

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

BRIGHT DATA LTD.,

Petitioner

v.

METACLUSTER LT, UAB,

Patent Owner,

Case No. IPR2023-01441

U.S. Patent No. 7,010,526

DECLARATION OF DR. TIM ARTHUR WILLIAMS

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

I, Dr. Tim Arthur Williams, declare the following:

1. I have been retained as an independent expert in this matter by counsel for Bright Data Ltd. (“Bright Data”). I have been asked to provide my opinions on certain issues in connection with at least claims 1-3, 6-9, 11, 13, 16-17, 19-20, 34-36, 39-42, 44, 46, 49-50, and 52-53 of U.S. Patent No. 7,010,526 to Burckart, *et al.* (“the ’526 Patent”).

2. I am being paid for my work in preparing this declaration at my normal consulting rate plus reimbursement of direct expenses. My compensation is not tied to the outcome of this matter and is not based on the substance of the opinions that I provide.

3. In preparing my opinions expressed herein, I have reviewed the ’526 Patent, its prosecution history (EX. 1002), and the documents listed in the Petitioner’s List of Exhibits. I have also reviewed Patent Owner’s infringement contentions and Petitioner’s invalidity contentions in the related litigation, *Bright Data Ltd. v. Oxylabs, UAB*, Case No. 2:23-cv-00171 (E.D. Tex.). I may rely upon these materials, my knowledge and experience, and/or additional materials to rebut arguments raised by the patent owner. Further, I may also consider additional documents and information in forming any necessary opinions, including any relevant documents that have not yet have been made available to me.

4. I am familiar with the technology described in the '526 Patent as of its filing date of May 8, 2002. I have been asked to provide my technical review, analysis, insights, and opinions regarding the '526 Patent. I have used my experience and insight along with my study of the above-identified references as the basis for my opinions, which support the grounds of unpatentability set forth in the Petition for *Inter Partes* Review of the '526 Patent.

MY QUALIFICATIONS

5. My background and qualifications as a technical expert for this matter are summarized below. A copy of my CV is attached as Exhibit A.

6. I hold degrees from Michigan Technological University (Bachelor of Science in Electrical Engineering, 1976) and the University of Texas at Austin (Master of Science in Electrical Engineering, 1982; Ph.D. in Electrical Engineering, 1985; and Master of Business Administration, 1991). I have also been a Registered Patent Agent with the U.S. Patent and Trademark Office (the "USPTO") since 2002.

7. I am an industry professional with over 45 years of experience in wireless communications, computer networking and telecommunications technology.

8. I am currently active as Chief Executive Officer at Beach Technologies, LLC (Danville, CA) a company related to intellectual property consulting.

9. I am also currently active as a Member at Calumet Venture Management (Madison, WI) a company related to the investment into start-up companies.

10. Beginning in 2004, I was the Founder and Chairman at DoceoTech Inc. (Danville, CA) which provides training for engineers in wireless, computer networking, and telephony technologies.

11. From 2008 to 2010, I was Founder and Board Member of BitRail Networks, Inc (Miami, FL). This company designed and produced computer networking equipment. One market the company served was edge devices for residential and community access.

12. From 2006 to 2015, I was Founder and Board Member of BEEcube, Inc. (Freemont, CA). This company built high speed computing and computer networking equipment. One market the company served was networking equipment for backhaul networks used in 5G cellular networks.

13. From 2004 to 2008, I was Founder and CEO of SiBEAM, Inc. This company designed and produced wireless networking IC and equipment.

14. From 1999 to 2000, I was Interim CEO and Advisory Board Member of Atheros Communications, Inc. (Palo Alto, CA). This company designed and produced wireless networking IC and equipment.

15. From 1998 to 2000, I was CTO of Picazo Communications, Inc. (San Jose, CA). This company-built computer networking equipment to provide VoIP PBX functionality.

16. From 1991 to 1998, I was Co-Founder, CTO, VP Engineering of Wireless Access, Inc. (Santa Clara, CA). This company developed over the air communication protocols for communication between the subscriber device and the network.

17. From 1979 to 1991, I was a Member of the Technical Staff at Motorola, Inc. (Schaumburg, IL and Austin, TX). In IL, I designed protocols for Digital voice communications. In TX, I designed ICs for communications including Telecom, Wireless, Cellular and Computer Networking.

18. I believe that I am qualified to provide reliable opinions in the field of the '526 Patent, including what a person of ordinary skill in the art (a "POSA") would have understood from the prior art in this field at that time and his or her view of anticipation and obviousness based on that prior art.

MY UNDERSTANDING OF CLAIM CONSTRUCTION

19. I understand that, before the PTAB, claims are to be given their plain and ordinary meaning in light of the specification and prosecution history as would have been read by a POSA.

MY UNDERSTANDING OF ANTICIPATION

20. I understand that for purposes of an *inter partes* review (IPR) proceeding, the only basis for invalidity that may be considered are patents and printed publications, *i.e.*, whether the claims in question are anticipated under 35 U.S.C. § 102 or rendered obvious under 35 U.S.C. § 103, by patents or printed publications.

21. I understand that a claim is considered anticipated (under 35 U.S.C. § 102) if each and every limitation of the claim may be found, expressly or inherently, within the disclosure of a single prior art reference (patent or printed publication), with the features arranged in the reference in the manner claimed.

22. My understanding of inherent disclosure of a claimed feature by a prior art reference is that it means the prior art reference must necessarily reflect the presence or operation of the feature (and that a possibility or even a strong likelihood that the feature is present is not sufficient disclosure).

