a weight of -2 was used to explicate her disinterest in the area of networking, which otherwise might be implied by the inclusion of the term communication. Unspecified weights defaulted to a value of 1. Subjects were then asked to formulate a query to be searched against the database in the PBS. There was a time interval of at last one day between profile construction and query formulation, which supposedly reduced any unnecessary dependence of a query on the content of a profile. Although they were encouraged to bring their own current information needs for queries to be submitted to the PBS, a pool of real questions drawn from comprehensive examinations given by the DIS at University of Pittsburgh was available as a guide to help them in conceptualizing and defining an information need and thus a query, not as a depository from which they should select an information need. When the subjects were given a randomized list of documents, they went through documents in that order and determined the quality of each document based on three criteriarelevance, pertinence, and usefulness. These fine-grained criteria were used to forcefully avoid confusion as to how the general term 'relevancy' can be interpreted, as well as to observe what aspects of 'relevancy' are affected by the use of profiles. *Relevance* was to be judged objectively based on how closely a document was related to a 'stated query', regardless of the user's expectation or intention. *Pertinence,* in contrast, was to be judged on how Integration of user profiles 729 much a document satisfied the current information need or desire that was supposed to be reflected in the query. Obviously this is a more subjective measure in which pragmatics of documents and queries play an important role. If the user's intention is not well embedded in a query, for example, a retrieved document could be relevant but not pertinent. Use***fulness,*** finally, was related to the user's

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	short-term and/or long-term interests, regardless of the current need embedded in the query. Thus a pertinent document is expected to be more or less useful, whereas a useful document may not be pertinent at all." MYAENG, p. 732-34, "Another aspect of the models is examined by means of user assessments on the general usefulness of retrieved documents. As summarized in Tables 6 and 7, two prominent rends are observed across different metric groups (L, is excluded because of its anomaly,as indicated earlier.) First, almost all profile-based models appear to be better at retrieving useful documents than M4, regardless of measures and metrics. This experimental evidence that a profile alone retrieves more useful documents than a query alone, which is supposed to represent more direct and short-term information needs, seems counterintuitive; but it supports the premise that it is difficult to formulate a query that will reject useless but relevant documents. Thus, if an IR system is designed to meet a user's general interests as well as temporary needs, a query alone does not seem sufficient to satisfy both demands. Second, although a profile alone can achieve relatively high performance in usefulness, it does not necessarily follow that the existence of query information always reduces satisfaction (or increases frustration). Instead, it seems essential for models to include and be guided by some query information in their retrieval process. As shown in the tables, the models in the Q' & ***P*** category in the ***Lz*** and the inverse cosine metric groups always per-form better than the profile-alone model when *W,* is 0.5. In other words, unless the modified query is very close to the profile, documents retrieved by a well-balanced retrieval shell are more useful than those retrieved by a profile or a query alone, or by a shell distorted by emphasis on the query or profile." MYAENG, p. 736-38, "There is little doubt about the importance and potential advantages of integrating user information into underlying systems. Especially in information retrieval, the difficulty of interpreting user queries, which are often incomplete and inaccurate, necessitates the adaptation of a system to their characteristics. This research aims at investigating the idea of integrating user interests in the form of user profile, and establishing a foundation that wili justify further development in this direction. The analysis of the experimental results has demonstrated the superiority of profilebased models over a wide range of criteria and metrics used for evaluation; there were always some models that outperformed the query alone model. Although overall effectiveness was improved for those better models, a dual phenomenon similar to the recall/precision relationship, which

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	often characterizes information retrieval, also occurred; user satisfaction evaluated in terms of pertinence appeared to be increased by integrating a profile, but user frustration was also increased. However, the integration of user profile improved use fulness in both satisfaction and frustration. It was particularly noteworthy that for usefulness almost all profile-based models outperformed the query alone model. Relevance was used as a device that isolated the subjective assessments related to the user's intention from the objective ones. In spite of the theoretical and intuitive appeal of Cassini oval over ellipsoidal models, it was difficult to prove the superiority of the former in general. Instead, Cassini oval models appeared to be attractive in the ***L2*** metric group, whereas ellipsoidal models seemed better in the inverse cosine metric group. Although the results support the main hypothesis and make it possible to select promising models for more detailed study, the strong regularity in connection with different parameters and different types of interactions also suggests further investigation of some aspects of the model space. There are numerous possible extensions and improvements to be made in the future. They can be categorized into three groups: methodologica1 improvements, extensions in query/profile interactions, and exploration of using profiling tools. In retrospect, the limitation of resources precluded possibilities of strengthening the validity of the experimental results; more human resources could have extended the cutoff point imposed on the number of documents reviewed by subjects. In addition, by using multiple, heterogeneous databases and subjects with diverse background, the query interpretation problem is more likely to surface, and it will be possible to investigate the roles of user profiles in more realistic and interesting situations. While there is room for improvement in terms of more realistic query/profile interaction models, it seems necessary to connect different user groups with different features of models. This will make it possible to map different interaction models to different groups of users and to develop a system that will adapt its query processing to user characteristics. On the other hand, it would also be interesting to see relationships between models and the proximity of a query and a profile in the document space. The third area of research is concerned with enhancing the quality of user profiles by means of profiling tools. Two approaches have been explored and are to be developed further. One is to update user profiles automatically based on the interaction with users. In this way, more accurate and up-to-date user information is expected to be maintained [171. Another approach is based on the finding in psychology that people are better at recognition than at recall performance [28]. With relationships among terms available in a given database, the task of formulating a profile is expected to become less difficult and more effective in that

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	the task becomes a recognition process rather than a recall [29].”
Sung Myaeng and Robert Korfhage, “Towards an Intelligent and Personalized Retrieval System” (“MYAENG II”)	MYAENG II, e.g., Abstract, “Development of an information retrieval system that can be personalized to each user requires maintaining and continually updating an interest profile for each individual user. Since people tend to be poor at self-description, it is suggested that profile development and maintenance is an area in which machine learning and knowledge base techniques can be profitably employed. This paper presents a model for such an application of AI techniques.” MYAENG II, e.g., 121-22, “In the context of conventional information retrieval systems (IRS), the search process is initiated and completed by a set of queries from a user. Each query, usually in the form of a vector or Boolean expression, consists of a set of key terms to be matched with the contents of relevant items. To improve the retrieval effectiveness, modification of the user query through the application of user feedback has been studied with some successful results [13]. There have also been systems, called selective dissemination of information systems (SDI), that selectively distribute incoming information to appropriate users based on user interest profile. However, only recently has a set of models been proposed that effectively combines the two different modes of the systems, thereby attempting to enhance the quality of retrieved items [3,8,9]. One of the major stumbling blocks in the conventional IRS is the problem of formulating a query which accurately matches the user's needs and the contents of potentially relevant items[1,12]. Unfortunately, different users expect different sets of items from the same query and make different relevance judgements on the same retrieved items, directly related to their individual needs. But the conventional retrieval system disregards the individual user's characteristics and the fact that diverse users have different perceptions of the underlying system. While it is natural that a user perceives the system in the light of his or her experience and needs, both the restricted structure of a query and the nature of the conventional system itself make this perception unavailable to the system. We believe that knowledge captured in a user profile embedded in the system will play an essential role in making a personalized system. One effect can be to retrieve a broader range of items, some of which would never be brought to the user's attention on the basis of the query alone. People prefer a librarian who can surprisingly provide information not explicitly requested but judged to be important to them. Profile information will also help the system tailor the retrieved items to a particular user's needs and rank them appropriately. Again, a friendly and intelligent librarian can eliminate some information which is not of the user's concern but would have been retrieved by a novice librarian who had to

