

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 8,121,904

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Title: ELECTRONIC PROPOSAL PREPARATION SYSTEM

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SECOND DECLARATION OF EDWARD A. FOX, PH.D.

IN SUPPORT OF

HYUNDAI MOTOR AMERICA'S
SECOND PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,121,904

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I, Edward A. Fox, Ph.D., hereby declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

1. My name is Edward Alan Fox. I live with my wife in Blacksburg, Virginia. We have four sons and four grandchildren.

2. I have been retained by Hyundai Motor America, Inc. (“Hyundai”) as an expert in electronic systems for creating customized documents, electronic publishing, hypertext, hypermedia, multimedia, CD-ROM, database, and similar information processing and management technologies, in connection with this matter.

3. This is the second declaration I have filed supporting unpatentability of certain claims of U.S. Patent No. 8,121,904. I incorporate in several places herein relevant discussion from my earlier January 16, 2013 declaration (referred to here as my “First Declaration”), which has been filed herewith for reference purposes.

4. I am a full Professor in the Department of Computer Science at Virginia Tech, Blacksburg, VA, where I have worked since 1983. My research, teaching, and service have related to areas including digital libraries, information storage and retrieval, hypertext, hypermedia, multimedia, superimposed information, computing education, computational linguistics, CD-ROM and optical disc technology, electronic publishing, artificial intelligence, and expert systems.

Further detail regarding my qualifications and relevant publications can be found in Section I of my First Declaration.

5. My curriculum vitae is available online at <http://fox.cs.vt.edu/cv.htm>; a recent copy was attached to my First Declaration.

6. I am being compensated at my usual and customary hourly rate of \$400 (or \$500 for testimony during trial or deposition). My compensation is not dependent upon the outcome of the Second Petition for *Inter Partes* Review that I understand Hyundai's attorneys are filing along with this Declaration. Nor is my compensation dependent upon the outcome of any related litigation proceedings, the opinions I express, or my testimony.

7. I have previously testified as an expert at trial or by deposition in several patent cases, including in the past four years, in *Personalized User Model, LLP vs. Google, Inc.*, C.A. No. 09-525 (LPS) (D. Del. 2012) and *Bright Response, LLC vs. Google Inc., et al.*, C.A. No. 2:07-CV-371-CE (E.D. Tex. 2010).

8. Additional information may become available which would further support or modify the conclusions that I have reached to date. Accordingly, I reserve the right to modify and/or enlarge this opinion or the bases thereof upon consideration of any further discovery, testimony, or other evidence, including any issues raised by any expert or witness of the patentee, Clear With Computers LLC,

or based upon interpretations of or conclusions about any claim term by the Patent Office different than those proposed in this declaration.

II. SCOPE OF ASSIGNMENT

9. I have been retained to opine on the unpatentability of U.S. Patent No. 8,121,904 (the “’904 Patent”).

10. More specifically, I have been asked to consider whether the inventions recited in claims 1-21 of the ’904 Patent are unpatentable over certain published prior art references. This declaration sets forth my opinion on this topic.

11. I have studied the ’904 Patent (Ex. 1008) in detail. I recorded my observations regarding the ’904 Patent generally in Section II of my First Declaration. As relevant to the claims being challenged as unpatentable in Hyundai’s Second Petition for *Inter Partes* Review (claims 1-21), however, I note the description in Figure 2 (see copy below from the ’904 Patent) of additional elements found in claims 1-21 that are not otherwise found in claims that Hyundai has previously challenged.

12. Those elements are:

- (a) a “report database” 106 that stores page layouts used to format and produce the various pages of a proposal, ’904 Patent, col. 8, ll. 33-38;

- (b) a “report generator” 104 that comprises the “means for processing and generating the customized printed proposal,” ’904 Patent, col. 10, ll. 9-17; and
- (c) a “difference database” 107 separately provided to store updates (e.g., “net changes”) to the static database 106. ’904 Patent, col. 8, ll. 15-20.

As noted, these elements are depicted in Figure 2 of the patent, as follows:

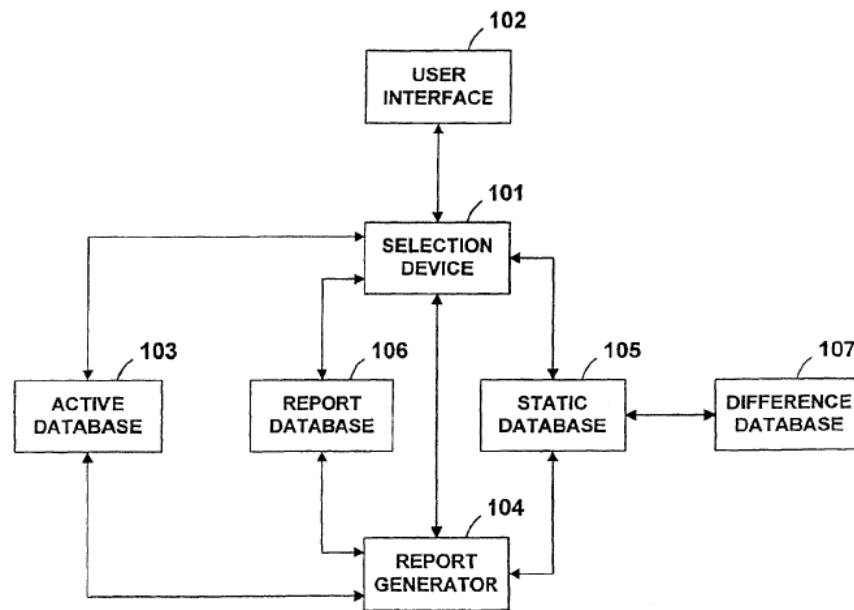


FIG. 2

III. SUMMARY OF OPINIONS

13. Based upon my investigation and analysis, and for the reasons set forth below, it is my opinion that all of the elements recited in claims 1-21 of the

'904 Patent were taught in published prior art references and that those claims are rendered obvious in view of these references, particularly:

- Nohmi, et al., *Multimedia Presentation Systems – Prototyping for Electronic Catalogs*, in Proceedings of the 38th National Convention of the Information Processing Society of Japan (1989 First Half) 668-69 (1989) (“Nohmi”), Ex. 1001. This reference describes a sales presentation system designed to dynamically present proposal materials to facilitate the sale of tangible products (cars, in this instance) using interactive interfaces to convey information of interest to customers based upon their interests.
- U.S. Patent No. 5,528,490 to Hill (“Hill”). Ex. 1002. This reference describes an electronic catalog system that provides an up-to-date version of a vendor’s product information to customers who are reviewing product information on a remote computer. Hill also describes a method for presenting a data sheet integrating variable data transmitted from the vendor with data already present on the remote computer, minimizing on-line time.
- Miyaoka, et al., *Image Processing in Presentations Systems*, The Journal of the Institute of Electronics, Information and Communication Engineers, vol. 74, no. 4, 392-97 (April 25, 1991) (“Miyaoka”), Ex. 1003. This reference, which discusses the same development effort as Nohmi, teaches a “function of creating an image of a scene showing a product placed in the environment

in which it is actually used with the product colors or patterns being changed.” Miyaoka, § 2.1.

- The Complete Car Cost Guide, 1989 Edition (the “Complete Car Cost Guide”). Ex. 1004. This reference is an example of an information resource containing particular product information available to system designers developing sales presentation software.
- U.S. Patent No. 4,876,592 to Von Kohorn. Ex. 1005. This reference describes a computerized system adapted to interact with viewers of a “home shopping” television broadcast to provide printouts regarding products that users have expressed interest in purchasing.
- JP H3-74769 to Kobayashi, et al. (“Kobayashi”). Ex. 1006. This reference describes how to address efficiency problems in sales presentation systems similar to Nohmi by expressing the information to be displayed using templates (called “pages”) that can be processed in real time to recall images and text from a centralized location.
- Roux, *Updating CD-ROM Databases*, Chapter 14 in Lambert, S. and Ropiquet, S. (eds). CD ROM: Optical Publishing (1987) (“Roux”). Ex. 1007. This reference describes various techniques for updating the information in databases stored on non-rewritable CD ROMs, including distributing collections of information changes (i.e., “difference databases”

as described and claimed by the '904 Patent) via tangible media and packet-switched networks.

14. I have further read and understood Hyundai's Second Petition for *Inter Partes* Review filed herewith and agree with all of the technical comments and analysis set forth therein.

IV. LEGAL PRINCIPLES USED IN ANALYSIS

15. I have followed the same framework for conducting an unpatentability analysis set out in Section IV of my First Declaration.

V. CLAIM CONSTRUCTION

16. As discussed in Section V of my First Declaration, I understand that the '904 Patent has expired, and therefore, for the purposes of any *inter partes* review granted on the petition this declaration accompanies, each of its claim terms should be "generally given [its] ordinary and customary meaning" as would be understood by a person of ordinary skill in the art in question at the time of the invention.

17. My opinions are the same as to terms used in claims 1-21 that were previously construed by the District Judge in the prior litigation between CWC and Hyundai. That is, the claim constructions ultimately adopted in those cases represent the "ordinary and customary meaning" for the below terms as they would

be understood by a person of ordinary skill in the relevant art at the time of the invention.

Claim Term (in the '904 Patent)	Claim Construction
“proposal” (Claims 1, 4-5, 16, 21)	“information intended for conveyance to a customer.” Ex. 1009 at 7-8, Ex. 1010 at 17.
“static database” (Claims 1, 10-12, 19-21)	“a database that is not alterable during generation of a composite visual output.” Ex. 1009 at 12.
“active database” (Claims 1, 6-7, 12, 17, 20-21)	“a database that is alterable based on user input.” Ex. 1009 at 12-13.
“database” (Claims 1, 6-8, 10-12, 17-21)	“a collection of logically related data stored together in one or more computerized files.” Ex. 1009 at 11-12.
“selection device” (Claims 1, 4, 16, 21)	“computer code data structure.” Ex. 1009 at 14-18.

18. Taking into account the decisions in the prior litigations, I have reviewed claims 1-21 and it is my opinion that, with the exception of the further terms I discuss below, the terms used in the claims would have been understood to

have their plain meaning¹ by a person of ordinary skill in the relevant art at the time of the invention. I reserve the right to readdress this conclusion if CWC argues otherwise. I also note that my conclusions regarding unpatentability do not depend upon these constructions. Those conclusions would be the same under any plausible reading of these claim terms.

19. The phrases discussed in the remainder of this section are “update information,” “transmit the report,” and “life cycle specifications.” Proposed constructions are given in the table below. Explanations of the constructions are provided in the sub-sections that follow.

Claim Term (in the '904 Patent)	Proposed Construction
“update information” (Claims 1 and 21)	“changes to database content”
“transmit the report” (Claims 13, 20, and 21)	“send the report for printing”
“life cycle specifications” (Claims 11, 19, 21)	“specifications relating to projected ownership costs for the product”

¹ I understand that it is Hyundai’s position that certain terms in claims 1-21 lack enablement and written description support, but it is not possible to raise those positions in an *inter partes* review.

A. “update information”

20. This term appears in both claims 1 and 21 in the phrase: “a difference database operatively connected to the static database, wherein the difference database stores *update information* configured for transmittal to the static database.” In my opinion, one of ordinary skill in the art reading the claim language above and the specification, specifically Figures 2, 10, and 14, as well as col. 5, ll. 56-66 and col. 8, ll. 15-32, would understand the ordinary and customary meaning of “update information” to be “database content changes.” As col. 8, ll. 15-32 explains, the “difference database 107, stored on magnetic media, may be used to store information that reflects net changes to the contents of the static database 105.” Reading the specification, one with ordinary skill would know that database content was at issue, and that “update information” must of necessity describe changes to that content.

B. “transmit the report”

21. This term appears in claims 13, 20, and 21 as part of the “report generator” element of those claims. In my opinion, one of ordinary skill in the art reading the claim language and the specification, specifically the cited sections below, would understand the ordinary and customary meaning of “transmit the report” to be “send the report for printing.” See ’904 Patent, col. 10, ll. 9-14, col. 10, l. 60-col. 11, ll. 48, col. 12, ll. 22-25, col. 13, ll. 43-46, col. 14, ll. 44-47, col.