MY UNDERSTANDING OF OBVIOUSNESS

23. I understand a patent claim is invalid if the claimed invention would have been obvious to a POSA at the time the invention was made. This means that even if all of the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, the claim can still be invalid based on a single prior art reference and the knowledge of a POSA or that a POSA would

combine multiple references to arrive at the claimed invention, including showing that a POSA would be motivated to do so.

24. I also understand that an obviousness analysis requires an understanding of the scope and content of the prior art, any differences between the alleged invention and the prior art, and the level of ordinary skill in evaluating the pertinent art. I further understand that to prove prior art, or a combination of prior art renders a patent claim obvious, it is necessary to: identify the particular references, singly or in combination; identify which limitations of the patent claim appear in the references; and explain how the references would have been combined.

25. I also understand that exemplary rationales that may support a conclusion of obviousness include: combining prior art elements according to known methods to yield predictable results; a simple substitution of one known element for another to obtain predictable results; use of a known technique to improve similar devices (methods, or products) in the same way; applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; a known work in one field of endeavor prompting variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to a POSA; as well as some teaching, suggestion, or motivation in the prior art that would have led a

POSA to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

26. I further understand that the above list of rationales provided is not all inclusive. Other rationales may also be sufficient, so long as there is a link between the factual underpinnings relied on and an articulated rationale for why those factors render the invention obvious.

27. I understand certain objective indicia can also be important evidence regarding whether a patent is obvious or nonobvious. Such indicia include: commercial success of products covered by the patent claims; a long-felt need for the invention; failed attempts by others to make the invention; copying of the invention by others in the field; unexpected results achieved by the invention as compared to the closest prior art; praise of the invention by the infringer or others in the field; the taking of licenses under the patent by others; expressions of surprise by experts and those skilled in the art at the making of the invention; and patentee proceeding contrary to accepted wisdom of the prior art. I understand that to have legal weight, there must be a nexus, *i.e.*, a connection, between any such secondary considerations and the alleged invention. I have not received any evidence of any secondary considerations in this matter, but reserve the right to review additional information as it becomes available and to supplement or amend my declaration accordingly.

28. I also understand that “obviousness” is a legal conclusion based on the underlying factual issues of the scope and content of the prior art, the differences between the claimed invention and the prior art, the level of ordinary skill in the field of the prior art, and any objective indicia of non-obviousness. For that reason, I am not rendering a legal opinion on the ultimate legal question of obviousness.

29. Rather, my opinions as set forth herein address the underlying facts and factual analysis that would support a legal conclusion of obviousness or nonobviousness. When I use the term “obvious,” therefore, it is with reference to the perspective of a POSA at the time of the claimed invention.

PERSON OF ORDINARY SKILL IN THE ART

30. I believe the qualifications of a POSA in the field of the ’526 Patent would be an individual who, as of May 8, 2002, the filing date of the ’526 Patent, had either: (1) a Bachelor’s Degree or higher in the field of electrical engineering, computer engineering, or computer science and at least one year of related practical experience; or (2) at least four years of practical experience in data management.¹ I exceeded that level of skill as of May 8, 2002.

¹ In my opinion, exemplary claim 1 recites an age-old method that is regularly performed by humans sifting through search results “to separate the wheat from the chaff” and merely using a computer as a tool. EX. 1001 at 1:32-36. Exemplary claim 1 merely mimics what humans do to search for information. EX. 1001 at 1:38-59.

31. Based on the foregoing, I believe that I am qualified to provide reliable opinions in the technical field of the '526 Patent, including opinions on what a POSA would have understood from the patent itself and the prior art in the field at the time of the alleged invention (May 8, 2002).

OVERVIEW OF THE '526 PATENT AND CHALLENGED CLAIMS

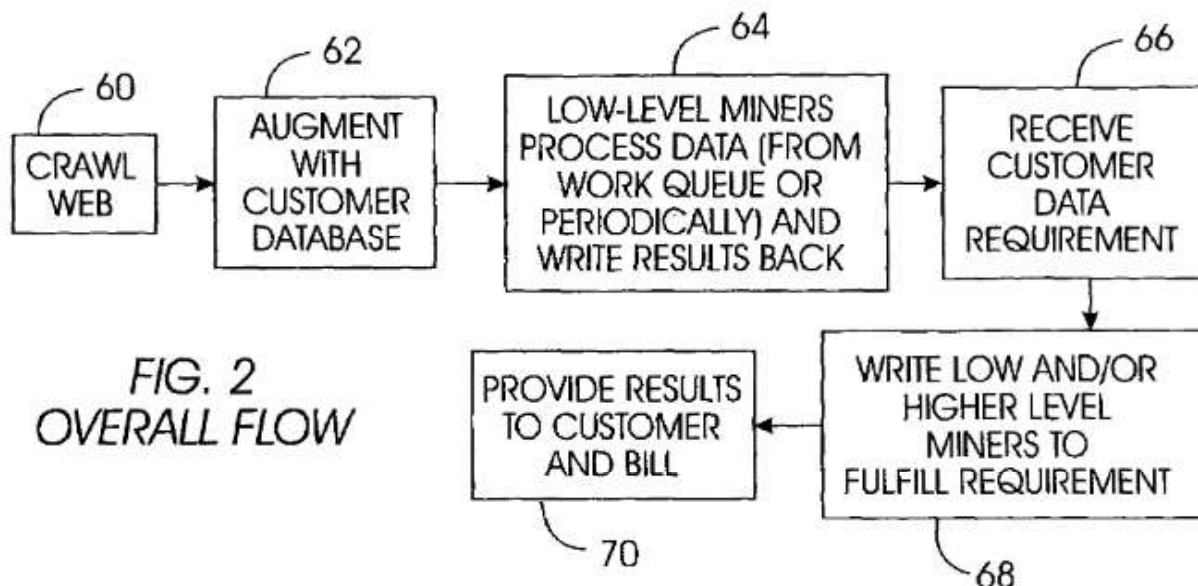
Background of the '526 Patent

32. The '526 Patent titled “Knowledge-Based Data Mining System” relates to data mining systems where data is gathered into a data store using a web crawler where the data may then be classified into entities. EX. 1001 at Abstract. Data miners may use rules to process the entities and append respective keys to the entities that represent characteristics of the entities. *Id.*