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	relyeffective from the user's point of view and cooperative with the user in terms of achieving his or her goal. Since we never guarantee that a user's characteristics and environment stay the same over time, it becomes necessary for the system to dynamically change the knowledge kept in the profile. Upon learning various aspects of a user's information needs and behavior, the system will use this information to respond in an intelligent and friendly manner. We elaborate on the concept of a dynamic user profile (DUP) with a learning strategy for modeling the DUP and discuss the heuristics and models that utilize the DUP. The next section shows how the system is configured as a learning system. Our main emphasis in this paper is in Section 3 where a strategy for learning users' interests and other characteristics is discussed. The rest of paper, showing the representation of the DUP, addresses the issues involved in the utilization of the DUP." MYAENG II, e.g., 122-23, "We have developed a full retrieval system for the purpose of testing the validity and the sensitivity of the theoretical models with static profiles [8]. This base system can be modified to reflect the functions of DUP. Since our system should conduct learning, it is not surprising that its configuration is well projected on the synthesized model of learning systems proposed by Smith et al [14]. We adopt terms used in this model to show the function of each component in the system. The proposed model consists of six functional components: performance element, instance selector, critic, learning element, blackboard, and world model. The performance element uses the learned information to perform the stated task. The instance selector selects training instances from the environment of the learning system whereas the critic analyzes the current abilities of the performance element. The learning element, which is an essence of the learning system, is an interface between the critic and the performance element, responsible for translating the abstract recommendations of the critic into specific changes in rules or parameters used by the performance element. The blackboard is a global database used as a system communication means. It holds two types of informarion: the information in the knowledge base and the temporary information used by the the learning system components. Finally, the world model contains the fixed conceptual framework within which the system operates. Documents in the database are assumed to contain key words with associated weights. These weights can be assigned on a frequency-related basis, as is quite standard in information retrieval. While it is possible to adjust the weights dynamically on the basis of user response, for present purposes we assume the weights are fixed. In our system, as shown in the Fig.l, the query processor/responder is considered as a learning system

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	performance element. It is the nucleus in conventional systems and, based on a query, actually retrieves items, providing the user with a set of items ranked on the basis of the weights in the query and items in the database. In our system design, this component also integrate the user-dependent information from the profile. The profile controller serves mainly as a learning element with some additional functions taken care of by an instance selector and a critic. This component observes the interactions between the system and the user, selects useful instances, and makes specific changes to the profile and possibly the query in such a way that the system's performance will eventually approach the desired level. In the context of an IRS, the role of a critic is performed primarily by human users although the statistics gathered through operation of the system can be of importance. Currently, the user's relevance feedback on the retrieved items is the only valuable information from the critic. Feedback information from each user is interpreted using the profile, and therefore part of the critic's role is transferred to the profile controller." MYAENG II, e.g., 123, "Our ultimate purpose in having the learning element is to build an IRS that incorporates an individual user's characteristics as much as possible, in an automatic and time-dependent manner. Although this can only be achieved by monitoring the user's interaction with the system, initial dialogue with each user is expected to play an important role in obtaining skeletal information that will provide a direction to the system's inference. Without this kind of information available, the uncertainty we have to deal with is so high that, either we could never be sure that the system is on the right track in terms of learning, or the usability of DUP would be limited. This difficulty will arise especially with users whose background or interests lie in diverse fields and whose queries are not consistent with respect to a single field of interest." MYAENG II, e.g., 123, "In addition to the need to automatically capture the user's interest, knowing information regarding individual user's habits seems also necessary. Typically the following are recognized as learnable characteristics: - Reading habits, i.e, preference on the kind of a document (e.g. theoretical vs. practical) - Perception on feedback - Preference on either high recall or high precision The reading habits can be obtained by simply accumulating statistics. Given a multidimensional space on which each periodical can be plotted based on the general trend of its difficulty or practicality, for example, the learning element of the system extracts the user's

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	preference along each dimension by observing his feedback on each document retrieved. If he assesses a document in JACM as pertinent and/or useful, for instance, the scale about his reading habit should move toward a more theoretical and difficult document group. The initial default value can be assigned based on each user's background information which is expected to be given to the system explicitly. It is to say that the higher education a user has received, the more theoretical and difficult documents he would tend to read. On the other hand, the more he is related to the industry, the more he might prefer a practical document to theoretical one. A user's perception on feedback seems to have an implication for any learning strategies. Since feedback, as a critic, plays an essential role in learning, a user's general habits on how to assess a retrieved document along different criteria must be taken into account so that any individual bias can be eliminated. It is expected that a conservative user will tend to rate a smaller number of documents positively whereas a more liberal user will rate a larger number of documents positively. Therefore, the history on how a user has evaluated retrieved documents will be a useful source of information. This implication not only facilitates unbiased learning of a user's characteristics and interest but also makes it possible to measure system performance more accurately, taking the bias into account."
K. Asai, ed. 1995. Fuzzy Systems for Information Processing (1st ed.) ("ASAI")	ASAI, e.g., at iv, "Fuzzy theory was first used in engineering applications in the fields of control and information, with many practical applications and product being brought out, and following these there was progress in applications in medicine, management, sociology, natural sciences, psychology and the like. In every case, approximate models were constructed of the general intelligent information processing of human beings using fuzzy theory, and using these either artificial intelligence was created or there were attempts to explain problems or phenomena that touch mankind. When these models are constructed, human knowledge, experience, consciousness and opinions are expressed in natural language, and hearings and surveys are used. This language is quantified using membership functions and the information processed, but in most of these cases, computers are used. Because of this, fuzzy theory has made a contribution to the extension of conventional computers, which are based on numbers, to the handling of natural human language." ASAI,e.g., at 173, "In the chapters up to now, we have discussed the current state of hardware and software for fuzzy information processing. In this chapter, we will discuss fuzzy computers as systems which extend these and are fuzzy information processing computers. Fuzzy theory, which is the foundation for these fuzzy

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	computers, is a means for mathematical quantification of the meaning of human language, and it is technology indispensable for the development of human friendly computers."
Hua Li & Madan Gupta (Eds.), Fuzzy Logic and Intelligent Systems (1995) ("LI")	LI, e.g., Table of Contents, Chapter Abstracts, Back Cover, "Fuzzy logic offers attractive features for solving many real engineering problems. As many people have realized, the major obstacles in building a real intelligent machine are dealing with 5 random disturbances, processing large amounts of imprecise data, interacting with a dyn~imically changing environment, and 5 coping with uncertainty. The use of heural-fuzzy techniques can help solve many of these problems. *Fuzzy Logic and Intelligent Systems* reflects the most recent developments in neural networks and fuzzy logic and their applications in intelligent systems. In addition, the balance between theoretical work and applications makes this book not only suitable for researchers and engineers, but for graduate students as well."

Table B6: Fee Records

To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B6, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B6 references listed below because: it would have yielded predictable results; using the techniques of the Table B6 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B6 references to improve primary or obviousness references would have yielded predictable results.

Reference	Disclosure
U.S. Patent No. 6,119,101 ("PECKOVER")	*See*, *e.g.*, PECKOVER, 10:20-29: A practical and viable electronic marketplace involves the exchange of market information, as well as the more obvious trading for goods and services. From a consumer's point of view, shopping is a means of gathering data about goods and services offered. This data is used by the consumer to compare and rank offerings and to make decisions about purchases. From a provider's point of view, consumer shopping is an opportunity to gather data about consumer needs and interests. This data is used by the provider to improve product and service offerings. PECKOVER, 11:16-19: Consumers have a standardized mechanism for receiving considerations from advertisers in exchange for allowing delivery of advertisements and other provider information. PECKOVER, 11:61-62: Providers can provide a consideration to consumers for viewing advertisements and other notices. PECKOVER, 21:5-11: A Consideration Account function 67 maintains a "consideration" account for the user. When the user earns a consideration by, for example, viewing a directly delivered advertisement or message, or completing a marketing survey, the consideration amount is credited to Consideration Account 67. The account is denominated in a convertible exchange media such as electronic cash tokens. PECKOVER, 11:44-46: Advertising may have higher success rates since the targeted consumers have expressed an interest in the product.