15, ll. 51-56, col. 16, ll. 56-58, col. 17, ll. 9-11, col. 18, l. 63-col. 19, l. 2, col. 19, ll. 21-23, col. 19, ll. 41-44, col. 20, l. 45-col. 22, l. 11, col. 22, l. 46-col. 24:5, col. 25, l. 10-col. 26, l. 42, col. 28, ll. 40-54, col. 29, ll. 5-8, col. 30, l. 16-col. 31, l. 41, col. 32, l. 51-col. 34, l. 10, col. 34, l. 43-col. 36, l. 20, col. 37, l. 7-col. 9, col. 37, l. 38-col. 38, l. 32. Figure 2 of the '904 Patent includes "Report Generator" 104, which is shown in more detail in Figure 10 and labeled with the heading "PROCESSES AND GENERATES A CUSTOMIZED PRINTED PROPOSAL." "Report Generator" 104 also is shown in Figure 25, with arrow 25-11 from that to PRINTER. Similar arrows appear in Figures 27, 29, 30, 32, 34, 36, 38, 39, 40, and 42.

22. Reading the specification, one with ordinary skill would know that "transmit" is equivalent to "send." Since "transmit" is not found in the specification, while "send" occurs repeatedly (e.g., in the sections listed above), it is the right choice for construal. The phrase "for printing" is needed since the claims give no destination, whereas a "transmittal" must logically have a destination. Moreover, every time the report generator is mentioned in the specification along with sending, it is mentioned in connection with printing. Further, because a report must be generated before it can be sent, and because the report generator in the specification and claims exists for the purpose of printing, the only possible meaning of "transmit the report" is to send it for printing.

23. From 1971-1972, I taught students about data processing. A key part of their studies involved work with report generators. When reports were transmitted, they were sent for printing, so the reports could be checked and used. Likewise, when I ran data processing operations for Vulcraft from 1972-1978, we generated sales quotes, which were customized proposals, and when we transmitted those reports, we printed them.

C. “life cycle specifications”

24. This term appears in claims 11, 19, and 21 as part of the “static database” element of those claims. In my opinion, one of ordinary skill in the art reading the claim language and the specification, specifically the cited sections below, would understand the ordinary and customary meaning of “lifecycle specifications” to be “specifications relating to projected ownership costs for the product.” *See* ’904 Patent, Figures 9, 14, 37, and 38, as well as Tables 1 and 2, and col. 4, ll. 12-16, col. 8, ll. 7-9, col. 8, l. 32, col. 11, l. 55, and col. 31, l. 42-col. 34, l. 10.

25. Reading the specification, one with ordinary skill would know that this relates to products and proposals, and that life cycle in this context necessarily must address projected costs associated with ownership. The life cycle specifications of a product that is being considered for purchase, *i.e.*, for which a sales proposal is being produced, refers to the projected costs to the owner of the

product that are associated with that product from the time of purchase through the end of use of the product. For automobiles, that includes taxes, fees, and the costs of fuel and maintenance. If the automobile acquisition is financed, there also would be data about the payments of interest.

VI. STATE OF THE ART AT THE TIME OF THE '904 PATENT'S PRIORITY DATE

26. As explained in detail in Section VI of my First Declaration, by May 5, 1992, the '904 Patent's earliest priority date, the state of the art relating to the subject matter of claims 1-21 was quite advanced. Claims 1-21 include two additional concepts not discussed in my First Declaration, multi-part queries and "difference" databases. Both were very well-known concepts in the art when the earliest predecessor to the '904 Patent was filed.

A. Multi-Part Queries

27. In the middle to late 1980s, Microsoft was quite interested in CD-ROMs. They ran conferences focused on this new technology, preparing two edited books to summarize related developments, in 1986, *see* Ex. 1014 (including my article connecting with information retrieval, Ex. 1015, from which Figure 6 is reproduced below, showing search and retrieval functions), and in 1987, Ex. 1016.

28. In the context of working with static databases as on CD-ROMs, Figure 6 from Ex. 1015 shows an exemplary system that was capable of translating user's questions into relevant search results.

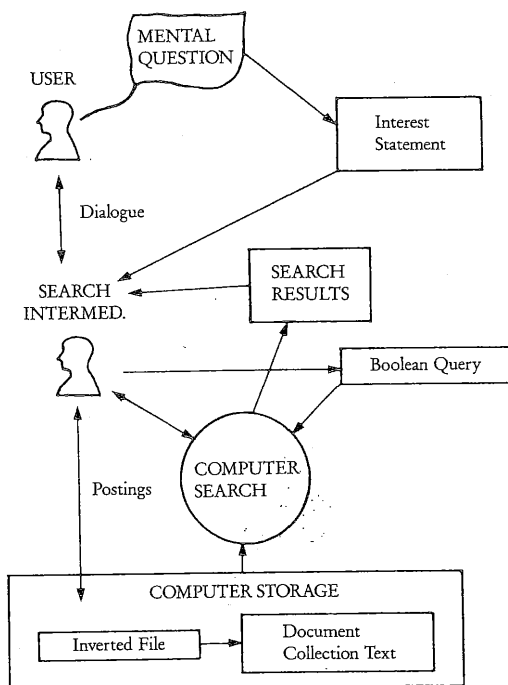


Figure 6. Boolean query formation and inverted file search

29. A user would begin with some question in mind. Since computers cannot read minds, several steps were needed to get desired answers. First, the mental question was recorded as an interest statement. Then a librarian or other person expert in computerized search systems would take that statement of the user's interest and use it to formulate a Boolean query (e.g., the three-part query: "Year=1987 and Title=CODER and Author=Fox"). The computerized search would use that query to prepare the search results, i.e., a list of documents, making use of an inverted index to speed up the process (e.g., finding documents in common among the three lists that the index yielded for the entries 1987, CODER, and Fox, respectively).

30. It was well known that in some cases a user would have a particular role, like that of a customer. Likewise, some search intermediaries would have a different role, like a salesperson, or, in the case of expert users, might be the actual user (thus fitting into two roles). Further, some mental questions or interest statements might lead to a Boolean query (or queries) with multiple portions (parts).

31. Regarding multi-part queries, i.e., queries with multiple portions (e.g., in the query above, “Year=1987 and Title=CODER and Author=Fox,” there is a part for the year, another part for title words, and yet another part for the name of an author), there has been considerable work since at least the 1970s. One interesting problem explored then was “query splitting,” whereby a long query was split into multiple parts so the results could be separately collected and then later integrated. Indeed, the matter of multi-part queries was so important as to be explored in at least four contexts related to databases.

32. First, the concept was explored in publications relating to traditional databases. With the emergence of the relational database model in the 1970s, databases were split into multiple parts, called tables, according to a technique called normalization. Portions of queries were addressed to particular tables, which were linked together by common keys (identifiers). Although very simple queries might collect data from only one table, often two to six tables would be

involved in a complex query, so there would be at least two to six portions to the query, and results were combined (joined) to yield the desired answer(s).

33. In the case of our work to support information retrieval (as in text searching with the SMART² system) using such relational methods, it was necessary to have queries with multiple portions. *See* Ex. 1019. Since we used relational methods, we had multiple tables, e.g., one called Databases, another called Citation (that included the title and year, e.g., “Groups and Group Theory” that was published in 1978), and a third called Doc_Vec (since we followed the vector space model of information retrieval to describe documents, as with <group,2>, <theory,1> for a document in which the word “group” occurred twice while “theory” occurred just once). A two-part query, for example, could have Year=1978 and also call for a word in the title, like “group.”

34. Second, the concept of multi-part queries was explored in publications relating to informational databases. In the case of Boolean query systems, as were often used for legal searching, with systems like Lexis and Westlaw, a query would have multiple parts. Using mathematical terminology, often there was a

² SMART was a research system first built at Harvard in the 1960s. I led efforts at Cornell to convert it to work on computers running UNIX in the early 1980s. Others continued to enhance and/or utilize SMART into the 1990s.

conjunction of portions called disjuncts (i.e., a number of clauses each connected with OR, where the clauses were connected by AND operators). Alternatively, in “disjunctive normal form,” a collection of portions called conjuncts (i.e., clauses connected by ANDs) were strung together with an outer OR. In one research study we automatically built such query formulations, using statistical information, exploiting the benefits of multiple query portions. *See* Ex. 1018.

35. Third, the concept of multi-part queries was explored in publications relating to the application of artificial intelligence methods to database processing of the sort I have just described. For example, to help place children in foster homes, based on suitable matching of children and homes along a range of criteria, we applied the expertise of social workers to develop computerized descriptions of candidate homes, and worked from information about children awaiting placement in order to generate multi-part queries (e.g., ones with portions about the reason for placement, about special needs, and yet another portion about child behavior). *See* Ex. 1017. Alternatively, we used knowledge-based approaches in the CODER system that we built to analyze electronic digests and then interact with users, learning about their background and interests, so it could customize its response to each user. CODER made use of a search expert component that considered separately the dates, topics, and other aspects of each user’s information need. Ultimately, queries were built with multiple parts to handle the several aspects.

See Ex. 1026. This is analogous to the common approach of describing a document using a metadata record (as in old paper-based library card catalogs) made up of different fields (e.g., author, publisher, year) and having different portions of a query be tied or connected to each such field of interest.

36. Fourth, the concept of multi-part queries was explored in publications related to hypertext and/or hypermedia. One example concerns the search function supported in many hypertext/hypermedia systems. *See* Exs. 1020 and 1021. Since the content in these systems, i.e., the stored “hyperbase,” often is large, some mechanism is needed to take a query and return results that relate to the query, much as a search engine works with the Web. *See* Ex. 1022. Thus, information retrieval systems that support searching of a hyperbase, generally have advanced query options that allow entry of a multi-part query. Another example of multi-part queries comes from viewing, as one of the parts of a query, each step as one browses or navigates through a hyperbase. In such cases, the user starts with one document in a hyperbase, clicks on an anchor in that document based on a first interest, to go to a second document, and then repeats the process. Each of the selections made during the browsing or navigation session can be considered a separate query portion, and the whole browsing or navigation session can be considered as equivalent to using a multi-part query.

B. Updating Databases

37. As I also previously discussed, it was well known before 1992 that CD-ROMs could provide static optical storage that worked well with personal computer systems. *See* Ex. 1025. These systems included static databases, and they made it easy to publish electronic versions of catalogs, including of products for sale to customers, with text segments (including specifications and performance information on those products) and images (of all types, including images of environments).

38. In the context of the '904 Patent, and more specifically claims 1-21, the claims include “difference databases” that include “update information,” or content changes, that are transmitted to a static database. The static database includes product information, including pictures (of products and environments), specifications and other product details, and financial information such as about prices and product life cycles.

39. Fundamental to the reality of most databases is that their content changes over time as information is updated. Also common is that data are distributed among various locations; rarely is everything stored in just one place. These two realities led to a need for changes/revisions/updates to be identified, stored, transmitted, and incorporated in databases, in both small and large-scale systems.

40. At my university in the early 1980s, for example, we were among the first to require incoming students to each have a personal computer, in particular one running the UNIX operating system. *See* Ex. 1028. These computers supported student access to and retrieval of data stored in files, including from remote locations. *See* Ex. 1028. Since they ran UNIX, students often used UNIX's 'diff' command, which identified changes – it took two files and produced a third file of update information, so the first file could be updated to become identical to the second file. Thus, the concept of a difference database, and the deployment of update information, was well understood and commonly employed in the 1980s.

41. Also in the 1980s, we built “intelligent” systems to support retrieval of information in a way that leveraged the distributed nature of those systems. Thus, to make the CODER system faster, we ran different parts of it in parallel on at least three different computers, hence operating a distributed information system that might be able to return results in approximately one-third of the usual time. *See* Ex. 1026. Others at the time did likewise, as we noted in our survey of related work. *See* Ex. 1026.