33. In the background section, the '526 Patent describes “data mining” as “the process of extracting user-desired information from a corpus of information” *Id.* at 1:11-12. The '526 Patent describes that data mining can be labor intensive because it requires a great deal of mundane sifting through query results by a person. *Id.* at 1:32-35. The '526 Patent notes that expertise in a particular area is often required “to separate the wheat from the chaff.” *Id.* at 1:35-36. As recognized by the present invention: “one expert is required to process documents using his or her expert criteria to winnow out a subset of the documents, and a second expert must then use his or her expert criteria to locate the required information in the subset from the first expert.” *Id.* at 1:37-45.

34. The '526 Patent discloses a system that “can be used for enterprise data analysis, competitive intelligence, trending, discovery, web portal services, clustering and taxonomy.” *Id.* at 3:13-16. FIG. 2, reproduced below, shows the

“overall logic of system 10 operation”. EX. 1001 at 8:13-14. At block 60, the crawler 12 crawls the Web 14 to add data to the data store 18. *Id.* at 8:14-15. At block 64, low level miners access and process the data and write the results back to the data store 18. *Id.* at 8:18-31. For example, the low level miners may write back respective keys to the corresponding entities. *Id.* At block 66, customer requests for information can be received. *Id.* at 8:32-33. At block 68, additional low level miners or high level miners, if required and not yet written, can be created. *Id.* at 8:33-39. For example, high level miners may specify dependencies on the outputs of other miners, e.g., results according to a geospatial key appended to the results of the low level miners. *Id.* at 8:40-49. At block 70, results are provided to the customer and the customer is billed. *Id.* at 8:54-56.



35. FIG. 5, reproduced below, “shows a specific logic flow that might be followed when a Web page arrives from the crawler 12 at block 96” where “a detag miner can be invoked to process the page at block 100 by stripping html markups, leaving only the raw text, and appending a ‘detag’ key so indicating to the entity.” *Id.* at 9:54-58. “[O]ther miners process the data underlying the entity and can append their own keys to the entity's data structure entry, in, e.g. both the horizontal table representing the entity and the associated vertical table representing the key when the data store is implemented as a database.” *Id.* at 9:62-67. In addition, “some miners might extract information, e.g., a corporate name from, e.g., a page entity and create additional entity data storage structures (such as files or tables) representing such entities, e.g., corporation entities.” *Id.* at 9:67-10:4.

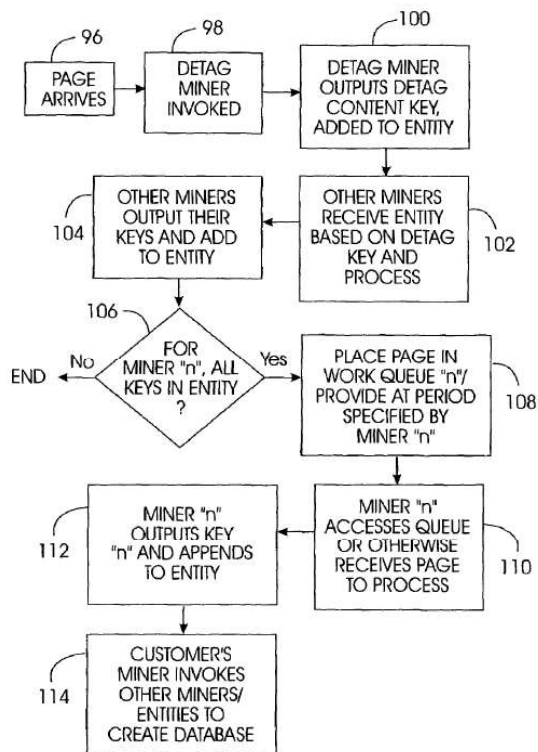


FIG. 5

Prosecution History of the '526 Patent

36. The underlying application that issued as the '526 Patent was filed on May 8, 2002 with 54 claims and titled as "Knowledge-Based Data Mining System." EX. 1002 at 119-156.²

37. On March 24, 2005, the examiner issued a Non-final Rejection objecting to the title of the specification and rejecting claims 1, 3-5, 19-20, 32-34, 36-38, and 52-53 as being anticipated by U.S. Pub. No. 2002/0091923 to Chipman

² I note that the numbering of the claims did not change during prosecution. EX. 1002 at 15. *E.g.*, original claim 1 corresponds to issued claim 1.

et al. (“Chipman”). EX. 1002 at 89. The examiner also rejected claims 2 and 35 as being obvious over Chipman and U.S. Pub. No. 2002/0049773 to Jaramillo (“Jaramillo”); claims 6-11, 16-17, 21-27, 29-30, 39-44, and 49-50 as being obvious over Chipman and U.S. Patent No. 6,606,659 to Hegli (“Hegli”); claims 12-15, 18, 28, 31, 45-48, and 51 as being obvious over Chipman and Hegli and U.S. Patent No. 6,691,105 to Virdy (“Virdy”); and claim 54 as being obvious over Chipman and U.S. Pub. No. 2003/0112270 to Newell et al. (“Newell”). EX. 1002 at 94, 95, 100, 101.