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	PECKOVER, 11:54-64: The mechanism for quantifying consumer demand uses data based on individual buying decisions, not merely aggregate or estimated data. Providers can quantify demand in real-time. Providers have a mechanism for discovering the reasons for lost sales. Providers can provide a consideration to consumers for viewing advertisements and other notices. Providers can receive feedback in real-time about the success of promotions. PECKOVER, 20:13-19: A Decision Agent Archive 80 stores and accesses Decision Agents 14 that are expired, i.e., agents that have completed their tasks, whether successfully or not. For example, if a Demand Agent 16 needs more detailed data about a query than is stored in a Query Logger 136 of a Market 18, it can access the details of the related Decision Agent 14 through Decision Agent Archive 80. PECKOVER, 18:40-53: Referring to FIG. 4A, a Personal Agent 12 or 13 comprises the functional components of: a Unique identification (ID) 50, an Owner Manager 52, a Preference Manager 54, a Delivery Manager 56, an Individual Firewall 58, a Decision Agent Manager 60, a Demand Agent Manager 62, an Ad Manager 64, a Target Manager 66, and a Consideration Account 67. PECKOVER, 29:49-67: The Decision Agent's Response Manager 108 collects references (step 326) to the matching ads found by Basic Search Engine. The Response Manager also sends a response to the Personal Agent that placed the advertisement (if the placer so desired and marked in the ad), providing real-time feedback to the placer. Immediate Agents then removes the Decision Agent from its internal queue and gives the Decision Agent back to Active Decision Agent Manager 152 (step 328).
U.S. Patent No. 5,105,184 ("PIRANI")	PIRANI, 3:1-7: This new use can also provide to a small or a new software developer much needed help to launch a software project. By convincing the viability of the project to a commercial

Reference	Disclosure
	company which advertise widely to sell their products, the software developer can receive revenue from such company in exchange for the right to advertise in the new software.
U.S. Patent No. 5,710,884 ("DEDRICK PATENT")	DEDRICK PATENT, 10:8-21: Thus, the metering server 14 contains an account balance, a user identification (such as an account number or a name), and may also include information indicating which information the user subscribes to. User profile data requested by metering server 14 from the client systems 12 is stored in user profile database 30, along with user profile data corresponding to electronic information being consumed by an end user. As discussed above, this user profile data does not specifically identify the individual end user. The account balance and user identification is contained in the transaction database 32. Therefore, the only information which is contained in the metering server which identifies an individual end user is that user's identification and an account balance, thereby maintaining the user's privacy. DEDRICK PATENT, 10:22-29: In one embodiment, the transaction database 32 also includes, in the log of a transaction, an indicator of the electronic information consumed. By maintaining such a log, the metering server 14 is able to summarize an end user's consumption for that user's review. For example, the metering server 14 may generate a monthly statement summarizing how much money the end user spent consuming electronic information. DEDRICK PATENT, 10:45-61: If the end user is not a subscriber, the metering process 36 calculates the price of the requested information and accesses the transaction database to subtract the price from the balance of the end user's account. The balance is initially established when the end user requests an account in the system. The balance may be specified by the end user and approved by the clearinghouse server. Approval may be based upon a credit card nmnber or bank account number provided by the end user. The balance may be updated by the clearinghouse server when the end user pays his bill. If the balance minus price is greater than zero, the metering process 36 retrieves the information and sends the same to the end user. If the balance minus price is less than zero, the metering process 36 does not retrieve the information and may send a message to the end user that the balance has been exceeded. The initial balance of the account is typically set by a credit limit. DEDRICK PATENT, 11:35-55:

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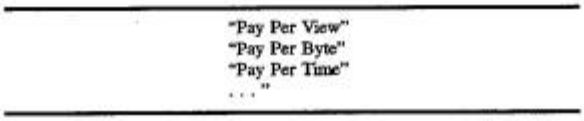
	The software tools include "cost type" and "cost value" fields that accompany each unit of electronic information. The cost type and cost value can be utilized to calculate a price that can be either credited to or debited from the end users. The fields allow the publisher/advertiser 18 to establish the manner in which the information will be charged to the end user's account. One example of a cost type is "pay per view" payment method, wherein the end user pays an associated cost each time the user consumes a unit of information. This cost may also be proportional to the amount consumed, so that the cost is higher for consuming the entire unit infonnation rather than a smallm portion, such as the abstract. This type of payment may be desirable for information which is typically seldom consumed by the end user. Other cost types include payment on a per byte or word of information viewed by the end user, or payment for the period of time that the user consumes the information. These cost types may be desirable when the end user is accessing a database that contains, for example, corporate or individual credit information, or the drawings and text of a patent database. DEDRICK PATENT, 12:1-26:  "Pay Per View" "Pay Per Byte" "Pay Per Time" . . . " The cost value is provided in a different field and may be embodied by a simple data entry by the publisher. For example, if the pay per view cost type is selected, the publisher may enter "$1.00". If the pay per byte cost type is selected, the publisher may enter "$0.10 per Mbyte", and so forth and so on. The tools may also allow the publisher to associate a plurality of cost types and corresponding cost values with the same content of information. In addition to debit models, the software tools may also allow the publisher/advertiser 18 to build a credit model which credits the end user's account each time the user views a unit of information. This model is particularly useful for advertisers who may want to credit the end user's account to encourage the user to consume an advertisement. By way of example, the credit model can be used in association with the yellow pages content database. The publisher/advertiser may also be provided with a field that allows the publisher/advertiser to select between credit and debit. DEDRICK PATENT, 12:43-54: The publisher/advertiser is also provided with an account number so that the charges associated with the consumption of information provided by the publisher/advertiser is charged to the account number of the publisher/advertiser. For example, a publisher may provide a unit of information which is subsequently consumed by the end user. The charge incurred

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	by the end user is then debited against the user's account and credited to the publisher's account. By way of another example, the end user may view an advertisement, wherein the charge associated with the unit of information viewed is credited to the end user's account and debited to the advertiser's account. DEDRICK PATENT, 14:19-37: As shown in FIG. 4, each clearinghouse server 20 contains a demographic database 50, a transaction database 52, billing process 54 and a session manager 56. The demographic database 50 contains user profile data collected from the metering servers 14. The transaction database 52 contains billing information relating to the end users. The transaction database 52 also contains data relating to the accounts of the publishers/advertisers 18. The billing process 54 can access and process data within the databases 50 and 52. For example, when an end user consumes a unit of electronic information, data relating to the consumption of the electronic information may be sent from the billing server 14 to the clearinghouse server 20. The session manager 56 instructs the billing process 54 to charge the publisher/advertiser account within the transaction database 52. The clearinghouse server 20 may also receive user profile data from the metering servers 14 which is subsequently stored by the billing process 54 in the demographic database 50. DEDRICK PATENT, 15:7-25: In one embodiment, the billing process 54 also generates bills for the end users and the publishers/advertisers. Upon a request from the publisher/advertiser, the session manager 56 instructs the billing process 54 to generate a bill. The billing process 54 retrieves the billing information from the transaction database 52 and generates a bill. The bill may be electronically transferred to the end user or sent through a conventional mail service. The billing process 54 may also generate bills that are transmitted to the publishers advertisers. The bill may be generated periodically in accordance with header information that accompanies the content that is generated by a publisher/advertiser. Alternatively, the clearinghouse server 20 may utilize consumer credit cards and or bank accounts for billing. For example, amounts owed by the consumer for consumption of electronic content and amounts due the consumer for consumption of electronic advertisements may be charged or credited, respectively, to the consumer's credit card or bank account. DEDRICK PATENT, 17:13-26:

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	The metering server 14 in conjunction with the client activity monitor 24 of the client system may monitor the end user's consumption of electronic advertising information and provide user profile data to the metering server 14 relating to the end user. For example, the metering process 36 may monitor the amount of time an end user spends viewing an electronic advertisement, or which particular advertisement or page of the advertisement was of interest to the end user. The metering process 36 may further monitor what answers were provided by the user, or paths taken by the user in an interactive model, along with follow-up requests initiated by the end user in an interactive model. This information is then forwarded to the clearinghouse server 20 for compilation.
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, 3:1-4: And, it is still a further object of this invention to provide a method for presenting advertising in an interactive service which method enables the user to transactionally interact with the advertising presented. FILEPP, 3:44-67: Also in preferred form, the method includes step for maintaining an advertising object identification queue, and an advertising object store that are replenished based on predetermined criteria as advertising is called for association and presentation with applications. In accordance with the method, as applications are executed at the reception system, the application objects provide generalized calls for advertising. The application calls for advertising are subsequently forwarded to the reception system advertising queue management facility which, in turn supplies an identification of advertising who's selection has been individualized to the user based on, as noted, the user's prior interaction history with the service, demographics and local. Thereafter, the object identification for the advertising is passed to the object store to determine if the object is available at the reception system. In preferred fonn, ifthe advertising object is not available at the reception system, a sequence of alternative advertising object identifications can be provided which if also are unavailable at the reception system will resulting in an advertising object being requested from the network. In this way, advertising of interest can be targeted to the user and secured in time-efficient manner to increase the likelihood of user interest and avoid service distraction. FILEPP, 7:27-32: In preferred form, network 10 provides information, advertising and transaction processing services for a large

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	number of users simultaneously accessing the network via the public switched telephone network (PSTN), broadcast, and/or other media with their RS 400 units. Services available to the user include display of information such as movie reviews, the latest news, airlines reservations, the purchase of items such as retail merchandise and groceries, and quotes and buy/sell orders for stocks and bonds. Network 10 provides an environment in which a user, via RS 400 establishes a session with the network and accesses a large number of services. These services are specifically constructed applications which as noted are partitioned so they may be distributed without undue transmission time, and may be processed and selectively stored on a user's RS 400 unit.
FLYNN	*See e.g.*, FLYNN, p. 1 ("Once they begin running ads on various sites, advertisers analyze the number of times somebody clicked on their ad, then change the placement or timing of their ad to try and improve the 'click rate.'")
U.S. Patent Nos. 5,948,061 ("MERRIMAN I") and 7,844,488 ("MERRIMAN II")	*See*, *e.g.*, MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 2:59-3:4: The basic architecture of the network 10 comprises at least one affiliate web site 12, an advertisement (ad) server web site 19 and one or more individual advertiser's web sites 18. Affiliates are one or more entities that generally for a fee contract with the entity providing the advertisement server permit third party advertisements to be displayed on their web sites. When a user using a browser accesses or "visits" a web site of an affiliate, an advertisement provided by the advertisement server 19 will be superimposed on the display of the affiliate's web page displayed by the user's browser. Examples of appropriate affiliates include locator services, service providers, and entities that have popular web sites such as museums, movie studios, etc. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:5-23: The basic operation of the system is as follows in the preferred embodiment. When a user browsing on the Internet accesses an affiliate's web site 12, the user's browser generates an HTTP message 20 to get the information for the desired web page. The affiliate's web site in response to the message 20 transmits one or more messages back 22 containing the information to be displayed by the user's browser. In addition, an advertising server process 19 will provide additional information comprising one or more objects such as banner advertisements to be displayed with the information provided from the affiliate web site. Normally, the computers supporting

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	the browser, the affiliate web site and the advertising server process will be at entirely different nodes on the Internet. Upon clicking through or otherwise selecting the advertisement object, which may be an image such as an advertisement banner, an icon, or a video or an audio clip, the browser ends up being connected to the advertiser's server or web site 18 for that advertisement object. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:24-63: In FIG. 1, a user operates a web browser, such as Netscape or Microsoft Internet Explorer, on a computer or PDA or other Internet capable device 16 to generate through the hypertext transfer protocol (HTTP) 14 a request 20 to any one of preferably a plurality of affiliate web sites 12. The affiliate web site sends one or more messages back 22 using the same protocol. Those messages 22 preferably contain all of the information available at the particular web site 12 for the requested page to be displayed by the user's browser 16 except for one or more advertising objects such as banner advertisements. These objects preferably do not reside on the affiliate's web server. Instead, the affiliate's web server sends back a link including an IP address for a node running an advertiser server process 19 as well as information about the page on which the advertisement will be displayed. The link by way of example may be a hypertext markup language (HTML) <img> tag, referring to, for example, an inline image such as a banner. The user's browser 16 then transmits a message 23 using the received IP address to access such an object indicated by the HTML tag from the advertisement server 19. Included in each message 23 typically to the advertising server 19 are: the user's IP address, (ii) a cookie if the browser 16 is cookie enabled and stores cookie information, (iii) a substring key indicating the page in which the advertisement to be provided from the server is to be embedded, and (iv) MIME header information indicating the browser type and version, the operating system of the computer on which the browser is operating and the proxy server type. Upon receiving the request in the message 23, the advertising server process 19 determines which advertisement or other object to provide to user's browser and transmits the messages 24 containing the object such as a banner advertisement to the user's browser 16 using the HTTP protocol. Preferably contained within the HTTP message is a unique identifier for the advertiser's web page appropriate for the advertisement. That advertisement object is then displayed on the image created by the web user's

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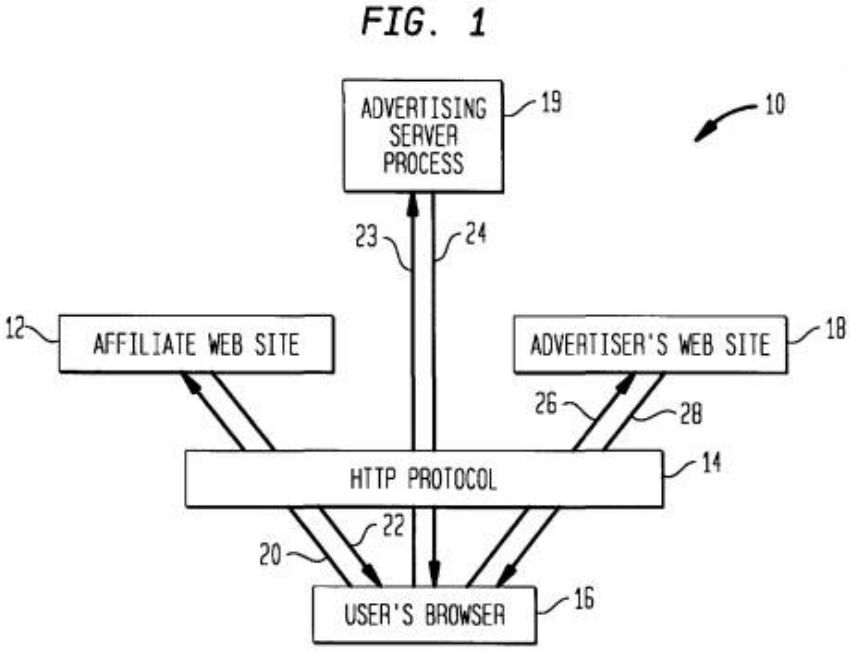
	browser as a composite of the received affiliate's web page plus the object transmitted back by the advertising web server. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), Fig. 1:  MERRIMAN II (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 9:38-41: 2. The method of claim 1, wherein selecting an advertisement based upon stored information about said user node comprises selecting an advertisement based upon a prior content request sent from said user node to an affiliate node.
ADSERVER 2.0	*See e.g.*, ADSERVER 2.0, p. 2 ("By tracking viewer response to advertising, NetGravity reports allow agencies and advertisers to quickly test the effectiveness of their campaigns.")
ADSERVER 2.0; AD REPORTING	*See e.g.*, ADSERVER 2.0; AD REPORTING, p. 1 ("Performance is indicated by the number of ad impressions and click-throughs for ads and advertisers."); *id.* (describing that reports are provided on impressions/clicks.); *id.* ("AdServer supports *premium* ad types, the ability to test different ads in real-time, and the delivery of reliable performance reports."); *id.*, p. 2 ("By tracking viewer response to advertising, NetGravity reports allow agencies and advertisers to quickly test the effectiveness of their campaigns. Such rapid and reliable feedback empowers advertisers with the information they need to maximize their advertising efforts.")
NETGRAVITY ADSERVER HELP	*See e.g.*, NETGRAVITY ADSERVER HELP, Installing the Redirection Utility ("When a visitor to your site clicks on an ad, AdServer redirects them to the advertiser's site. Before they go there, however,