42. These trends coincided with the emergence of high capacity storage systems, such as CD-ROMs. We went to great lengths to collect a large amount of data, information, and a variety of types of multimedia content on Virginia Disk

One, which was produced in 1990 and which was a showcase of what was possible to do with CD-ROMs, since it was the first CD-ROM manufactured in Virginia. *See* Ex. 1024. Motivated by the unique characteristics of CD-ROMs, we also developed fast access techniques that could be incorporated in database systems. *See* Ex. 1023. In particular, since data collections on CD-ROMs could not change (since they were sealed into the plastic), we could spend days of time in advance in order to construct special programs to help make the use of each CD-ROM more efficient. With those programs, we would take a word or phrase, apply a mathematical algorithm to that string of characters, and compute the exact place on the disc to find that phrase (thus only requiring the time for a single seek action, which generally took at least a tenth of a second, in contrast to commonly used binary tree search systems that often necessitated three such seeks).

43. Many approaches to, and solutions for, updating databases were developed and widely deployed before 1992. Since communication networks were often slow and expensive, efficient techniques were needed that could meet a variety of circumstances. *See* Ex. 1007 (“Roux,” discussed in connection with the claims below). The problem and the need for solutions was made obvious especially with regard to microcomputers, including personal computers, which had moderate to large amounts of data stored on hard drives or CD-ROMs. Since these systems generally were not connected (all of the time) to communication

networks, it was necessary to have a way to collect together batches of changes, transmit them, and use that “change information” to keep the microcomputer information up-to-date. Thus, most static databases were really semi-static because, over time, they were updated with difference (change) information. Common mechanisms like shipping a diskette, or connecting the microcomputer over a dialup network to a vendor mainframe, were used to send the difference information. *Id.* at 6, 9.

44. These approaches were widely known in the database community. Indeed, many distributed database systems also had synchronization mechanisms, to ensure that information in all portions of the database was consistent. Database systems that logged transactions also could use logs whenever a crash or other disruption occurred, to update from a check-pointed copy of the database to ensure the currency of information. For example, a bank might record the balance of every account at 2 AM each day, and also record every deposit or withdrawal to any account during the rest of the day. If the bank computer lost power at 10 AM, then the bank could recover the balances just before the power loss by starting over with the balances as of 2 AM, and then add or subtract for each deposit or withdrawal between 2 AM and 10 AM.

45. These approaches also were widely known in the multimedia community, where most content was likewise semi-static. Since images and other

multimedia content are much larger than simple items like numbers, names, and text segments, CD-ROM was a popular solution to handle large volumes of multimedia content, allowing widespread distribution of the content on the CD-ROM, which by definition was static. Since changes to this content are inevitable, update information had to be transmitted in some fashion—usually either through “update” CD-ROMs or through dial-up connections to a central server, to guarantee the multimedia data collection remained current. *Id.* at 5-6, 12-14.

46. In view of the above, I believe each of the elements claimed in claims 1-21 of the '904 Patent was well known at that time as part of a large number of useful systems. This sets the stage for my further analysis of some of those systems that contained these elements in the same ways recited in claims 1-21.

VII. PRIOR ART REFERENCES

47. I understand that *inter partes* review of the '904 Patent has been requested in view of the following references:

- (1) Nohmi, et al., *Multimedia Presentation Systems – Prototyping for Electronic Catalogs*, Proceedings of the 38th National Convention of the Information Processing Society of Japan (1989 First Half) 668-69 (1989) (“Nohmi”) (Ex. 1001);
- (2) U.S. Patent No. 5,528,490 to Hill (“Hill”). (filed April 10, 1992) (Ex. 1002);

- (3) Miyaoka, et al., *Image Processing in Presentations Systems*, The Journal of the Institute of Electronics, Information and Communication Engineers, vol. 74, no. 4, 392-97 (April 25, 1991) (“Miyaoka”) (Ex. 1003);
- (4) The Complete Car Cost Guide, 1989 Edition (the “Complete Car Cost Guide”) (1989) (Ex. 1004);
- (5) U.S. Patent No. 4,876,592 to Von Kohorn (October 24, 1989) (Ex. 1005);
- (6) JP H3-74769 to Kobayashi, et al. (“Kobayashi”) (March 29, 1991) (Ex. 1006); and
- (7) Roux, *Updating CD-ROM Databases*, Chapter 14 in Lambert, S. and Ropiquet, S. (eds). *CD ROM: Optical Publishing* (1987) (Ex. 1007).

Following is my more detailed description of each of these references, whose relevance to the patentability of claims 1-21 will be analyzed in subsequent sections.

A. Nohmi

48. Exhibit 1001, by Nohmi et al. (M. Nohmi, S. Miyaoka, M. Funabashi – working at Hitachi, Ltd., in Japan) has the title *Multimedia Presentation Systems – Prototyping for Electronic Catalogs*. Nohmi describes a sales presentation system that could dynamically present proposals relating to tangible products (cars are illustrated) based on information provided by users. *See, e.g.*, Nohmi, Figure 2

(below). Published in 1989, it is one of an integrated set of publications by these authors and their colleagues, presenting various aspects of their prototyping of an evolving system. I discussed this reference in great detail in Section VII.A of my First Report, detailing its various features and advantages.

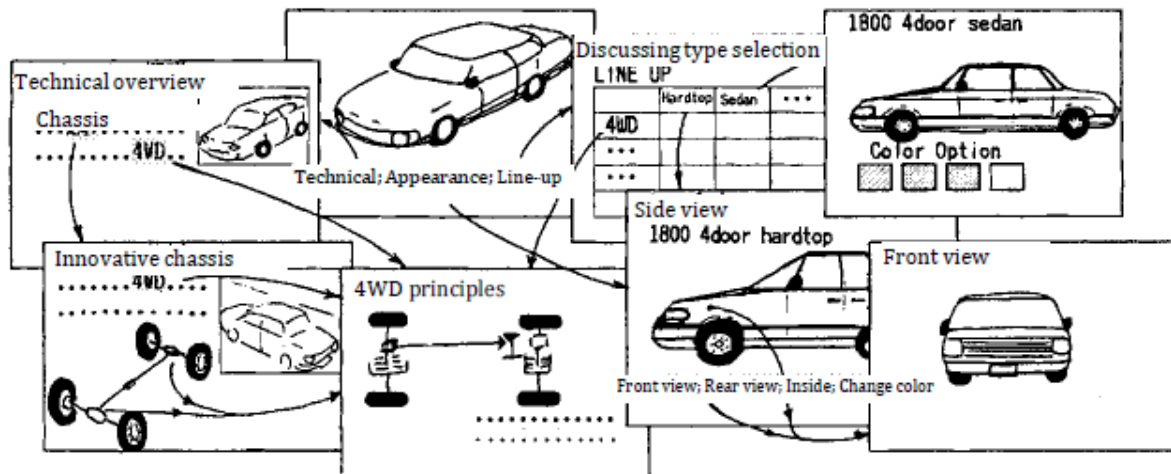


Figure 2: Outline of functions and image representation of a search

B. Hill

49. Exhibit 1002 is U.S. Patent No. 5,528,490 to Hill, entitled “Electronic Catalog System and Method.” It was first filed at the USPTO on April 10, 1992. Hill is another example of an electronic catalog system like Nohmi for producing information relating to a selected product on a customer’s computer using a connection to a central server. Hill, Abstract, col. 1, ll. 39-50. Built at a time before high-speed communications were commonplace, Hill’s system was designed so that certain product information not likely to frequently change, including graphics and textual data (“constant data”), would be stored on the

customer's computer so that information did not have to be downloaded from a central server each time the user requested information about a product. *Id.*, col. 1, l. 47-col. 2, l. 2, Figure 1C, below. In this manner, communications with a central server to satisfy a user request for product information could be limited to so-called "variable data" that could change at any time, such as cost information, thus minimizing on-line time. *Id.*, col. 1, ll. 52-56, col. 2, ll. 34-35. The computer software installed on the user's computer is illustrated in the following Figure 1C from Hill:

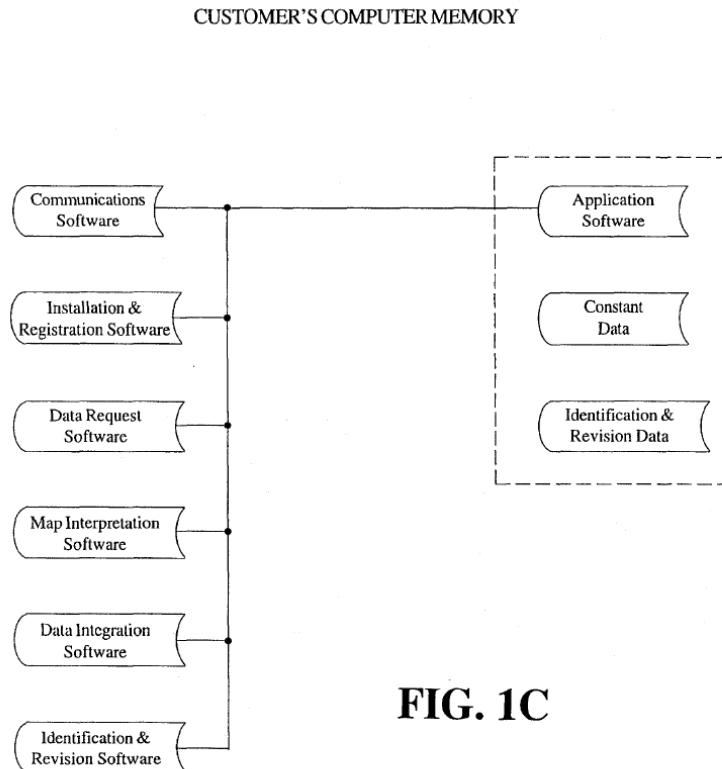


FIG. 1C

50. In this Figure 1C, it can be seen that "the memory of the customer's computer" (col. 7, l. 2) contains this "constant data" as well as "identification and

revision data.” Indeed, Hill specifically describes a methodology by which revisions to the “constant data” are pushed to the remote machine if necessary by checking a “revision status” of the “constant data”. *Id.*, col. 2, ll. 9-15. Thus, when a customer accesses the electronic catalog and requests product information, all information presented to the user is up to date.

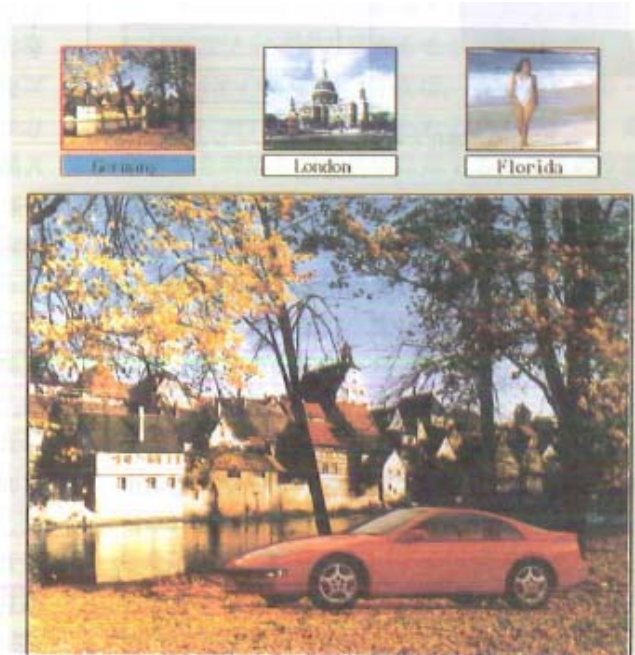
51. For instance, on start-up of Hill’s electronic catalog software (*i.e.*, prior to and not during generation of visual output), the customer’s computer compiles and sends a “constant data revision status” to the catalog provider’s computer. *Id.*, col. 18, ll. 28-46. If the “constant data revision status” indicates updates are needed, an “update file” is compiled and sent to the customer’s computer where it is unpacked into the appropriate subdirectories. *Id.*, col. 18, ll. 47-67. That “update file” contains “update information”—database content changes to the files used to present proposals regarding products to customers. Hill, col. 19, ll. 5-10 (Table 1, below), 40-45.

Revision Level	File Changed
0	All software and constant data is the same in vendor's computer 12 and customer's computer 18
1	Data file #5
1	Data file #28
1	Program file #2
2	Data file #17
3	Program file #4
4	Data file #5 (second revision)
4	Data file #6

Hill, Table 1.