38. On March 29, 2005, Applicant filed Remarks and amended claims 1 and 34 to recite “creating” a second miner rather than “establishing” it. EX. 1002 at 73-85.³ Similar amendments were made in dependent claims 3 and 36 for consistency. *Id.* With respect to claims 1 and 34, Applicant argued that these amendments overcome Chipman because in the relied-upon section of Chipman alleged to teach establishing a miner, no new minors are created; rather, the request is passed to pre-existing search engines. EX. 1002 at 83. Applicant argued that picking a pre-existing search engine is an overly broad interpretation of claims 1 and 34. *Id.* With respect to claim 21, Applicant argued that in Chipman, no representation of the Web pages is ever “tagged” with anything, since “tag” clearly connotes

³ As support for the amendments, Applicant relied on, *e.g.*, the portion of the specification describing Fig. 2 which states: “At block 68, additional low level miners can be written in response, or high level miners, if required and not yet written, can be created.” EX. 1002 at 83; *see* EX. 1001 at 8:33-35.

“append.” EX. 1002 at 84. Applicant also argued that in Hegli, no score is appended to representations of the Web pages from which the scores are derived. *Id.* Applicant also argued that there is no prior art motivation for the combination of Chipman and Hegli because Chipman is an information retrieval system that does not appear to be concerned at all with the spam/pornography access control of Hegli. *Id.*

39. On June 16, 2005, the examiner issued a Final Rejection maintaining its earlier objection to the title and the anticipation and obviousness rejections. EX. 1002 at 47-66. With respect to claims 1 and 34, the examiner stated that Chipman’s disclosure of a request being parsed and stored would be equivalent to the claim limitation “creating a miner in response to a user request information.” EX. 1002 at 63. With respect to claim 21, the examiner stated that Chipman discloses a Web page including a “class” identifier, where the “‘class’ is stored in the catalog that allow[s] a user to search for and identify the accessed item”. EX. 1002 at 63. The examiner also stated that Hegli teaches “tagging Web pages with a key representing a characteristic of the Web page” because tagging Web pages with a key or tagging a category with a key are interchangeable since each category represents a particular type of Web page. EX. 1002 at 64. The examiner also stated that there is a motivation to combine Chipman and Hegli because MLS is limited to real estate agents only in order to prevent users without legitimate reasons from accessing the desired data. EX. 1002 at 64-65.

40. On July 5, 2005, Applicant filed a Notice of Appeal and an Appeal Brief requesting review of the Examiner's objection/rejections. EX. 1002 at 28-44. With respect to claims 1 and 34, Applicant challenged how parsing and storing a search request could be equated with creating a data miner to explore that search request. EX. 1002 at 34. With respect to claim 21, Applicant challenged how Chipman's disclosure of storing strings in the RIDB, which is separate from the Web pages found by the crawler, could be equated with tagging a Web page. EX. 1002 at 34-35. Applicant also challenged whether assigning a category to a page as taught by Hegli meets the language of claim 21 requiring tagging/appendixing. *Id.* Applicant also challenged the motivation to combine Chipman and Hegli and whether tagging could be used as a way to exclude certain users (buyers and sellers) from accessing MLS for real-estate agents only, when this is usually done using access control principles such as passwords. EX. 1002 at 36. Applicant also challenged the motivation to combine Chipman and Jaramillo⁴, Chipman and Hegli and Viridy⁵, and Chipman and Newell⁶.

⁴ Applicant argued that Jaramillo is focused on limiting access, not searching per se. EX. 1002 at 36. Applicant also stated that Jaramillo bills only by subscription, not query, and so even if Chipman and Jaramillo were combined, they would not teach the limitations of claim 2. *Id.*

⁵ Applicant argued that Viridy is directed to organizing businesses and does not relate to data mining of the present invention or to access control of Hegli. EX. 1002 at 36.

⁶ Applicant argued that Newell is directed to a litigation management system and completely unrelated to the technology of Chipman. EX. 1002 at 37.

41. In response to the Appeal Brief dated July 5, 2005, the Examiner issued a Notice of Allowance on October 4, 2005. EX. 1002 at 9-11. The reasons for allowance for claims 1-20 and 34-54 states that “the prior art of record fails to teach or fairly suggest creating at least a second data miner in response to the customer request for information.” *Id.* at 10. The reasons for allowance for claims 21-33 states that “the prior art of record fails to teach or fairly suggest at least one lower level data mining element receiving information from the data store and based thereon tagging at least one representation of a Web page with at least one key representing at least one characteristic of the Web page and at least one higher level data mining element using the key to output a result useful for responding to a request for information.” *Id.*

The Claims

42. The '526 Patent has 54 claims, including three independent claims:
Nos. 1, 21, and 34. Claim 1 recites a method as described below:

1. A method for data mining, comprising:
crawling the Internet to return Web pages to a data store;
accessing the data store with at least a first data miner to process
data in the store and output at least one result;
receiving a customer request for information;
creating at least a second data miner in response to the customer
request for information, the second data miner accessing at least
the result of the first data miner to generate an output; and
at least partially based on the output of the second data miner,
responding to the customer request for information.

43. Dependent claims 2-20 and 54 depend from claim 1 and require additional subject matter.

44. Independent claim 21 is a system claim with elements that mirror the requirements of claim 1. Claim 21 specifies that a lower level data mining element receives information from the data store and “based thereon tagging at least one representation of a Web page with at least one key representing at least one characteristic of the Web page.” Claim 21 also recites that the higher level data mining element uses the “key to output a result useful for responding to a request for information.”