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	AdServer must record that they clicked on the ad."); *see also id.*, AdSpace Specs, Working with Ads; *id.*, AdServer Tools Reference ("RepAd – generates ad reports.")
ABOUT NETGRAVITY ADSERVER	*See e.g.*, ABOUT NETGRAVITY ADSERVER, Getting Started, p. 1 ("AdServer records when the ad is shown, and also when it is clicked. You can then generate reports that show ad and location performance."); *id.*, p. 3: "Instead of immediately sending a user to the advertiser's site, all ad links automatically execute the redir program. This is a CGI program that first records the user's click before redirecting the user's browser to the advertiser's site."); *id.*, Serving Ads Dynamically, p. 2 (". . . 8. The visitor views the page and the ad. When they click on the ad, they issue a call to the redirect utility on your content server. 9. The redirect utility records the user's click in the AdServer logs, then sends the user to the advertiser's site."); *id.*, Serving Ads Dynamically, p. 5 ("When AdServer serves an ad, it records in the *AdServer_log* file that the ad has been shown. Similarly, the redirect utility records that an ad was clicked by writing to the *AdServer_log*. . . . During its normal operation, AdServer writes to the *AdServer_log* file each time an ad is requested, and each time the redirect utility is notified that an ad has been clicked."); *id.*, Serving Ads Dynamically, p. 6 ("The *parselog* tool reads the *AdServer_log* file, extracts statistics about which ads received impressions and clicks, and writes that information to the AdServer database."); *id.*, AdServer Tools, p. 2: "*Parselog* reads your content server's log file and writes usage statistics into the AdServer database. AdServer uses this information to measure the number of impressions and clicks an ad has received."); *see also id.*, p. 5 (same), p. 6 (same).); *id.*, Internal Specifications, p. 9 (listing logging "the number of clicks received"), p. 11 (listing that the system records that a "dynamically served ad received an impression" and that a "dynamically served ad received a click"); *id.*, NGAPI Function Reference, p. 22 (noting that the ID of the ad that is clicked is logged), p. 23 ("records that an ad was clicked"), p. 37 (records "the number of clicks received"), p. 42 (same)
NETGRAVITY ADSERVER CHOSEN BY GNN	*See e.g.,* NETGRAVITY ADSERVER CHOSEN: NetGravity, the leader in Internet advertising technology, today announced GNN, a service of America Online Inc., will take advantage of the NetGravity AdServer technology for WebCrawler, its Internet search service. This allows GNN to better manage its WebCrawler advertising inventory, dynamically deliver targeted ads, measure advertising results in real time, and automate ad sales efforts. As part of this agreement, GNN becomes the first company to capitalize on the alliance between NetGravity and I/Pro (Internet Profiles Corporation), the leading Internet measurement firm. This

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	builds on GNN's longstanding relationship with I/Pro and enhances its ability to provide the most comprehensive reports on advertising effectiveness and to deliver them to advertisers far faster than sites not using the NetGravity technology. NetGravity was founded to enable Web publishers to retain complete control of their online advertising management. Unlike other companies which merely provide services for ad placement and scheduling, NetGravity offers a unique approach, providing the software and technology which empowers publishers to manage advertising inventory, dynamically target ads to the right audiences, measure results in real time, and automate sales efforts. Now, through NetGravity's relationship with I/Pro, Web sites will be able to develop and place advertising much more effectively using management tools with demographic profiles for targeted ad placement. Sites using the NetGravity AdServer are able to retain all advertising revenues and eliminate the risks of dependency on external services such as downtime, increasing costs, unplanned maintenance and unpredictable management.
"For More About Tide, Click Here" by Zachary Schiller, *Bloomberg Businessweek*, June 2, 1996. ("SCHILLER")	*See e.g.*, SCHILLER: "In a test arrangement, instead of compensating online companies for each consumer who sees a P&G ad, P&G will pay only when the online customer 'clicks' from that ad to one of P&G's own Web sites. This means that Yahoo!, a major online provider that agreed to P&G's terms, won't make any money if a customer sees a spot promoting P&G's SunnyDelight juice drink unless the customer moves on to its Sunny Delight Web site, which has a game with various prizes."
DEDRICK 1994	*See e.g.*, DEDRICK 1994, p. 57 ("Soon however, advertisers will be more attracted to a distribution medium that . . . provides proof back to the advertiser showing aggregate consumption statistics for an advertisement"); *id.* (p. 57: "The advertisers will pay for the storage and distribution services of the yellow pages, based upon the quality of the targeted consumers currently served by the yellow pages.");*id.*, p. 59 ("Paying for usage of the electronic yellow pages may follow a variety of models. One likely model consists of the advertiser paying the electronic yellow pages service provider a fee for storing and distributing each advertisement for a specified period of time."); *id.*, p. 61 ("Electronic content metering capabilities must exist within the servers that communicate with the client consumption devices. This will enable charging consumers for electronic content consumption and to pay the same consumer rebates for the consumption of electronic advertisements. . . . Some metering methodologies that may be important are pay per view of object (same cost each time or a decreasing cost based upon number of views), pay per byte (or other

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	designated unit of content),pay per second (or other designated unit of time) . . .”); *id.*, p. 62: “Specifically, the currently suggested attribute extension list is as follows: . . . Metering methodology attributes (includes debit and credit capabilities), Metering methodology pricing attributes”)
DEDRICK 1995	*See e.g.*, DEDRICK 1995, p. 42 (“provides statistics to advertisers showing aggregate consumption for an advertisement.”); *id.* (“Advertisers will pay for storage and distribution services based on the quality of the targeted consumers currently served by the yellow pages.”); *id.*, p. 44 ("Paying for use of the electronic Yellow Pages could follow a variety of models. One likely model consists of the advertiser paying the electronic Yellow Pages service provider a fee for storing and distributing each ad for a specified period of time.")
GALLAGHER	*See e.g.,* GALLAGHER, p. 7 (“Profiles accommodate the possibility that some users within the region of acceptability may be more desirable to an advertiser than others. Hen, a distance metric capturing the relative desirability of a user with respect to an ideal profile is possible. . . . recognizing a notion of distance allows the possibility for advertisers to ‘bid’ for the opportunity to display an advertisement to a user. Such bids would be determined by the advertiser, based on variables such as the user profile . . . and advertising budget.”)*; id.*, p. 8 (“When bids are received, they can be ranked. The banner advertisement corresponding to the winning bid is displayed to the user. Other advertisements may be displayed according to their ranking if there is an opportunity to display additional advertisements (e.g., if the user engages in several search or browse activities during a session).”)
NETGRAVITY ADSERVER CHOSEN BY GNN	NETGRAVITY ADSERVER CHOSEN BY GNN (NetGravity, the leader in Internet advertising technology, today announced GNN, a service of America Online Inc., will take advantage of the NetGravity AdServer technology for WebCrawler. . . . This allows GNN to . . . measure advertising results in real time . . .”)