C. Miyaoka

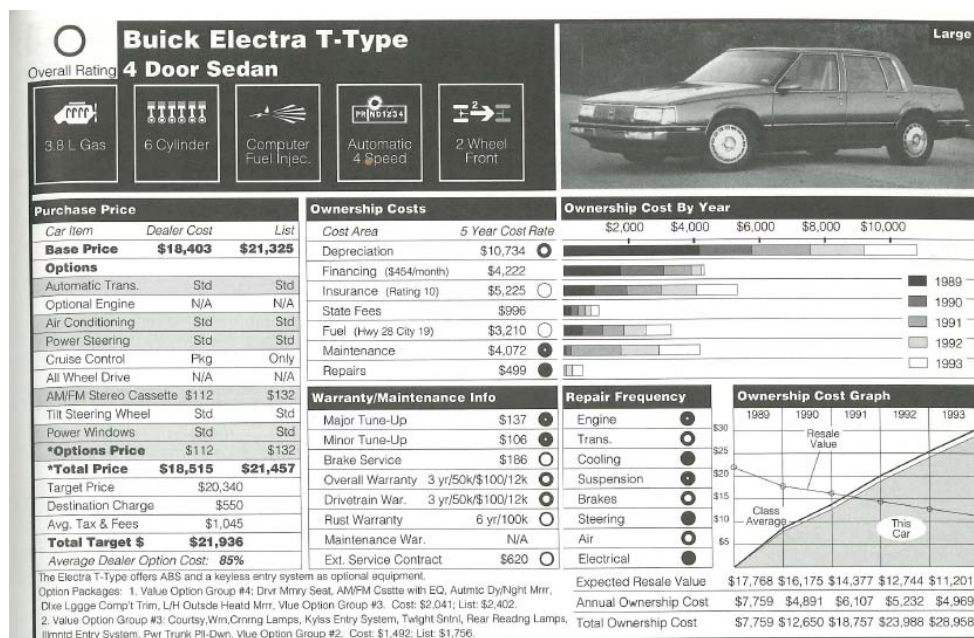
52. Exhibit 1003, by Miyaoka et al. (S. Miyaoka, M. Kato, M. Nohmi – working at Hitachi, Ltd., in Japan) (“Miyaoka”), is entitled *Image Processing in Presentation Systems*. This journal article, published in 1991, is another of an integrated set of publications by these authors and their colleagues, presenting various aspects of their prototyping of an evolving system. The first and third authors of this work correspond to the first and second authors of Nohmi. I discussed this reference in great detail in Section VII.B of my First Report, detailing its various features and advantages, including a very similar interface to the Nohmi reference allowing the retrieval of customized information of interest to that user. I explained that Miyaoka adds further details, focusing on (natural) image processing, such as to show a car in each of several background scenes. *See, e.g.,* Miyaoka, Photo 1 (below).



Miyaoka, Photo 1.

D. Complete Car Cost Guide

53. Exhibit 1004 shows the Complete Car Cost Guide – 1989 Edition, published in 1989. The Complete Car Cost Guide is evidence of the types of textual information that were included in product catalogs before the filing of the '904 Patent and thus would have been considered by a system designer in sales presentation systems seeking to create output in an individualized manner. One particularly good example is the following chart summarizing information about the “Buick Electra T-Type” vehicle, *see* Complete Car Cost Guide, p. 20:



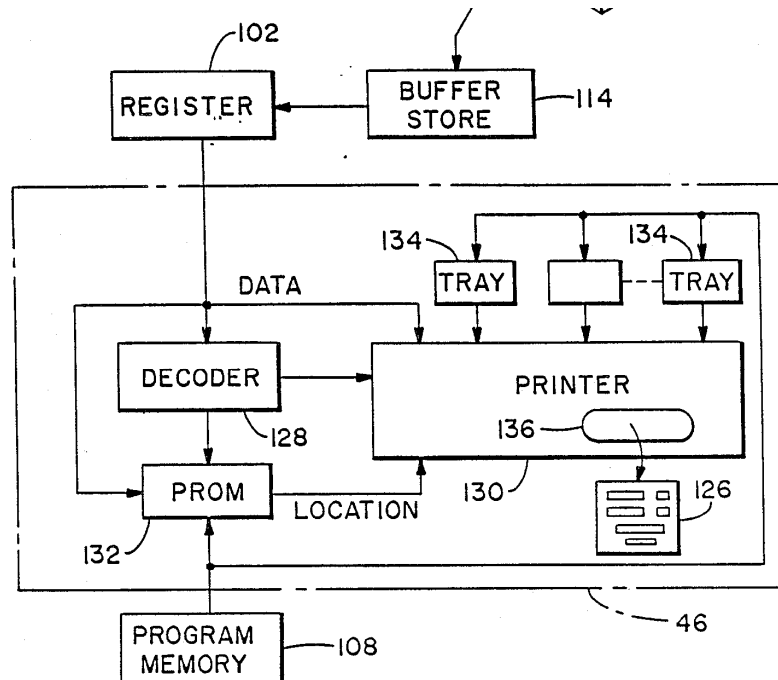
54. As can be seen from the above entry for this particular model, a “Buick Electra T-Type,” the Complete Car Cost Guide presented all manner of useful product information, including price specifications for the vehicle, product technical detail specifications such as engine size and displacement, transmission type, and option details, as well as life cycle specifications such as the projected year-by-year ownership costs for depreciation, financing, insurance, fuel, maintenance, and repairs. Warranty and maintenance information also is provided.

55. I further understand from a notation on the inner cover page that the information detailed in the Complete Car Cost Guide was already kept in a database form, *see* Complete Car Cost Guide, p. 3. This would have made integration with computerized sales presentation systems even easier. Indeed, the operation of software embodying the Complete Car Cost Guide in electronic form

is illustrated in a video presentation from 1987 that demonstrates how Apple's HyperCard software works with a database that has life cycle specification information. *See Computer Chronicles: an Introduction to Apple's Hypercard*, originally broadcast in 1987 (available at http://archive.org/details/CC501_hypercard). The relevant segment is at approximately 2:20 until 4:00.

E. Von Kohorn

56. Exhibit 1005 is U.S. Patent No. 4,876,592 to Von Kohorn, entitled "System for Merchandising and the Evaluation of Responses to Broadcast Transmissions." It issued October 24, 1989. This reference describes an embodiment of an interactive system that allows a customer in a remote shopping audience to indicate interest in particular merchandise and earn an award, e.g., against the price of that merchandise. That award is conveyed as part of a printout from the system (126 in Figure 5 below). Von Kohorn, Abstract, col. 22, ll. 14-24; col. 23, ll. 5-20, col. 32, ll. 23-45, Figure 5 (excerpted below).



Excerpt of Figure 5 of Von Kohorn

57. The relevant aspect of the Von Kohorn system is the printout of information regarding the product in which the user has expressed interest. That printout is also described to include “salesperson information,” e.g., a telephone number enabling contact with a salesperson for purchase of merchandise. *See* Von Kohorn col. 49, ll. 15-19

F. Kobayashi

58. Exhibit 1006, by Kobayashi, Noumi (Nohmi), and Miyaoka, JP H3-74769, has the title *Multimedia Presentation Systems* (“Kobayashi”). It was filed August 16, 1989, and was laid open on March 29, 1991. It was assigned to Hitachi, Ltd., of Japan, which also funded the work in Exs. 1001 and 1003. Co-

authors Nohmi (Nohmi) and Miyaoka are co-authors of Exs. 1001 (Nohmi) and 1003 (Miyaoka) too. I discussed this reference in great detail in Section VII.C of my First Report, detailing its various features and advantages, including a very similar organizational subsystem to the Nohmi reference, and explaining that Kobayashi adds further details, focusing on how to address efficiency problems by expressing the information to be displayed using a template structure (a “page”) that can be processed in real time to recall images and text from a centralized location.

G. Roux

59. Exhibit 1007 is the article by Roux, *Updating CD-ROM Databases*, which appeared as Chapter 14 in Lambert, S. and Ropiquet, S. (eds), *CD ROM: Optical Publishing* (1987). Roux, which I discussed above in detail in Part IV.B, describes various techniques for updating the information in databases stored on non-rewritable CD ROMs, including distributing collections of database content changes. *See* Roux, pp. 5-6, 9, 12-14.

60. Specifically, Roux providing database content changes via tangible media such as floppy disks or over a network connection together with an index so those database content changes can be integrated with an existing database. *See* Roux, pp. 6, 9, 13-14. Once this new index is in use, queries can be made to the combined database. *Id.*

VIII. UNPATENTABILITY OF CLAIMS 1-21 OF THE '904 PATENT

61. This section includes a discussion of the unpatentability of claims 1-21 of U.S. Patent No. 8,121,904 (the “’904 Patent”) to Johnson. Claims 2-20 depend from claim 1. Claim 21 is another independent claim, but, as I discuss further below, that claim contains only limitations found elsewhere in claims 1-20.

62. Both independent claims 1 and 21 recite the same seven structural components:

- 1) a “**user interface**” which “quer[ies] the user regarding product interests”;
- 2) a “**selection device**” “operatively connected to the user interface” “configured to present a customized proposal to the user based on the user’s product interests”;
- 3) an “**active database**” “operatively connected to the selection device” “configured to store the user’s product interests”;
- 4) a “**report database**” “operatively connected to the selection device” “configured to store a plurality of page layouts”;
- 5) a “**static database**” “operatively connected to the selection device” “configured to store product information”;
- 6) a “**difference database**” “operatively connected to the static

database” that “stores update information configured for transmittal to the static database”; and

- 7) a “**report generator**” “operatively connected to the active database, the report database, the selection device, and the static database” “configured to link page layout identifiers with particular data that appear in the **customized proposal**, wherein the customized proposal includes at least one item based upon the user’s product interests, and wherein the at least one item includes at least one of: a product picture, an environment picture, and a text portion.”

63. All of the dependent claims (2-19) depend from claim 1. Each purports to add further features to one of the seven structural components described above. In particular, dependent claims 2, 3, and 15 address features of the “user interface” and its “quer[ies],” such as that the “query of the user interface comprises ... [certain] query portions.” Dependent claims 4, 5, 14, and 16 address the “proposal” presented by the “selection device” and what it contains. Dependent claims 6, 7, and 17 address features of the “active database” and particularly what information is stored therein, such as “information received from the user in response to at least one ... query portion[.]” Dependent claims 8, 9, and 18 address features of the “report database” and the “page layouts” stored therein, such as that “at least one of the page layouts is configured to display a product

picture of a product selected by the user, an environment picture of an environment selected by the user, and a text portion, wherein the text portion is associated with at least one of the product and the environment.” Dependent claims 10, 11, and 19 address features of the “static database” and what it stores, such as “a plurality of product pictures, a plurality of environment pictures, and a plurality of text portions, wherein each text portion is associated with at least one of a product and a environment.” Dependent claims 12, 13, and 20 address features of the “report generator,” specifically how a “report” is generated and what is inserted therein.

64. Several dependent claims, particularly claims 2, 4, 6, 8, and 14, do not appear to further limit claim 1 in any way. In other words, they either appear to repeat the same limitation that is contained in claim 1, or recite a broader connotation of it. For instance, the user interface limitation of claim 1 requires “a user interface configured to query the user regarding product interests of the user,” while claim 2 requires “the user interface [be] configured to query the user regarding interests of the user.” In my opinion, a recitation of “interests” alone necessarily includes such “product interests.” This is similarly the case with respect to claims 4 and 6. Claim 8 merely appears to repeat the same report database limitation contained in claim 1. Claim 14 similarly appears to repeat the “at least one item” requirement of the last “wherein” clause of claim 1.