45. Dependent claims 22-33 depend from claim 21 and require additional subject matter.

46. Independent claim 34 recites an information service comprising “means for” elements to perform the same steps recited in claim 1.

47. Dependent claims 35-53 depend from claim 34 and require additional subject matter.

48. The particular claims at issue are claims 1-20 and 34-54.

Claim Interpretation

49. Independent claims 1 and 34 both recite “...creating at least a second data miner in response to the customer request for information...”. During

prosecution, in the Remarks dated March 29, 2005 and in the Appeal Brief dated July 5, 2005, Applicant expressly distinguished the prior art by arguing that “picking a pre-existing search engine” is an overly broad interpretation of the claim language. EX. 1002 at 83 and 34. Applicant also expressly distinguished the prior art by arguing that “no new miners are created” in Chipman. *Id.* Applicant also argued that passing the user search request to a pre-existing search engine is not the same as creating a data miner to explore that search request. *Id.* Applicant also stated that parsing and storing a search request is not the same as creating a data miner to explore that search request. *Id.* Based on the prosecution history, in my opinion, a POSA would understand the limitations of claims 1 and 34 to require creating a **new** data miner to search the results of a first data miner to provide customized results to the user based on the customized parameters of the user search request.⁷ This understanding is consistent with the Merriam-Webster dictionary definition of “creating” as “to make or bring into existence something new.” EX. 1007 at 2.

50. Independent claim 21 recites “...tagging at least one representation of a Web page with at least one key...”. During prosecution, in the Remarks dated March 29, 2005 and in the Appeal Brief dated July 5, 2005, Applicant expressly stated that

⁷ To the extent that Patent Owner considers the use of a pre-existing template to search the results of a first data miner to satisfy creating a second data miner, both Jacobsen and Seibel still anticipate this limitation as discussed below regarding independent claims 1 and 34.

“tag” clearly connotes “append” and distinguished the prior art by arguing there was no representation of the Web page that was “tagged” in Chipman or Hegli. EX. 1002 at 84 and 34-35. Applicant argued that assigning a category to a page is not the same as “tagging” a representation of a Web page as required by the claim. *Id.* Based on the prosecution history, in my opinion, a POSA would understand the limitation of claim 21 to require appending at least one representation of a Web page with at least one key.

51. Dependent claims 2 and 35 both recite “...billing the customer for responding to the customer request for information”. During prosecution, in the Appeal Brief dated July 5, 2005, Applicant expressly distinguished the prior art by stating that the Jaramillo reference “bills only by subscription, not by query” and that “[a]ccordingly, even if the references [Chipman and Jaramillo] were combined as proposed Claim 2 would not result.” EX. 1002 at 36.⁸ In my opinion, this statement amounts to clear disclaimer of billing the customer on a subscription basis.⁹ Based on the prosecution history, in my opinion, a POSA would understand

⁸ In my opinion, this is a factually inaccurate characterization of the Jaramillo reference as discussed below regarding dependent claims 2 and 35.

⁹ I note that with respect to Fig. 2, the specification states that “[t]he results are provided to the customer at block 70 and the customer is billed, on a per request basis or on a subscription basis.” EX. 1001 at 8:54-56.

the limitations of claims 2 and 35 to require billing the customer on a per request basis.¹⁰

OVERVIEW OF THE STATE OF THE ART AT THE TIME OF FILING

Applicant Admitted Prior Art

52. The “Background” section of the ’526 Patent describes data mining by crawling the web. For example, “they access Web pages and pages to which the accessed pages hyperlink, generating an inverted index of words that occur on the Web pages.” EX. 1001 at 1:20-23. The ’526 Patent further describes that “[q]ueries are responded to by accessing the index using the requested key words as entering arguments, and then returning from the index the URLs that satisfy the queries.” *Id.* at 1:25-28.

53. The ’526 Patent describes issues with crawling for information there “[d]espite the relevancy ranking used by most commercial search engines, finding particular types of information typically entails a great deal of mundane sifting through query results by a person.” *Id.* at 1:32-35. The ’526 Patent describes the needs for “cascading expert rules to sift through a large body of information.” *Id.*

¹⁰ In my opinion, the limitations of claims 2 and 35 are rendered obvious regardless of whether Patent Owner agrees these prosecution history statements qualify as disclaimer. The grounds discussed below address billing per request or on a subscription basis.

at 2:4-6. The cascading search may consist of “[e]liminating the useless pages [that] would require an expert to look at each page and determine whether it was the type of page that might contain information” and “[a]nother expert might then be required to examine the pages passed on from the first expert to determine if, in fact, the pages contained the answer to the specific question that was posed.” *Id.* at 1:64-2:4.

Jacobsen (EX. 1003)

54. U.S. Pub. No. 2003/0163454 to Jacobsen et al. (“Jacobsen,” EX. 1003) was filed on February 26, 2002 and published on August 28, 2003. The ’526 Patent was filed on May 8, 2002 at code (22) and issued on March 7, 2006, at code (45). Thus, I understand that Jacobsen qualifies as prior art under pre-AIA 35 U.S.C. § 102(e).

55. In my opinion, Jacobsen is analogous art to the ’526 Patent at least because Jacobsen and the ’526 Patent both relate to the searching and crawling the Internet. In addition, Jacobsen and the ’526 Patent were both classified in Intl. Cl. “G06F” relating to electrical data processing and to the U.S. Cl. “707” relating to data processing: database, data mining, and file management or data structures. EX. 1001 at codes (51) and (52); EX. 1003 at codes (51) and (52).