Table B7: Databases, Clients, Servers

To the extent the references addressed in claim charts A-1 to A-39 does not disclose the limitations identified in each chart citing Table B7, one of ordinary skill in the art would be motivated to combine the references addressed in claim charts A-1 to A-39 with any one or more of the Table B7 references listed below because: it would have yielded predictable results; using the techniques of the Table B7 references would have improved the primary or obviousness references in the same way; and applying the techniques of the Table B7 references to improve primary or obviousness references would have yielded predictable results.

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PECKOVER	*See*, *e.g.*, PECKOVER, 17:6-10: Various specialized agents are described in conjunction with other Figures. Agents and other components operating in Agent Marketplace 28 have access to a Product Database (Product DB or PDB) 32. PECKOVER, 23:17-20: A Product Listing function 124 maintains a list of the products that can be advertised in this market. Each product references detailed product data that is kept in a Product Database (PDB) 32 described in conjunction with FIG. 9A. PECKOVER, 23:43-47:61: An Active Ads function 146 maintains the ads that are currently active. As each new add is accepted by Active Ads function 146, an Active Decision Agent Manager 152 (see below) is notified so that pending searches can be matched against the new advertisement. PECKOVER, 25:10-36: A Remote Database Adaptor 140 provides communication and session management services to connect to a database (a "remote database", not shown) belonging to a manufacturer or a provider. Remote Database Adaptor 140 also provides translation services to translate between the data formats used by a remote database and the data formats used by PDB 32. Remote Database Adaptor 140 allows a provider to submit ads directly from the provider's remote database into Market 18. Remote Database Adaptor 140 also allows access "by reference" to advertisement data that remains stored in a remote database; that is, the data is not copied into Agent System 10, but is accessed as needed. Market 18 includes a

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	Remote Database Adaptor 140 for each provider that chooses to supply ads in this manner; alternatively, a provider uses various functional components accessed via provider's Personal Agent 13 to place ads manually. PECKOVER, 25:36-57: Referring to FIG. 9A, a Product Database 32 (PDB) comprises functional components: a Database Administration function 166, a Product Data Storage function 168, a Product Template Manager function 170, and, (optionally) some number of Remote Database Adaptors 172. PDB 32 maintains generic data about products, to be referenced by ads placed by providers. Although PDB 32 is illustrated here as a single database (with several internal components) for ease of understanding, the contemplated PDB 32 will be split across several processors 38, as illustrated previously in FIG. 3A. Referring to FIG. 9A, a Database Administration function 166 provides conventional add, delete, update, query, and backup access for a System Administrator user to the other components of PDB 32. A Product Data Storage function 168 stores data about different products, for example, product name, product model number, manufacturer's suggested retail price for product, etc.
U.S. PATENT NO. 5,710,884 ("DEDRICK PATENT")	*See*, *e.g.*, DEDRICK PATENT, 3:37-44: The metering server 14 is coupled to a publisher unit 18 through a plurality of clearinghouse servers 20. By way of example, the publisher 18 may be connected to the server 14 as part of an overall wide area network (WAN) that allows the server 14 and publisher unit 18 to transfer information. The system 10 may also have a yellow page server 22 coupled to the publisher unit 18 and the metering servers 14. The publisher unit and servers of the WAN system contain the interface hardware and software necessary to transfer electronic information between the components of the system. As shown in FIG. 1, the system 10 may have multiple client systems 12 coupled to a single metering server 14 and multiple servers 14 coupled to a single clearinghouse server 20, a regional content database server 21 and a single yellow page server 22. There may be multiple clearinghouse and yellow page servers located at regional centers throughout the country/world. In addition, depending on the size of a community, there may also be multiple yellow page servers for each local community. Although the computer 18 is referred to

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	as a publishing unit, it is to be understood that the computer can also be a node for an advertiser 18 and that the use of the terms publisher and advertiser may be synonymous. DEDRICK PATENT, 5:39-51: Session manager 29 transfers data and control information to and from the components of client system 12, and acts as an interface between client system 12 and metering server 14. Electronic information which is transferred to client system 12 is received by session manager 29 and forwarded to client interface 23. In one embodiment, the electronic information. is forwarded to client interface 23 via content adapter 25. Content adapter 25 may then modify the electronic information, based on the end user's data stored in personal profile database 27. Session manager 29 also instructs statistic compilation process 26 to compile the aggregate data stored in personal profile database 27 when the information is requested by metering server 14. DEDRICK PATENT, 7:28-39: Data is collected for personal profile database 27 by direct input from the end user and also by client activity monitor 24 monitoring the end user's activity. When the end user consumes a piece of electronic information, each variable (or a portion of each variable) within the header block for that piece of electronic information is added to the database for this end user. For example, if this piece of electronic information is made available to the end user for consumption in both audio and video format, and the end user selects the audio format, then this choice of format selection is stored in personal profile database 27 for this end user.
U.S. Patent No. 6,374,237 ("REESE")	REESE, 1:12-21: The World Wide Web brings the vast amount of information on the Internet to the public's attention. A problem today in web browsing is that browsing is essentially flat, with no semantic meaning applied to query and search mechanisms. Between the client, an application program that establishes connections for the purpose of sending requests from a user, and the server, an application that accepts connections in order to service requests by sending back responses, there exists a bandwidth problem of not being able to get information quickly enough to the user on the client end to do meaningful operations. REESE, 2:49-65: FIG. 1 presents a block diagram of the invention. FIG. 1 shows a client 110 that is an application program that establishes connections for the purpose of sending requests to a matching

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	server 120. The client 110 contains a user agent that initiates the request. The user agent is, for example, a browser, editor, spider (web-traversing robot), or other end user tool that can service different requests by a user. Typical browsers include NETSCAPE NAVIGATOR™ or INTERNET EXPLORER™. The matching server 120 is an application program that accepts connections in order to service requests by sending back responses. In the case of a browser, a request is sent in a typical protocol, for example, hypertext transfer protocol (HTTP). Other protocols include Simple Mail Transfer Protocol ("SMTP"), Network News Transfer Protocol ("NNTP"), File Transfer Protocol ("FTP"), Gopher, and Wide Area Information Service ("WAIS"). REESE, 6:54-67: FIG. 8 presents a flow chart of the construction of a matching server database of the invention. In FIG. 8, a matching server is designated. In step 800, a matching server is designated to construct an aggregate database. In step 810, a list of content servers is designated from which to collect data that will make up the aggregate data of the matching server. The content servers designated could be any or all servers in an Internet environment or select servers in an Intranet or other network environment. Next, in step 820, the matching server walks each of the content servers and collects information that will make up the aggregate database. Next, in step 830, the matching server builds an aggregate database that is a representation of the content servers walked.
U.S. Patent Nos. 5,948,061 ("MERRIMAN I") and 7,844,488 ("MERRIMAN II")	*See*, *e.g.*, MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 2:59-3:4: The basic architecture of the network 10 comprises at least one affiliate web site 12, an advertisement (ad) server web site 19 and one or more individual advertiser's web sites 18. Affiliates are one or more entities that generally for a fee contract with the entity providing the advertisement server permit third party advertisements to be displayed on their web sites. When a user using a browser accesses or "visits" a web site of an affiliate, an advertisement provided by the advertisement server 19 will be superimposed on the display of the affiliate's web page displayed by the user's browser. Examples of appropriate affiliates include locator services, service providers, and entities that have popular web sites such as museums, movie studios, etc. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:5-23: The basic operation of the system is as follows in the preferred