65. Claim 21 is merely an amalgamation of various elements described in

claims 1-20, with only minor differences in formulation. Specifically, claim 21 contains each of the same seven basic elements described above that are found in claim 1: a user interface, a selection device, an active database, a report database, a static database, a difference database, and a report generator. The elements perform the same functions as in claim 1 as well, but include additional detail found in dependent claims 2-19. For example, claim 21 requires:

“a selection device operatively connected to the user interface, wherein the selection device is configured to create a proposal for the user by using information regarding interests of the user obtained via the user interface, wherein the proposal includes at least one product picture, at least one environment picture, and at least one text portion based upon information regarding interests of the user obtained via the user interface;

66. This formulation merely combines the limitations found in claims 4 and 5:

4. The computer system of claim 1, wherein the selection device is configured to create a proposal for the user by using information regarding interests of the user obtained via the user interface.

5. The computer system of claim 4, wherein the proposal includes at least one product picture, at least one environment picture, and at least one text portion based upon information regarding interests of the user obtained via the user interface.

67. The same is the case for:

- 1) the user interface limitation of claim 21, which includes the limitations of claims 2 and 15,
- 2) the active database limitation, which includes the limitations of claims 6 and 7,
- 3) the report database limitation, which includes the limitations of claims 8 and 9,
- 4) the static database limitation, which includes the limitations of claims 10 and 11, and
- 5) the report generator limitation, which includes the limitations of claims 12 and 13.

68. Accordingly, I believe that the elements of claim 21 can be addressed merely by referencing the teachings of the prior art as they relate to claim 1 and its various dependent claims.

69. The following subsections give details regarding the obviousness of claims 1-21, based on analysis of the prior art references given above in Section VII. All of those references are prior art under 35 U.S.C. §§ 102(b) or 102(e).

70. I consider the legal principles discussed in Section IV.D of my First Declaration in the discussions below of obviousness. In the interest of brevity, the discussions below are presented in a prose style. I reserve the right to explain further if such is warranted or desired.

71. Also to save space, I provide here some general comments, so they will not have to be repeated in each of the subsections below. First, a person of ordinary skill in the art, familiar with the use of computerized systems with documents, involving electronic publishing, hypertext, hypermedia, multimedia, CD-ROM, database, and similar information processing and management technologies (as explained in Subsection IV.A of my First Declaration), would have been knowledgeable about the state of the art at the time, as explained in Section VI of my First Declaration and Section VI above, in view of the claim constructions discussed above in Section V. Second, such a person, if faced with the need to address each of claims 1-21, would have been motivated to consider the combinations discussed below in Subsections A-H. That is because it would have been obvious that these references are from the same field (as stated above—the use of computerized systems with documents, involving the then rapidly converging areas of electronic publishing, interactive user interfaces, hypertext, hypermedia, multimedia, CD-ROM, database, and similar information processing and management technologies) and are targeted at the same problem, namely the integrated use of text and images for interactive support of customized sales of products.

72. Below is my analysis of each of these prior art references and why they teach each of the elements of each of claims 1-21.

A. Nohmi and Hill Teach All Elements of Claims 1-8, 10, 12, and 14-17

73. In my opinion, claims 1-8, 10, 12, and 14-17 of the '904 Patent are unpatentable since each of these claims is rendered obvious by Nohmi in view of Hill. In general, I understand Nohmi and Hill to be naturally combinable, since both describe automating the creation and presentation of customized sales materials for customers. Both Nohmi and Hill make use of databases to facilitate the presentation of product information. One skilled in the art, reading Nohmi, would be motivated to add Hill's technique for updating product information, as it was well known that such a modification would improve the effectiveness of an electronic catalog such as Nohmi that was otherwise static, particularly in view of the fact that the Nohmi system was designed to be distributed on a non-rewritable medium (CD-ROM). I do not perceive any incompatibilities between Nohmi and Hill that would stand in the way of such a combination.

74. Beginning with the preamble of claim 1, Nohmi teaches a "computer system for facilitating sales of a product to a user." Specifically Nohmi teaches a "sales presentation system being put to practical use; it enables real presentations

for products.” Nohmi, Introduction.³ Further, Nohmi describes that the disclosed “sales presentation system” is a “multimedia presentation system that applies the concept of hypermedia for the purpose of sales presentations.” *Id.* This allows users to interact with Nohmi’s system to obtain the information they desire regarding various models, features, and uses of cars. *See* Nohmi, § 3.1 (a “car”); § 3.3 (an electronic “car catalog”); Figures 2, 3 (showing images of cars). Thus, Nohmi’s “multimedia presentation system” generates “customized output” that facilitates a sale of a tangible product, cars. Further, the “multimedia presentation system ... [is] integrated onto a work station (HITAC-2050, 2050G),” *i.e.*, a computer system. Nohmi, § 3.1.

75. Nohmi also teaches what is described in the “**user interface**” limitation: “a user interface configured to query the user regarding product interests of the user.” Nohmi teaches an interface (a “car catalog”) that uses selectable keywords or elements within images (called “KEYS”) as well as menus composed of text and images (called “MENUS” with “SELECTORS”) that each pose a “query” that a customer interested in a car could select to indicate product

³ When referring to Nohmi, for consistency I refer to the section numbers of the English translation, as the page numbers on the translation do not correspond to the Japanese original.

interests such as a desired product feature.⁴ This is illustrated below in Nohmi, Figure 2. See Nohmi, §§ 2, 3.1, 3.3, and 3.4 (discussing “KEY,” “MENU,” and “SELECTOR” objects).

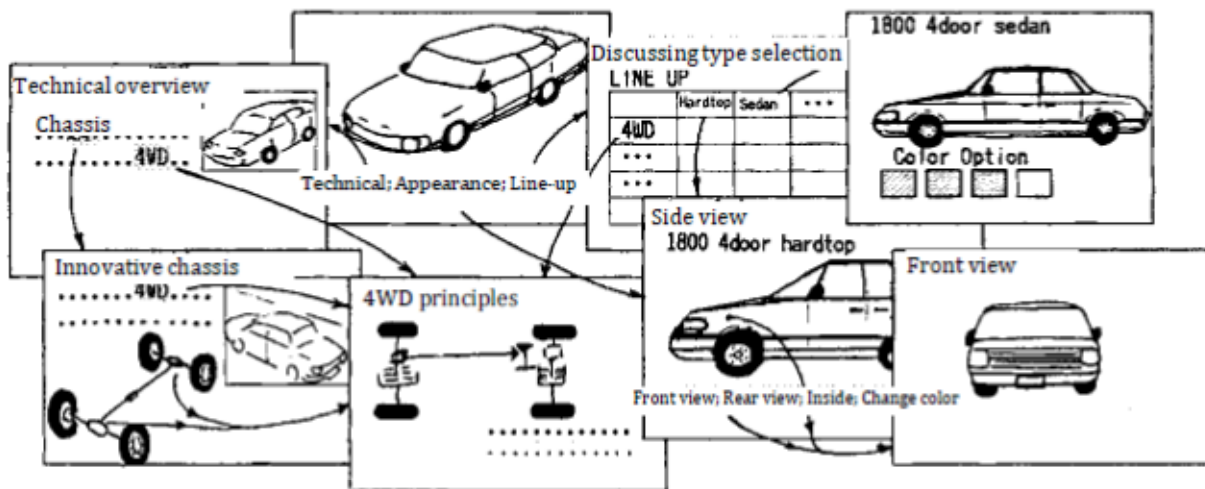


Figure 2: Outline of functions and image representation of a search

76. As this figure shows, when a customer is presented with a selectable keyword or image element (a KEY) for “Hardtop” or “4WD,” the system is posing a “query” regarding whether he or she wishes to learn more about the “Hardtop” feature or the use of “4WD principles.” Other queries could include such items as particular technical options, or type of chassis. The specific use of hypermedia as a mechanism for querying is discussed in Nohmi’s Introduction and Sections 3.1,

⁴ See the last part of Section VI.A above for further discussion of this type of posing a query that is applied against a hyperbase (a hypermedia database). The following paragraph also discusses this scheme in more detail.

3.2, and 4 of the text. The selectable keywords or image elements (“KEYS,” which are like the clickable textual or graphical “links” of modern webpages), and text and image menus (“MENUS,” with “SELECTORS”) in the hypermedia car catalog serve as queries, with answers given in response to clicks on those objects. Some of the examples shown in Nohmi’s Figure 2 include “questions” to a customer regarding whether she would like to learn more about 1) the “Innovative chassis” of the car, 2) the “Hardtop” or “Sedan” models, or 3) how and where they can use the car with “4WD.” *See* Nohmi, Figure 2, above.

77. Nohmi also teaches what is described in the **“selection device”** limitation: “a selection device operatively connected to the user interface, and configured to present a customized proposal to the user based on the user’s product interests.” Nohmi’s selection device is simply the computer code (or “computer code data structure,” as the District Judge put it) that presents a customized proposal to a user based on input from an operatively connected user interface by causing a selected “page” (a “list” of objects) to be displayed to that user. *See, e.g.,* Nohmi, § 3.4 (“In order to realize this type of structure, the system is represented by a list structure like what is illustrated in Figure 4.”), Figure 2 (showing exemplary outputs of this computer code), Figure 4 (illustrating how a page is generated from a page’s list structure by sequentially processing and rendering all of the various elements of the page).

78. Nohmi also teaches what is described in the “**active database**” limitation: “an active database operatively connected to the selection device, and configured to store the user's product interests.” Nohmi's active database is the record of the collection of selectable keywords, selectable image elements, and menu items selected as shown in Figure 2, that at least records the customer's product interest including car color option preference so that it can be properly included in “pages” that refer to this information. *See also* Nohmi, § 3.3 (“key elements are recorded”); § 3.1(3) (“Processing (Simulations for changing the color of the body)”); § 3.4 (discussing pointer in the page structure to “start up the color-changing simulation”). As required by the District Judge's construction, this is a “[collection of logically related data stored together in one or more computerized files] that is alterable based on user input.” The “logically related data” are the key elements that are recorded by the system, and this collection is alterable, as explained above, depending on what selections a user (customer) makes.

79. Nohmi also teaches what is described in the “**report database**” limitation: “a report database operatively connected to the selection device, and configured to store a plurality of page layouts.” Nohmi's system keeps a “database” (what the District Judge defined as a “collection of logically related data stored together in one or more computerized files”) of page layouts “managed as independent objects” and stored on “a file on the hard disk.” Nohmi, § 3.4. Of

course, the claimed selection device must necessarily be operatively connected to this database to enable “pages” to be rendered. Page layouts are exemplified by the sample “page” layout shown in Figure 3 (reproduced below), which is triggered for display by Nohmi’s operatively connected selection device.

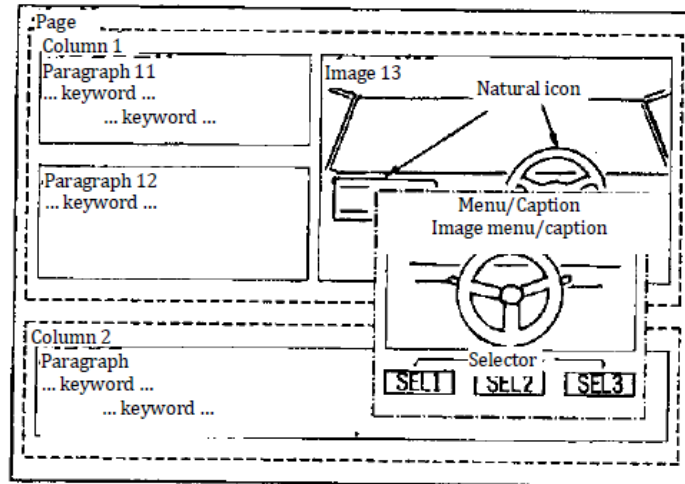


Figure 3: Page structure

80. Figure 3 illustrates one sample page layout (relating to detail about a car interior), which shows how various paragraphs of linked textual information can be organized into columns and integrated with images and menus.

81. Nohmi also teaches what is described in the “static database” limitation: “a static database operatively connected to the selection device, and configured to store product information” – with “static database” meaning (as the District Judge held) a “[collection of logically related data stored together in one or more computerized files] that [are] not alterable during generation of a composite visual output.”