56. Jacobsen titled “Subject Specific Search Engine” is an invention described as “[a] subject-specific search engine [that] utilizes a smart web crawler

and includes a capability of filtering out sites not relevant to the particular subject.” EX. 1003 at Abstract. Jacobsen is “directed to the general field of Systems, methods, and computer program products for performing Internet-based Searching.” EX. 1003 at ¶[0002]. Jacobsen discloses problems including that (a) “[t]he only problem is to find the truly relevant resources. Search engines are what make the Internet useful, because without these tools the chances of finding relevant resources would be significantly diminished.” (*Id.* at ¶[0004]); (b) “current search engine technology often leaves one dissatisfied and frustrated, particularly where one would like to find resources on a given Subject in a Specific context” (*Id.* at ¶[0005]); and (c) “[a] general purpose Search engine (GPSE) will typically return numerous irrelevant links” (*id.*). Jacobsen addresses these problems by disclosing “a subject specific search engine (SSSE), where the strategy adopted is to collect and index only the pages deemed relevant for a specific subject, e.g., law or medicine.” *Id.* at ¶[0010].

57. Jacobsen describes the concept of separating the “straw” from the “chaff” like in the ’526 Patent, where the smart crawler is designed so as to filter each site it traverses and “[t]he web page corresponding to each site that is passed through the filter and deemed preliminarily relevant may *then be filtered one or more additional times.*” *Id.* at ¶[0025], emphasis added, and ¶[0075].

Seibel (EX. 1004)

58. U.S. Patent No. 7,082,427 to Seibel et al. (“Seibel,” EX. 1004) was filed on May 24, 2001, issued on July 25, 2006, and claims priority to U.S. Provisional application No. 60//206,772, filed on May 24, 2000. The ’526 Patent was filed on May 8, 2002 at code (22) and issued on March 7, 2006, at code (45). Thus, I understand that Seibel qualifies as prior art under pre-AIA 35 U.S.C. § 102(e).

59. In my opinion, Seibel is analogous art to the ’526 Patent at least because Seibel and the ’526 Patent both relate to the analysis and filtering of content on the Internet. In addition, Seibel and the ’526 Patent were both classified in Intl. Cl. “G06F” relating to electrical data processing and to the U.S. Cl. “707” relating to data processing: database, data mining, and file management or data structures. EX. 1001 at codes (51) and (52); EX. 1004 at codes (51) and (52).

60. Seibel titled “Text Indexing System to Index, Query the Archive Database Document by Keyword Data Representing the Content of the Documents and by Contact Data Associated with the Participant Who Generated the Document” is an invention described as “[a] text indexing system for collecting business intelligence ... [where] [t]he text indexing system has various components, including a data acquisition process that extracts textual data from various Internet sources, a database for storing the extracted data, a text indexing

server that executes keyword searches of the database, and an output repository.”

EX. 1004 at Abstract. Seibel notes that “information is found in disparate locations and formats” (id. at 1:53-54) and thus is directed to an “indexing system has various components, including a data acquisition process that extracts textual data from various Internet sources.” *Id.* at 2:12-14.

Jaramillo (EX. 1005)

61. U.S. Publication No. 2002/0049773 to Jaramillo (“Jaramillo,” EX. 1005) was filed on May 21, 2001 and published on April 25, 2002. The ’526 Patent was filed on May 8, 2002 at code (22) and issued on March 7, 2006, at code (45). Thus, I understand that Jaramillo qualifies as prior art under pre-AIA 35 U.S.C. § 102(e).

62. In my opinion, Jaramillo is analogous art to the ’526 Patent at least because Jaramillo and the ’526 Patent both relate to the searching and filtering of content on the Internet. In addition, Jaramillo and the ’526 Patent were both classified in Intl. Cl. “G06F” relating to electrical data processing and to the U.S. Cl. “707” relating to data processing: database, data mining, and file management or data structures. EX. 1001 at codes (51) and (52); EX. 1005 at codes (51) and (52).

63. Jaramillo titled “Method of Providing a Reference Standard Within a Web Site on an Internet” is an invention described as “[a] method of providing a

reference standard on a web site on an Internet include[ing] the steps of providing a web site having a reference standard database on a computer network.” EX. 1005 at Abstract. Jaramillo is directed to “an internet and, more specifically, to a method of providing a reference Standard within a web site on an internet.” *Id.* at ¶[0003] (field of invention). “The method includes the steps of providing a web site having a reference standard database on a computer network.... The method further includes the steps of searching the reference standard database for the reference standard using the search criteria and providing the user with the reference standard identified by the search of the reference standard database.” *Id.* at ¶[0012]. Jaramillo describes the advantages of the present invention as including (a) “a method of providing a reference standard within a web site on the Internet is provided that offers a user intermediate access to a reference standard database containing reference standards from various sources, including companies, industries, and governments; (*id.* at ¶[0013]); (b) “an interactive search process is used to locate standards within the reference standard database using different search criteria, including name of company, product, service, keyword or language” (*id.*); and (c) “that current reference standards are maintained in a common database” (*id.*).

64. Jaramillo further describes that such disclosed features may be offered for a fee on a pay per use basis or on subscription basis. For example, “[o]ne

example of a user 12 is an individual who accesses the web site 40 and pays a fee for the service provided by the web site 40 on a per-use basis” and “[a]nother example is for a user 12 that subscribes to the web site 40 for predetermined access to the reference standard services by paying a predetermined subscription fee.” *Id.* at ¶[0026].

Hegli (EX. 1006)

65. U.S. Patent No. 6,606,659 to Hegli et al. (“Hegli,” EX. 1006) was filed on January 28, 2000, and issued on August 12, 2003. The ’526 Patent was filed on May 8, 2002 at code (22) and issued on March 7, 2006, at code (45). Thus, I understand that Hegli qualifies as prior art under pre-AIA 35 U.S.C. § 102(e).