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	embodiment. When a user browsing on the Internet accesses an affiliate's web site 12, the user's browser generates an HTTP message 20 to get the information for the desired web page. The affiliate's web site in response to the message 20 transmits one or more messages back 22 containing the information to be displayed by the user's browser. In addition, an advertising server process 19 will provide additional information comprising one or more objects such as banner advertisements to be displayed with the information provided from the affiliate web site. Normally, the computers supporting the browser, the affiliate web site and the advertising server process will be at entirely different nodes on the Internet. Upon clicking through or otherwise selecting the advertisement object, which may be an image such as an advertisement banner, an icon, or a video or an audio clip, the browser ends up being connected to the advertiser's server or web site 18 for that advertisement object. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 3:24-63: In FIG. 1, a user operates a web browser, such as Netscape or Microsoft Internet Explorer, on a computer or PDA or other Internet capable device 16 to generate through the hypertext transfer protocol (HTTP) 14 a request 20 to any one of preferably a plurality of affiliate web sites 12. The affiliate web site sends one or more messages back 22 using the same protocol. Those messages 22 preferably contain all of the information available at the particular web site 12 for the requested page to be displayed by the user's browser 16 except for one or more advertising objects such as banner advertisements. These objects preferably do not reside on the affiliate's web server. Instead, the affiliate's web server sends back a link including an IP address for a node running an advertiser server process 19 as well as information about the page on which the advertisement will be displayed. The link by way of example may be a hypertext markup language (HTML) <img> tag, referring to, for example, an inline image such as a banner. The user's browser 16 then transmits a message 23 using the received IP address to access such an object indicated by the HTML tag from the advertisement server 19. Included in each message 23 typically to the advertising server 19 are: the user's IP address, (ii) a cookie if the browser 16 is cookie enabled and stores cookie information, (iii) a substring key indicating the page in which the advertisement to be provided from the server is to be embedded, and (iv) MIME header information indicating the browser type and version,

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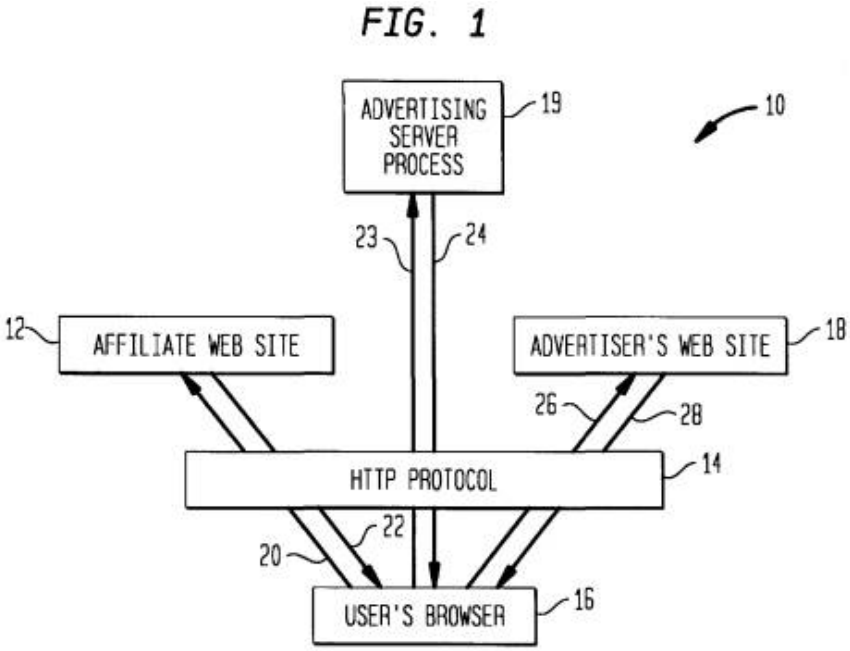
	the operating system of the computer on which the browser is operating and the proxy server type. Upon receiving the request in the message 23, the advertising server process 19 determines which advertisement or other object to provide to user's browser and transmits the messages 24 containing the object such as a banner advertisement to the user's browser 16 using the HTTP protocol. Preferably contained within the HTTP message is a unique identifier for the advertiser's web page appropriate for the advertisement. That advertisement object is then displayed on the image created by the web user's browser as a composite of the received affiliate's web page plus the object transmitted back by the advertising web server. MERRIMAN I (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), Fig. 1:  MERRIMAN II (AND CORRESPONDING DISCLOSURE IN MERRIMAN II), 9:38-41: 2. The method of claim 1, wherein selecting an advertisement based upon stored information about said user node comprises selecting an advertisement based upon a prior content request sent from said user node to an affiliate node.
U.S. Patent No. 7,072,849 ("FILEPP")	*See*, *e.g.*, FILEPP, 5:1-23: As seen in FIG. 1, interactive network 10 uses a layered structure that includes an information layer 100, a switch/file server layer 200, and cache/concentrator layer 300 as well as reception layer 401. This structure maintains active application databases and delivers requested parts of the databases on

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	demand to the plurality of RS 400's, shown in FIG. 2. As seen in FIG. 2, cache/concentrator layer 300 includes a plurality of cache/concentrator units 302, each or which serve a plurality of RS 400 units over lines 301. Additionally, switch/file server layer 200 is seen to include a server unit 205 connected to multiple cache/concentrator units 302 over lines 201. Still further, server unit 205 is seen to be connected to information layer 100 and its various elements, which act as means for producing, supplying and maintaining the network databases and other information necessary to support network 10. Continuing, switch/filer layer 200 is also seen to include gateway systems 210 connected to server 205. Gateways 210 couple layer 200 to other sources of information and data; e.g., other computer systems. As will be appreciated by those skilled in the art, layer 200, like layers 401 and 300, could also include multiple servers, gateways and information layers in the event even larger numbers of users were sought to be served.
https://web.archive.org/web/19961107001155/http://www.inktomi.com/technology.html	*See*, *e.g.*, "The integration of traditional databases into scalable Web servers. Although the primary database for the HotBot search engine is custom-built for high performance, we use an integrated multi-machine Informix database for tracking user preference profiles and ad placement and accounting. Informix provides multi-platform parallel database queries that fit well with the building-block model used by Inktomi: each server has the full power of SQL transactions and we replicate information to provide fault tolerance. The pervasive use of dynamic HTML generation to allow every user to see a customized page. The use of mass customization, in which we treat millions of users individually within one framework, requires scalable computing resources and database integration, but also requires new tools and technology. In particular, we have developed a new form of dynamic HTML that includes a server-side scripting language that generates HTML on the fly based on the user profile and client browser information. In addition to the obvious benefit of allowing users to customize their page, this technology also enables more targeted advertising, and use of advanced HTML features such as frames and tables for those browsers that can support them; we are not limited to some "least-common denominator" subset of HTML (for example to support older browsers)."
https://web.archive.org/web/19961107001258/http://www.inktomi.com/whitepap.html	*See*, *e.g.*, Database access. Audience1 comes with Dynamic tags that can access a DBMS for arbitrary persistent information and customize the HTML tracking, using either cookies or fat URLs. Unlike other offerings, while Audience1 supports SQL, it does not require publishers to know SQL to access the database. This allows Inktomi