82. Nohmi describes in Section 2 that its software is designed to be run from “dedicated media that uses a CD-ROM or similar packaged media”—media that obviously foreclose “alteration” of the database that is contained on them, particularly during generation of a composite visual output. Of course a product seller’s database of products in such a system could not really be altered during the short time involved in creating a composite visual image or proposal for conveyance to a customer; hence the database of product information, at a minimum, is not “alterable” during the generation of the composite visual image or proposal.

83. In Nohmi, moreover, the separately stored particular images and text are obtained by hypermedia retrieval from centralized storage on that media. *See* Nohmi, § 3.1(2) (“Hyper retrieval”); 3.2 (“the following link structure allows for network-based retrieval, which is the basic architecture for hypermedia.”). The contents of the centralized storage thus constitute a “collection” of data. Further, the data are “logically related” because (1) they all concern the products being marketed through use of the Nohmi system, and (2) they are the organized text and image elements that the Nohmi system is capable of displaying.

84. Nohmi does not describe what is required by the “**difference database**” limitation: “a difference database operatively connected to the static database, wherein the difference database stores update information configured for

transmittal to the static database.” But Nohmi does describe distribution via a “dedicated media that uses a CD-ROM or similar packaging.” Nohmi, § 2.

85. As I explained above, however, Hill clearly teaches a “difference database” that could be integrated with Nohmi’s electronic catalog that can be operatively connected to permit database content changes to be sent to computers relying on information conveyed on distributed media. Specifically, Hill describes a “data base log of changes” (a revision “data base” on vendor computer 12) that is operatively connected via a modem connection to the static database (i.e., product information stored on the customer’s computer as “constant data,” *see* Hill, col. 18, ll. 28-46). *See also* Hill, col. 8, ll. 18-52.

86. When Hill’s electronic catalog is launched, the customer’s computer compiles and sends a “constant data revision status” to the catalog provider’s computer. Hill, 18:28-46. If the “constant data revision status” indicates updates are needed, an “update file” is compiled and sent to the customer’s computer, where it is unpacked into the appropriate subdirectories. Hill, col. 18, ll. 47-67. That “update file” contains “update information” as I believe that term would have been understood by one of ordinary skill—“database content changes” to the product information used to present proposals regarding products to customers. Hill, col. 19, ll. 5-10, 40-45.

87. Nohmi also teaches what is described in the “**report generator**” limitation: “a report generator operatively connected to the active database, the report database, the selection device, and the static database, and configured to link page layout identifiers with particular data that appear in the customized proposal, wherein the customized proposal includes at least one item based upon the user’s product interests, and wherein the at least one item includes at least one of: a product picture, an environment picture, and a text portion.”

88. As can be seen in Figure 2 (reproduced above), Nohmi links selected images and text segments into a “customized proposal,” that is, “information intended for conveyance to the customer.” It does this by compositing the selected images and text segment into a composite visual display, namely, a “page,” the structure of which is described in Figure 3 (reproduced above). *See* Nohmi, § 3.4 (“the page structure for implementing the various link structures shown above [in Figure 2], as illustrated in Figure 3, has the following stratified configuration, where each stratum is managed as an object”).

89. Specifically, when rendering a “page” for the user, Nohmi does so based on the customer’s selection of a KEY, SELECTOR, or MENU (as directed by Nohmi’s operatively connected selection device) and fills that “page” with text and images to produce a customized proposal. *See* Nohmi, Figure 3, § 3.4 (“[T]he page ... structure for implementing the various link structures shown above, as

illustrated in Figure 3, has the following stratified configuration, where each stratum is managed as an object.”); *see also* § 3.4 (“In order to realize this type of structure, [a ‘page’] is represented by a list structure like what is illustrated in Figure 4.”). This list structure provides a series of page layout identifiers, that is, placeholders for data to be inserted in the page layout.

90. Further, the Nohmi system specifically links separately stored “PARAs” (text) and “IMAGEs” (images) from the operatively connected static database for display based on what the page layout identifiers prescribe for a given “page” structure. *See* Nohmi, Figure 4 (below).

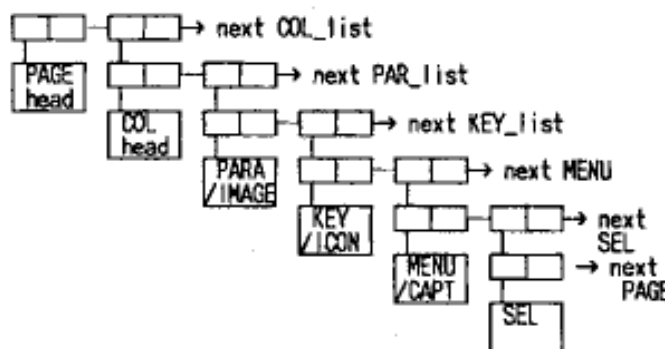


Figure 4: Representation of pages by a list structure

91. Figure 4 illustrates an example of the list structure underlying a page and how it is processed. First the PAGE_head or Page Header is processed and rendered, then each, COL_list, or column. Within each column, each link to each PARA (textual information) and IMAGE (image) in a PAR_list is processed and rendered. Next, KEYs (clickable keywords) or ICONs (clickable images) are

established, followed by any MENUs. Other linkages that may be established include a “link to a program (a rule or function) and this function is used to start up the color-changing simulation” to alter a displayed IMAGE based on, e.g., information collected by the Nohmi system such as a user’s preferred car color (stored in Nohmi’s operatively connected active database). *See* Nohmi, § 3.4.

92. Nohmi also teaches the second part of the “**report generator**” limitation: that “the customized proposal includes at least one item based upon the user’s product interests, and wherein the at least one item includes at least one of: a product picture, an environment picture, and a text portion.”

93. Specifically, depending on what query is answered by the user (by a menu selection or clicking on a selectable keyword or image element on one of Nohmi’s catalog “pages”) Nohmi’s computer system selects the information that next will be shown to the customer. *See* Nohmi, § 3.1(2) (“Hyper retrieval (text, natural images)”); § 3.3 (“when that key is selected, the new page specified thereby is displayed”). The specific page elements that are separately selected for display can include, as shown in Figure 2 of Nohmi:

- “a product picture,” such as the various pictures of a car in Figure 2 and particularly the depiction of the car on the “Innovative chassis” page;

- “an environment picture,” such as the depiction of the car on the “Innovative chassis” page in which an image of the car is shown on an image of a normal road, and;
- a “text portion,” such as the dotted lines on the “Innovative chassis,” which represent text about the product, including its “4WD” specifications and performances.

94. Selection of these elements is confirmed by the data structure for “pages,” which include separate elements for Paragraph (“PARA”) and Image (“IMAGE”). *See* Nohmi, § 3.4. This means that each paragraph and image element is individually referenced within the “page,” and therefore included by the software when that paragraph or image element is processed.

95. Since the Nohmi and Hill combination teaches all elements I have identified above as necessary to anticipate independent claim 1, it is my opinion that the combination renders claim 1 obvious.

96. In addition to disclosing all of the elements necessary to anticipate independent claim 1, the Nohmi and Hill combination also teaches what is described by dependent claims 2-8, 10, 12, and 14-17.

97. As to claim 2, which requires “the user interface is configured to query the user regarding interests of the user,” I noted my belief above, that what meets the “**user interface**” element also would be sufficient to meet this limitation,

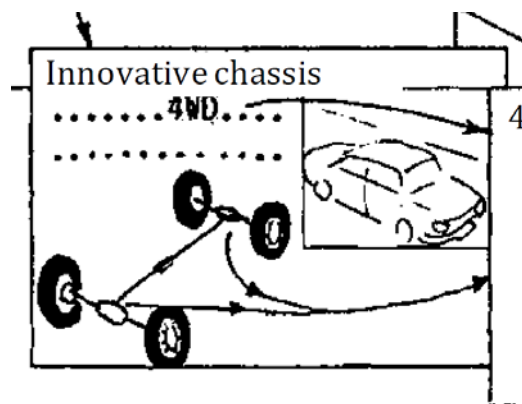
as a recitation of “interests” alone necessarily includes such “product interests.” Therefore, as Nohmi teaches querying the user regarding her “product interests,” the Nohmi and Hill combination renders claim 2 obvious as well.

98. Claim 3, which depends from claim 2, adds the additional requirement that “the query includes at least one of the following query portions: a first query portion regarding selecting the product, a second query portion regarding an intended use for the product, a third query portion regarding a request for technical information, and a fourth query portion regarding selecting a product option by the user.” As I established above, Nohmi teaches querying the user regarding her product interests. But Nohmi also separately teaches querying for at least one of selecting the product (a link to the “LINE UP” page), an intended use for the product (a link for “4WD”), a request for technical information (a link to the “Technical overview” page), or a product option (a link for displaying a “Hardtop” visual). *See, e.g.*, Nohmi, Figure 2 (above). Thus the Nohmi and Hill combination renders claim 3 obvious as well.

99. Claim 4 is similar to claim 2 in that the requirement that the “selection device is configured to create a proposal for the user by using information regarding interests of the user obtained via the user interface” is not any narrower than the “selection device” element of claim 1 discussed above. Since Nohmi

teaches creating a proposal for the user using her “product interests,” the Nohmi and Hill combination renders claim 4 obvious as well.

100. Claim 5 depends from claim 4 and further adds that “the proposal includes at least one product picture, at least one environment picture, and at least one text portion based upon information regarding interests of the user obtained via the user interface.” As I have explained above with respect to the second part of the “**report generator**” limitation, Nohmi teaches including all these things in various “pages” of the customized proposal that is generated. But Nohmi also specifically shows how all of these things can be present on a single “page”: For example, in response to the user expressing interest in the “Innovative chassis” of a product, the “Innovative chassis” page is displayed, which includes a composite image of a car (product image) on a road (environment image), a separate image of the car chassis (product image), and a text portion describing at least “4WD.” See Nohmi, Figure 2 (excerpted below). Thus, the Nohmi and Hill combination renders claim 5 obvious as well.



101. Claim 6 is similar to claim 2 in that the requirement that the “active database is configured to store information regarding interests of the user obtained via the user interface” is not any narrower than the “**active database**” element of claim 1 discussed above. Since Nohmi teaches storing a user’s “product interests” the Nohmi and Hill combination renders claim 6 obvious as well.

102. Claim 7 depends from claim 6 and adds the requirement that “the information stored in the active database includes information received from the user in response to at least one of the following query portions: a first query portion regarding selecting the product, a second query portion regarding an intended use for the product, a third query portion regarding a request for technical information, and a fourth query regarding a selection of a product option by the user.” As explained above, Nohmi teaches collecting and storing a user’s car color preference, which is a “product option,” and storage of only one of the above query portions is required to meet the claim. Accordingly, the Nohmi and Hill combination renders claim 7 obvious as well.

103. Claim 8 appears to repeat the same report database limitation contained in claim 1. As I have explained above, Nohmi teaches such a “**report database**” of page layouts “managed as independent objects” and stored on “a file on the hard disk.” Nohmi, § 3.4. Accordingly, the Nohmi and Hill combination renders claim 8 obvious as well.

104. Claim 10 requires that the “**static database**” of claim 1 also store “a plurality of product pictures, a plurality of environment pictures, and a plurality of text portions, wherein each text portion is associated with at least one of a product and an environment.” As part of the product information that I explained above is stored in the “**static database**” limitation of claim 1, Nohmi separately stores for retrieval: product pictures, environment pictures, and text portions associated with at least one of a product and an environment as exemplified in Figure 2. *See also* Nohmi, § 3(2) (“Media Retrieval functions... Hyper retrieval (text, natural images)”). Accordingly, the Nohmi and Hill combination renders claim 10 obvious as well.

105. Claim 12 requires that the “**report generator**” of claim 1 also “read a page layout from the report database, read a product picture, an environment picture, and a text portion selected by the selector from the static database based upon information from the active database, and generate a report by inserting the product picture, the environment picture, and the text portion into the page layout.” As I explained above, Nohmi’s “**report generator**” reads the structure of a page layout to be rendered based on the customer’s selection of a KEY, SELECTOR, or MENU, and determines which stored “PARAs” (text) and “IMAGEs” (images) are to be included in the “page” display based on information in the “active database” (i.e., the user’s selected car color). Nohmi’s report generator then retrieves those

stored “PARAs” (text) and “IMAGEs” (images), and generates the “page” for display by inserting the product picture, the environment picture, and the text portion into the page layout. This process is shown in Figure 4 of Nohmi (above). *See also* Nohmi, § 3(2) (“Media Retrieval functions... Hyper retrieval (text, natural images)”), Figure 3 (showing page structure). Accordingly, the Nohmi and Hill combination renders claim 12 obvious as well.