66. In my opinion, Hegli is analogous art to the ’526 Patent at least because Hegli and the ’526 Patent both relate to the searching and filtering of content on the Internet. In addition, Hegli and the ’526 Patent were both classified in Intl. Cl. “G06F” relating to electrical data processing. EX. 1001 at codes (51); EX. 1006 at codes (51).

67. Hegli titled “System and Method for Controlling Access to Internet Sites” is an invention described as “[a] method and system for providing flexible access to Internet sites.” EX. 1006 at Abstract. Hegli is prior art to the ’526 Patent, at least because Hegli was a published patent application filed before the priority date of the ’526 Patent. Hegli is directed to a system that “includes a database of

Internet sites that have been categorized so that the system determines the category of information that a user is accessing.” *Id.* Hegli discloses “analysis of lexical elements appearing on Internet sites that are strongly associated with a particular category” and “[i]n this context, a lexical element is a word or plurality of words that appear on the site under analysis.” *Id.* at 4:20-25.

MY ANALYSIS OF THE GROUNDS

68. As set forth below, my opinions relate to the following grounds:

Ground 1	Claims 1, 3, 19-20, 34, 36, and 52-53	Anticipation by Jacobsen
Ground 2	Claims 2 and 35	Obviousness based on Jacobsen + General knowledge of a POSA
Ground 3	Claims 2 and 35	Obviousness based on Jacobsen + Jaramillo
Ground 4	Claims 6-9, 11, 16-17, 39-42, 44, and 49-50	Obviousness based on Jacobsen + Hegli
Ground 5	Claims 1, 6, 9, 11, 13, 19-20, 34, 39, 42, 44, 46, and 52-53	Anticipation by Seibel
Ground 6	Claims 2 and 35	Obviousness based on Seibel + General knowledge of a POSA

**GROUND 1: ANTICIPATION OF CLAIMS 1, 3, 19, 20 34, 36, 52, AND 53
BY JACOBSEN (EX. 1003)**

69. In my opinion, Jacobsen discloses each of the limitations of claims 1, 3, 19, 20, 34, 36, 52, and 53 of the '526 patent.

Claim 1

70. **“A method for data mining, comprising: ...”** In my opinion, to the extent the preamble is limiting, Jacobsen discloses this claim limitation. As stated in the '526 patent, “[i]n a data mining system data is gathered into a data store using, e.g., a Web crawler.” EX. 1001 at Abstract. Jacobsen discloses systems and methods where a “subject-specific search engine utilizes a smart web crawler and includes a capability of filtering out sites not relevant to the particular subject.” EX. 1003 at Abstract.

71. **“... crawling the Internet to return Web pages to a data store; ...”** In my opinion, Jacobsen discloses this claim limitation. For example, Jacobsen discloses smart crawler 16 operates in basically the same way as prior-art crawlers, e.g., by visiting sites and transmitting information back to host computer 17, except that it does not operate under the “everything is relevant” principle. *Id.* at ¶[0045]. “[S]mart crawler 16 traverses the Internet 1 and then performs a screening operation, denoted by site filter 11. Site filter 11 determines, based on terminology of the profession to which the SSSE is directed (e.g., law), whether or not each site is considered to be relevant to the profession.” *Id.* As one non-limiting example,

Jacobsen describes the invention as being able to provide a particular profession (*e.g.*, law) with only relevant content, similar to a specialized law library as opposed to a regular library. *Id.* at ¶¶[0018]-[0019]; *see also*, *e.g.*, claim 1.

72. FIG. 6A, reproduced below, shows filtering operations according to the present invention. EX. 1003 at ¶[0041]. Step S11 is an optional step of removing extraneous material, *e.g.*, advertisements. EX. 1003 at ¶[0061]. At Step S12, the main part of the filter takes the page and compares it with a lexicon of terms (*e.g.*, legal terms) whose presence will indicate that the page may be relevant. *Id.* If comparison is favorable in Step S13, then the page is saved in Step S15. *Id.*

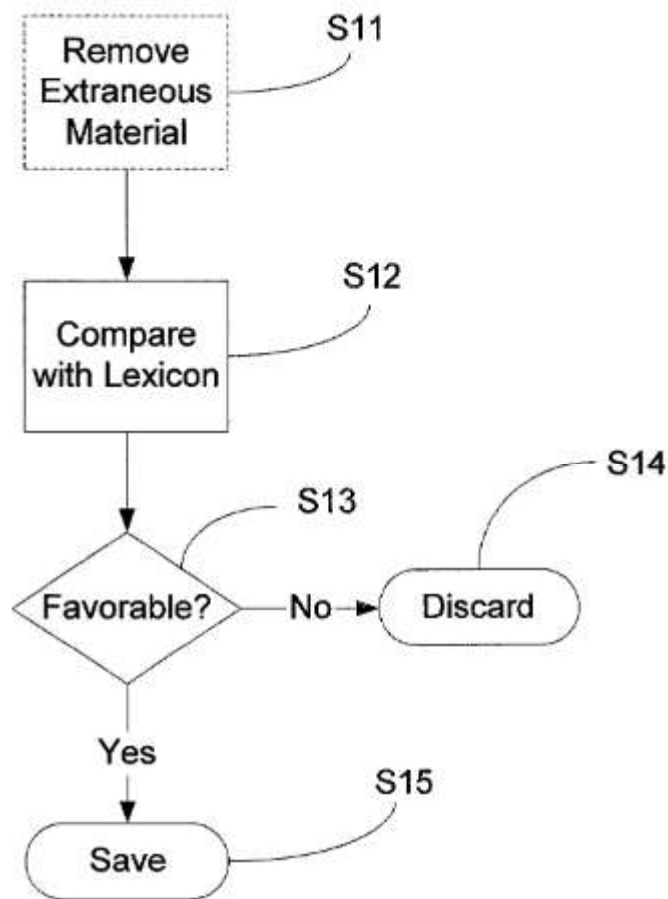


Figure 6A

73. As disclosed in Jacobsen, using a lexicon of legal terms would save relevant pages for a legal data store, similar to a specialized law library. Jacobsen also discloses that the components of the filter itself may be the same for any context/profession, where only the lexicon may be changed. For example, it is only necessary to change the lexicon to include medical terms, as opposed to legal terms, to create a data store for a different profession, *e.g.*, medicine. EX. 1003 at