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	servers to store and recall a user's preferences for user interface and query results presentation. More generally, Audience1 is ideal for allowing servers to access pre-existing databases such as products, inventory, etc. Browser targeting. Audience1 allows publishers to exploit leading-edge HTML features (such as Netscape's frames and Java, and Microsoft's font changes and embedded audio tags), without frustrating users who do not have those features. Audience1's browser targeting can be performed at various levels of detail, ranging from tags that are easy to use, but don't provide a lot of publishing control, to exposing the raw browser capabilities to the publisher. For example, advertisers on HotBot are shown as progressive JPEG if the client browser supports it, otherwise they are shown as JPEGs or GIFs for less-capable browsers. This allows Inktomi to make the most of each browser, rather than resorting to a least-common denominator. Access to high performance, scalable services. Dynamic Tags make it possible for publishers to introduce new, high performance, scalable services, without requiring the publisher to understand the intricacies of computing programming. For example, access to the Inktomi search engine is encapsulated into a single Dynamic Tag, hiding the complexity of interfacing to a parallel program such as Inktomi. In addition, Dynamic Tags can be multi-threaded, interleaving long-latency operations such as Inktomi queries and customized content selection (i.e. targeted advertisements). We know of no other Web-based publishing system with this capability and ease-of-use. Publishing support hides the complexity of creating and managing sites of dynamic Web pages, allowing sites with large amounts of content to control the publishing process. Unlike the CGI-based tools that are emerging, Audience1's publishing support is fault tolerant, high performance and scales to millions of users and millions of hits per day. In summary, Audience1 and Dynamic Tags allow a customizable and sophisticated user-interface to Web services such as search engine. HotBot's interface, including saved searches, personalization, and browser targeting, would have been nearly impossible without the simplification provided by the Audience1 toolset."
DUMMIES	*See e.g.,* DUMMIES, p. 87-88 (identifying the three databases that may be searched by the Lycos search engine: a2z directory, Lycos catalog, and Point reviews.); *id.*, p. 103-104 (describing the different databases available to search with the Excite search engine, the Web, Usenet, Classifieds, and Reviews)
PINKERTON	PINKERTON, P., 2 ("After retrieving a document, the WebCrawler performs three actions: it marks the document as having been retrieved, deciphers any outbound links (href's), and indexes the content of the document. All of these steps involve storing information in a database"); *id.,* p. 2-3 ("The database handles the

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	persistent storage of the document metadata, the links between documents, and the full-text index"); *id.*, p. 5 ("The WebCrawler's database is comprised of two separate pieces: a full-text index and a representation of the Web as a graph. The database is stored on disk, and is updated as documents are added.")
NETGRAVITY ADSERVER HELP	*See e.g.*, NETGRAVITY ADSERVER HELP, Choosing an Installation Scenario: "AdServerUI Host – To manage your ads and ad schedules you install the AdServerUI, which provides a Web interface for administering the AdServer database. The machine on which the AdServerUI resides is called the *AdServerUI host.* Content Host – The *content host* is the machine that runs your Web server and contains your Web content tree. Your site may have multiple content hosts. Though described above as separate, the content host and the AdServerUI host can, in fact, be the same machine. In other words, all AdServer components may be installed on the same host. Or, you may choose to host them on separate machines . . . Though depicted in the above diagram as separate, the content host and the AsServerUI host can be the same machine."); *id.*, Configuration Directives, p. 5 ("When you restart AdServer, it copies the database from the DatabaseStageDir to the DatabaseDir, and begins serving ads from this new database."); *id.*, Configuring Your Content Server ("Your *content server* is the HTTP server that you use to serve your Web content."); *id.*, Dynamic Ad Placement: Overview ("To serve an ad *dynamically* means that whenever an ad needs to be shown, the content server asks AdServer which ad to display at that exact moment.")
ABOUT NETGRAVITY ADSERVER	*See e.g.*, ABOUT NETGRAVITY ADSERVER, Getting Started, p. 2 ("AdManager writes to the AdServer database, recording ad and scheduling information. . . . The content server is the Web server that serves your site's content pages."); *see also id.*, Installing AdServer.
FLYNN	FLYNN, p. 2-3 ("In the NetGravity model, advertisers can store their ads on their own server or the site's server.")
DEDRICK 1994	*See e.g.*, DEDRICK 1994, p. 55 ("Typical consumption devices are personal home computers that are connected to an electronic content distribution network via transport technologies such as cable, satellite, ISDN, POTS, and wireless . . ."); *id.*, p. 56 ("Fig. 1 shows an end-to-end high-level view of a content distribution network. This network connects content authors of 'rich media' advertisements with business and home content consumers."); *id.* ("Fig. 1 shows the network connections that will allow bi-directional communication between authors and consumers, consumers and authors, etc."); *id.*, p. 57 ("The model proposed for dissemination of interactive electronic advertisements is through a series of cooperating local electronic yellow pages services, each spanning a specified region (with

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	potential for overlapping regions). Additionally, these local yellow pages servers also have connectivity with larger regional, national, and global electronic yellow pages services. To enable electronic advertising to subsidize the consumption of electronic content, these yellow pages services are also integrated with a variety of related services."); *id.*, p. 59 ("All consumers having access to the local electronic yellow pages can search these yellow pages, compare prices when multiple listings of similar service offerings exist, and automatically schedule an appointment with a service provider."); *id.*, p. 59 ("Object-oriented database management is one of the core required technologies of an electronic yellow pages mechanism. Such a DBMS must have distributed data management capabilities to deal with electronic advertisements existing across multiple regions."); *id.*, p. 60 ("the content distribution architecture is largely client-server oriented, using large hard-disk intensive network servers to hold terabytes of electronic content."); *id.*, p. 61 ("Back-channel capabilities enable a client consumption device to send requests to the electronic content distribution network servers and also to other network clients."); *id.*, p. 62 ("Specifically, the currently suggested attribute extension list as follows: . . . Dynamic (e.g., hypertext) links to associated objects, residing on both local and remote servers.")
DEDRICK 1995	*See e.g.*, DEDRICK 1995, p. 42 (An end-to-end electronic content distribution network connects connect authors of rich-media advertising with business and home content consumers. . . . Network connections must provide connectivity that will allow bidirectional communication between authors and consumers. In addition, the end-to-end distribution network must include intermediate content repositories."); *id.*, p. 43 ("To enable electronic advertising to subsidize content, these yellow pages services are also integrated with related electronic services, including commerce financial clearinghouses, content databases, authors, and content delivery to consumers."); *id.*, p. 43, Fig. 1; *id.*, p. 44 ("Distributed database management is one of the core required technologies of an electronic yellow pages mechanism."); *id.*, p. 46 ("All information on a profile device is protected by encryption and made available to the consumer only when the profile device is plugged into a consumption device and the consumer has entered the correct decryption password or personal identification number (PIN). Second, using a portable hardware-based device as a repository of consumers' personal profiles lets consumers plug into the content distribution network through any device at work or at home.")
GALLAGHER	*See e.g.,* GALLAGHER, p. 5 ("The architecture required to implement the basic version of the model consists of two parts: data structure to represent user profiles and target audience profiles, and an algorithm to select banner advertisements to display to a user."); *id.*, p. 6

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	("Operationally, profiles for ideal or acceptable users can be maintained in a relational database structure. In the case of ideal profiles, a table can be defined in which each row describes the ideal target audience member for each advertisement.."); *id.*, p. 8, Fig. 4.