106. Claim 14 appears to repeat the “at least one item” requirement of the second part of the “**report generator**” element of claim 1, relating to the content of the customized proposal. As explained above, Nohmi teaches generating a customized proposal based on user interests that includes at least one of a product picture, an environment picture, and a text portion. *See* Nohmi, § 3(2) (“Hyper retrieval”); § 3.3 (“when [a] key is selected, the new page specified thereby is displayed.”); § 3.4 (“Data structure for pages,” separate elements for Paragraph “PARA” and Image “IMAGE”). Accordingly, the Nohmi and Hill combination renders claim 14 obvious as well.

107. Claim 15 is similar to claim 3 but requires the “query of the user interface [to] comprise[] the following query portions: a first query portion regarding selecting the product, a second query portion regarding an intended use for the product, a third query portion regarding a request for technical information, and a fourth query portion regarding selecting a product option by the user.” That

is, claim 15 requires a multi-part query, as I have described above in Section IV.A. Nohmi does not appear to describe such a multi-part query, although as I have explained above it does show discrete queries for each of the required “query portions” of claim 15. Hill, however, teaches generating a query from multiple selection criteria, each corresponding to design characteristics of products contained in Hill’s electronic catalog system. Hill, col. 16, l. 22. I believe one of ordinary skill would have been motivated to incorporate this ability to generate a query based on multiple inputs into Nohmi to allow users of the Nohmi system a more direct way to generate a customized output corresponding to the exact product configuration they desire. Accordingly, the Nohmi and Hill combination renders claim 15 obvious as well.

108. Claim 16 requires that “the selection device is further configured to create a proposal for the user by using information regarding interests of the user obtained via the user interface, and wherein the proposal includes at least one product picture, at least one environment picture, and at least one text portion based upon information regarding interests of the user obtained via the user interface.” On closer inspection, claim 16 does not appear to have any different scope than the limitations required by claims 4 and 5, and merely appears to string them together in a single claim. With reference to my discussion of claims 4 and 5 above, Nohmi teaches creating a proposal for the user using her “product

interests,” which is subsumed within the required “interests” of this claim, and the proposals generated by Nohmi can include at least one product picture, at least one environment picture, and at least one text portion based upon information regarding interests of the user obtained via the user interface, as shown in, for example, the “Innovative chassis” “page” of Figure 2 of Nohmi, which is displayed to the user after the user conveys her interest in learning more about the “Innovative chassis” of a particular car model. Accordingly, the Nohmi and Hill combination renders claim 16 obvious as well.

109. Similar to claim 16, claim 17 appears to string together the limitations of claims 6 and 7 as they relate to the “**active database**” of claim 1: “wherein the active database is further configured to store information regarding interests of the user obtained via the user interface, and wherein the information stored in the active database includes information received from the user in response to at least one of the following query portions: a first query portion regarding selecting the product, a second query portion regarding an intended use for the product, a third query portion regarding a request for technical information, and a fourth query regarding a selection of a product option by the user.” As I explained above, Nohmi teaches storing a user’s “product interests” which is subsumed within the required collection of “interests” of this claim, and the particular “product interests” collected include at least storing a user’s car color preference, which is a

“product option.” *See* Nohmi, Figure 2. Accordingly, the Nohmi and Hill combination renders claim 17 obvious as well.

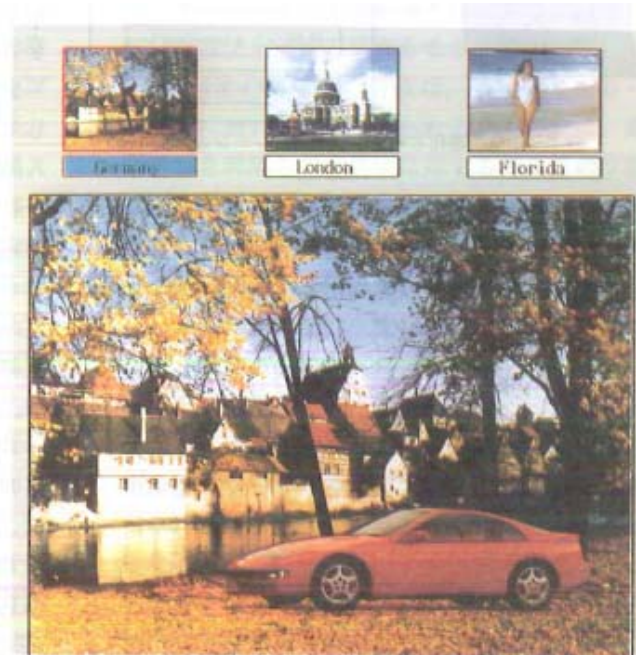
B. Nohmi, Hill, and Miyaoka Teach All Elements of Claims 9 and 18

110. As discussed above in Subsection A, the claims upon which challenged dependent claims 9 and 18 depend are obvious (claims 8 and 1, respectively). So, here I focus on additional features described in those claims, which are taught in Miyaoka.

111. Claim 9 adds to claim 8 that “at least one of the page layouts is configured to display a product picture of a product selected by the user, an environment picture of an environment selected by the user, and a text portion, wherein the text portion is associated with at least one of the product and the environment.” As I discussed above with respect to Nohmi’s teaching of the subject matter of claim 5, Nohmi alone teaches a page layout (*e.g.*, the “Innovative chassis” “page”) that includes a product picture of a product selected by the user (the particular product that the user has selected to view), an environment picture, and a text portion associated with at least the product. Whether that environment picture is specifically of an environment separately selected by the user is unclear.

112. Miyaoka, however, addresses this possible deficiency by clearly allowing a user to separately select one of a plurality of environments (*e.g.*, “Germany,” “London,” “Florida”) that is used to create a composite image, that is,

“an image of a scene showing a product placed in the environment in which it is actually used with the product colors or patterns being changed. This is the part where the advantages of digital image processing can be maximized.” *See* Miyaoka, § 2.1, Photo 1.



Miyaoka, Photo 1.

113. I understand Miyaoka to be a natural addition to the Nohmi and Hill combination. First, both references share co-authors. Second, they discuss the same prototyping endeavor, with the same application (customized sales presentations) and application goals. Third, Miyaoka specifically states that it aims to use image processing methods to further enhance the quality of sales support, since greater use of color images appeals to customer senses, and since images with a product set in a usage environment also yield more effective presentations.

Miyaoka, Abstract and Section 1. These are simply additional features that could have been added to a system like the one contemplated by the Nohmi and Hill combination, and it is my opinion that one of ordinary skill would have found making such additions obvious. I do not perceive any incompatibilities between Nohmi, Hill, and Miyaoka that would stand in the way of such a combination. As a result, the Nohmi and Hill combination, supplemented by Miyaoka, renders claim 9 obvious.

114. Claim 18 recites this same limitation—“wherein at least one of the page layouts of the report database is configured to display a product picture of a product selected by the user, an environment picture of an environment selected by the user, and a text portion, and wherein the text portion is associated with at least one of the product and the environment”—depending directly from claim 1 instead of claim 8. As I mentioned above, claim 8 does not appear to have any different scope from the “**report database**” limitation of claim 1, so there is no reason why the same rationale I have provided for rendering obvious claim 9 would not also apply to this claim. Thus, the Nohmi and Hill combination, supplemented by Miyaoka, also renders claim 18 obvious.

C. Nohmi, Hill, and the Complete Car Cost Guide Teach All Elements of Claims 11 and 19

115. As discussed above in Subsection A, the claims upon which challenged dependent claims 11 and 19 depend are obvious. So, here I focus on

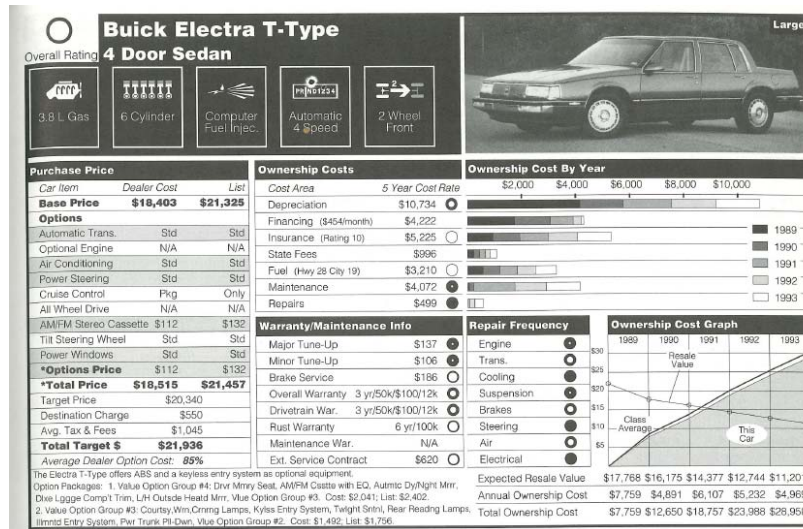
additional features described in those claims, which are taught in the Complete Car Cost Guide.

116. Claim 11 depends from claim 10, and further requires that the “**static database**” element of claim 1 store “a plurality of product technical detail specifications, a plurality of price specifications, and a plurality of life cycle specifications.”

117. Nohmi further teaches product technical detail specifications as would be displayed on a “LINE UP” page listing available models and described on a “Technical overview” page (both shown in Figure 2 of Nohmi). But Nohmi does not appear to explicitly teach storing a plurality of price specifications or a plurality of life cycle specifications. By contrast, Hill teaches price (cost) specifications, but not life cycle specifications. *See* Hill, 1:63-64 (“cost information [is] stored on vendor’s computer”).

118. The Complete Car Cost Guide, however, addresses any possible deficiency, and teaches price specifications in the form of both original MSRP and current estimated selling prices for each car model, along with life cycle specifications corresponding to projected ownership costs for the product, including depreciation, annual maintenance, and projected repair costs. *See* Complete Car Cost Guide, at 19, 20 (excerpted below, *see* Ownership Costs subtable). The Complete Car Cost Guide also teaches product technical detail

specifications in the form of lists of the technical features available for each car model. A sample output from the Complete Car Cost Guide is reproduced here:



Complete Car Cost Guide, p. 20.

119. As can be seen from the Figure, for each vehicle, a variety of information about the vehicle is presented, including technical detail specifications (engine and transmission specifications and option details), price specifications (dealer cost and list pricing information for the vehicle and options), and lifecycle specifications (estimated costs over 5 years for depreciation, financing, taxes, insurance, fuel, maintenance, and repairs).

120. In my opinion, it would have been obvious to add this information from the Complete Car Cost Guide to the “**static database**” of the Nohmi and Hill combination since the Complete Car Cost Guide is an example of a type of an omnibus “product catalog” established to be the prior art that the Nohmi system

was designed to computerize. This would have added further information known to be useful to consumers, that would have improved the effectiveness of proposals generated by Nohmi's system. I do not perceive any incompatibilities between Nohmi, Hill, and the Complete Car Cost Guide that would stand in the way of such a combination.

121. Further, it appears to me that the information detailed in the Complete Car Cost Guide was available in database form, *see* Complete Car Cost Guide, p. 3, making it even easier to integrate with a system such as that embodied by the Nohmi and Hill combination. Indeed, as I noted above, the creators of the Complete Car Cost Guide separately computerized the material in a hypermedia program in 1987. Accordingly, the Nohmi and Hill combination, supplemented by the Complete Car Cost Guide, renders claim 11 obvious.

122. Similar to claims 15 and 16 discussed above, claim 19 appears to string together the limitations of claims 10 and 11 as they relate to the “**static database**” of claim 1: “wherein the static database stores a plurality of product pictures, a plurality of environment pictures, and a plurality of text portions, wherein each text portion is associated with at least one of a product and a [sic] environment, and wherein the static database further stores a plurality of product technical detail specifications, a plurality of price specifications, and a plurality of life cycle specifications.”

123. As I explained above, Nohmi teaches a “static database” containing product pictures, environment pictures, and text portions associated with at least one of a product and an environment, and the Complete Car Cost Guide teaches the rest. Accordingly, the Nohmi and Hill combination, supplemented by the Complete Car Cost Guide, renders claim 19 obvious as well.

D. Nohmi, Hill, and Von Kohorn Teach All Elements of Claims 13 and 20

124. As discussed above in Subsection A, the claims upon which challenged dependent claims 13 and 20 depend are obvious. So, here I focus on additional features described in those claims, which are taught in Von Kohorn.

125. Claim 13 adds a two-part limitation to the “report generator” of claim 12: “the report generator is further configured to: insert salesperson information into the report, and transmit the report.”

126. Neither Nohmi nor Hill appears to teach including salesperson information in a report or proposal. Von Kohorn, however, cures this deficiency, as it specifically describes printout of information regarding the product the user has expressed interest in, which is described to include “salesperson information,” e.g., a telephone number enabling contact with a salesperson for purchase of merchandise. *See* Von Kohorn 49:15-19.

127. In my opinion, it would have been obvious to one of ordinary skill to add this feature from Von Kohorn to the Nohmi and Hill combination given that

they are from the same field and targeted at similar problems: presenting sales materials regarding products to customers. The addition of this particular functionality would have been obvious in that it increases opportunities for a successful sale to be made to the customer. *See, e.g.,* Von Kohorn, col. 29:15-25. I do not perceive any incompatibilities between Nohmi, Hill, and Von Kohorn that would stand in the way of such a combination.

128. As to “transmit[ing] the report,” which as explained above, requires “send[ing] the report for printing,” Hill explicitly teaches “build[ing] a data sheet print file at block 368 using the integrated constant data and variable data. Therefore the data sheet includes accurate data having the most recent update included on vendor’s computer 12. At this point, a customer can print a data sheet on printer 24 as illustrated at block 370.” Hill, 21:44-48. In other words, Hill teaches building a report and transmitting that report to a printer.

129. Under a broader construction of the term “transmit the report” that does not require printing, Nohmi separately teaches, following rendering a “page,” that the “page” will be transmitted to a workstation display. *See* Nohmi, Figures 2 and 3, § 3.1 (stating the “multimedia presentation system ... [is] integrated onto a work station (HITAC-2050, 2050G).”). Accordingly, the Nohmi and Hill combination, supplemented by the Von Kohorn, renders claim 13 obvious as well.

130. Similar to claims 15, 16, and 19 discussed above, claim 20 appears to string together the limitations of claims 12 and 13 as they relate to the “**report generator**” of claim 1: “wherein the report generator is further configured to: (i) read a page layout from the report database, (ii) read a product picture, an environment picture, and a text portion selected by the selector from the static database based upon information from the active database, (iii) generate a report by inserting the product picture, the environment picture, the text portion, and salesperson information into the page layout, and (iv) transmit the report.”

131. As I explained above, Nohmi teaches a “**report generator**” that performs steps (i) and (ii) as described above with respect to claim 12—it reads the structure of a page layout to be rendered based on the customer’s selection of a KEY, SELECTOR, or MENU; determines which stored “PARAs” (text) and “IMAGEs” (images) are to be included in the “page” display based on information in the “active database” (i.e., the user’s selected car color); retrieves those stored “PARAs” (text) and “IMAGEs” (images); and generates the “page” for display by inserting the product picture, the environment picture, and the text portion into the page layout. Von Kohorn teaches step (iii) as described above with respect to claim 13—including salesperson information in the report—and Hill or Nohmi teach step (iv) as described above with respect to claim 13—“sending the report for printing” (Hill) or more broadly, simply “transmitting” (Nohmi or Hill).

Accordingly, the Nohmi and Hill combination, supplemented by Von Kohorn, renders claim 19 obvious as well.

E. Nohmi, Hill, Miyaoka, Von Kohorn, and the Complete Car Cost Guide Teach All Elements of Claim 21

132. As I discussed above in Subsection A, claim 21 is merely an amalgamation of various well known elements described in claims 1-20. I do not believe there is anything about this particular combination of known elements that makes claim 21 patentable, and all of the elements are shown in the prior art as I have established in subsections B-E above. In my opinion, one of ordinary skill would have been motivated to add the specific teachings required to meet all the elements of claim 21 from Miyaoka, the Complete Car Guide, and Von Kohorn to the primary Nohmi and Hill combination because they are all from the same field and targeted at the same problem: presenting sales materials regarding products to customers. This would have been, in my opinion, an exercise of ordinary creativity, and I do not perceive any incompatibility between the references or the features I have proposed should be added to the Nohmi and Hill combination. Thus, it is my opinion that claim 21 would have been obvious.

F. Nohmi, Hill, and Miyaoka Also Teach All Elements of Claims 1-8, 10, 12, and 14-17

133. In my opinion, claims 1-8, 10, 12, and 14-17 of the '904 Patent are unpatentable since each of these claims is rendered obvious by Nohmi in view of

Hill. Although Subsection A above makes clear that the Nohmi and Hill combination makes obvious the challenged claims, Miyaoka strengthens and supplements the teachings of Nohmi. It does that through explicit discussion of the selection and storing of environment information as well as a connection to a system facilitating “usual business processes that take place for products customized by a consumer such as providing a quote, placing orders, etc.” that would collect such customer input. *See* Miyaoka, § 2.1. As noted above, it is my opinion that the references are naturally combinable.

134. Thus, if Nohmi’s teachings as to the “**active database**” of claim 1 were deemed insufficient, Miyaoka also teaches what is described in the “**active database**” limitation of claim 1, that is, “an active database operatively connected to the selection device, and configured to store the user’s product interests,” in two ways. First, like Nohmi, Miyaoka teaches collecting user input (product customizations indicated by links selected and followed), and electronically storing that information so that it can be reflected in the presentation (e.g., a preferred car color, as in Nohmi). *See* Miyaoka, § 2.1. Second, Miyaoka also teaches collecting user product interests and electronically storing that information to facilitate “the usual business processes [which] take place for a product customized by a consumer such as providing a quote, placing orders, etc.” *Id.* Both of these constructs are active databases as the District Judge defined them, that is, logically

related data stored together in one or more computerized files that are alterable based on user input, and which store product interests. Thus, the Nohmi and Hill combination, supplemented by Miyaoka, would separately render claim 1 obvious too. All of the other elements of claims 1-5, 10, 12, 14, and 16 are taught by Nohmi and Hill as I have discussed in detail above in Subsection A.

135. Miyaoka also teaches what is required by claim 6, in that claim 6 is not any narrower than the “**active database**” element of claim 1 discussed above. Since Miyaoka also teaches storing a user’s “product interests,” the Nohmi and Hill combination, supplemented by Miyaoka, would separately render claim 6 obvious as well.

136. Miyaoka also separately teaches the limitation required by claim 7 as it relates to an “**active database**”: that “the information stored in the active database includes information received from the user in response to at least one of the following query portions: a first query portion regarding selecting the product, a second query portion regarding an intended use for the product, a third query portion regarding a request for technical information, and a fourth query regarding a selection of a product option by the user.” Miyaoka teaches collecting at least information relating to an intended use for the product, that is, the environment in which the product will be used. *See* Miyaoka, § 2.1, Photo 1 (selecting from

among “Germany,” “London,” “Florida”). Thus, the Nohmi and Hill combination, supplemented by Miyaoka, would separately render claim 7 obvious too.

137. As noted above in Subsection A, claim 17 merely strings together the limitations of claims 6 and 7. Accordingly, the Nohmi and Hill combination, supplemented by Miyaoka, would separately render claim 17 obvious too.

G. Nohmi, Hill, and Kobayashi Also Teach All Elements of Claims 1-8, 10, 12, and 14-17

138. In my opinion, claims 1-8, 10, 12, and 14-17 of the '904 Patent are unpatentable since each of these claims is rendered obvious by Nohmi in view of Hill. Although Subsection A above makes clear the Nohmi and Hill combination makes obvious the challenged claims, Kobayashi strengthens and supplements the teachings of Nohmi with respect to certain features, particularly the use of a separate logical organization of page templates.

139. Like Miyaoka, I understand Nohmi and Kobayashi to be naturally combinable, since they share co-authors and resulted from the same endeavor to develop multimedia presentation systems, which yielded a series of publications discussing the differing aspects of those systems. One with skill in the art would be particularly motivated to combine Nohmi and Kobayashi, since Kobayashi explained how to improve the efficiency of the system described by Nohmi.

140. Thus, if Nohmi's teachings as to the "**report database**" of claim 1 and 8⁵ were deemed insufficient, Kobayashi also teaches what is described in the "**report database**" limitation of claims 1 and 8, that is, a report database "operatively connected to the selection device, and configured to store a plurality of page layouts." Kobayashi specifically teaches a system where the "managing unit of the information display output is a page" and "data serving as the origin for carrying out the display and output of information, including ... text, graphics, and images, is configured to be a component file of each element in a file different from the file corresponding to the page." Kobayashi, Claims 1, 3; *see also* Figure 5. In other words, Kobayashi has a separate logical organization for its "pages"—*i.e.*, a database of page layouts—separate from its organized collection of files relating to the images and textual information appearing on those "pages." *See also* Figure 3 (illustrating "the flow of data in which the page data stored in the external storage device 5 is read out and displayed; firstly, the page data is read out from the external storage device 5 to a main memory 12 of the processing device."). All of the other elements of claims 1-8, 10, 12, 14, and 16-17 are taught by Nohmi and Hill as I have discussed in detail above in Subsection A. Thus, the

⁵ As I explained above, the scope of claims 1 and 8 appears identical.

Nohmi and Hill combination, supplemented by Kobayashi, would separately render claims 1 and 8 obvious.

H. Nohmi and Roux Also Teach All Elements of Claims 1-8, 10, 12, 14, and 16-17

141. In my opinion, claims 1-8, 10, 12, and 14-17 of the '904 Patent are unpatentable since each of these claims is rendered obvious by Nohmi in view of Hill. Although Subsection A above makes clear the Nohmi and Hill combination makes obvious the challenged claims, if Hill were found to not teach a “difference database,” that is, a database storing changes to database content, one of ordinary skill also would have looked to Roux for this teaching. Nohmi and Roux are no less compatible a combination than Nohmi and Hill, in my opinion. As I have discussed in detail above, Roux teaches several techniques for updating databases and discusses specifically why such databases need updates, providing all the motivation one of ordinary skill would need to combine Roux with, e.g., Nohmi, to arrive at the claimed invention. *See* Roux, pp. 5-6.

142. With specific reference to the “difference database” limitation of claim 1, Roux teaches this element by providing a separate collection of database content changes stored together in one or more computerized files (“a difference database”), distributed via tangible media such as floppy disks or over a network connection together with an index so those database content changes can be integrated with an existing database (a “static database”). *See* Roux, pp. 6, 9, 13-

14. Once this new index is in use, it operatively connects the “difference database” (the separate collection of database content changes) to the information originally stored within a static database, so that queries can be made to the original static database that retrieve both information that was originally stored there, as well as information that was distributed in the “difference database.”

143. All of the other elements of claims 1-8, 10, 12, 14, and 16-17 are taught by Nohmi, as I have discussed in detail above in Subsection A. Accordingly, a combination of Nohmi and Roux would also render claims 1-8, 10, 12, 14, and 16-17 obvious.


IX. AVAILABILITY FOR CROSS-EXAMINATION

144. In signing this declaration, I recognize that the declaration is being filed as evidence in a contested case before the Patent Trial and Appeal Board at the United States Patent and Trademark Office. I also recognize that I may be subject to cross examination in connection with this *inter partes* review. If cross-examination is required of me, I will appear for such cross-examination during the time allotted for cross-examination.

X. CONCLUSION

145. Considering the above, it is my opinion that claims 1-21 of the '904 Patent are unpatentable.

Dated: March 4, 2013



Edward A. Fox, Ph.D.