¶[0066]. This may be done for example by referencing a different file in a memory for each lexicon for each profession. *Id.*

74. “... **accessing the data store with at least a first data miner to process data in the store and output at least one result; ...**” In my opinion, Jacobsen discloses this claim limitation.

75. Jacobsen discloses a first data miner, *e.g.*, word scoring feature. This word scoring feature involves accessing the saved (relevant) web pages for processing and outputting at least one result, *e.g.*, word scores.

76. As disclosed in Jacobsen, “[t]he basic idea of this technique is to assign numerical scores to words and to sum the scores of the words on a page to determine a score for the page.” EX. 1003 at ¶[0068]. A word score is saved for each word on each page. EX. 1003 at ¶[0069].

77. “... **receiving a customer request for information; ...**” In my opinion, Jacobsen discloses this claim limitation. Jacobsen discloses receiving a customer request for information, *e.g.*, a user query.

78. Jacobsen explains the process of crawlers where “[a]ny front-end query looks up the search terms in the information stored in the host’s database 9.” *Id.* at ¶[0007]. Jacobsen also discloses a user query, where its method includes “permitting a user to enter a query; and searching the database for information according to the query.” *Id.* at claim 28.

79. “... creating at least a second data miner in response to the customer request for information, the second data miner accessing at least the result of the first data miner to generate an output; and ...” In my opinion, Jacobsen discloses this claim limitation. Jacobsen discloses creating a second data miner, *e.g.*, site ranking feature, in response to the customer request for information. The second data miner, *e.g.*, site ranking feature, accesses the word scores, which correspond to the result of the first data miner, in order to generate an output.

80. Jacobsen discloses that “[w]hen a user enters a query, the inventive SSSE determines a set of (relevant) pages that contain the query terms.” EX. 1003 at ¶[0069]. “For each page, the word scores are summed for the words of the query to compute a site ranking for that page.” *Id.* “The site rankings for the pages are then used in determining how to display the search results to the user.” *Id.*

81. The site ranking feature is a customized feature based on the words in the user query. The site ranking feature provides users with ease in retrieving the most relevant information. *Id.* at ¶[0026]. The site ranking feature is used to search the results of the first data miner to provide customized results to the user based on the user search request. The site ranking feature is described as “dynamic” based on the word scores and in response to user queries. EX. 1003 at ¶[0069].

82. **“... at least partially based on the output of the second data miner, responding to the customer request for information.”** In my opinion, Jacobsen discloses this claim limitation. Jacobsen discloses that the site ranking feature is used to determine an order in which to display the results. EX. 1003 at ¶[0070]. “That is, the most relevant sites, as determined by their rankings, would be displayed earlier in the display and/or more prominently than less high ranking sites.” *Id.* This hierarchical display is meant to provide a user-friendly display of results. *See, e.g.,* EX. 1003, FIGS. 8A and 8B. With respect to, for example, FIG. 8A, Jacobsen discloses that the user can click on the document 21 to access the information or site. EX. 1003 at ¶[0071].

83. Thus, in my opinion, Jacobsen discloses all the limitations recited in claim 1.

Claim 3

84. Claim 3 depends from claim 1 and adds the limitation **“wherein the method is provided to the customer as a service, and the acts of crawling, accessing, receiving, creating, and responding are undertaken at a vendor facility.”** I incorporate my above discussion of claim 1 in Ground 1. In my opinion, this additional claim limitation is disclosed in Jacobsen. As discussed above, the methods of Jacobsen may be provided to the user as a service and the acts of crawling, accessing, receiving, creating, and responding are undertaken at a search

facility. *See, e.g.*, EX. 1003 at ¶[0008] and ¶[0044]. Jacobsen repeatedly analogizes the claimed invention to a specialized law library. *E.g.*, ¶¶[0018]-[0019].

85. Thus, in my opinion, Jacobsen discloses all the limitations of claim 3.

Claim 19

86. Claim 19 depends from claim 1 and adds the limitation “**wherein the data miner includes rules for generating the result.**” I incorporate my above discussion of claim 1 in Ground 1. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 1, then in my opinion, this additional claim limitation is disclosed in Jacobsen. As discussed above, Jacobsen discloses that the first data miner, *e.g.*, word scoring feature, uses a “word ranking scheme” to assign numerical scores to words. EX. 1003 at ¶[0068]. “The technique works by examining each word (non-trivial word, i.e., not “stop words,” like “if,” “it,” “and,” and the like) on a given page and increasing its score if it appeared on a relevant page (i.e., a page that passed through filtering) containing a link to the given page.” *Id.* Additional examples include, increasing the word score according to how many relevant pages that linked to the given page contain the word and/or increasing the word score according to where the word appeared in a link leading to the page being examiner and/or increasing the word score if the word appears closer in proximity to the link to the page being

examined. *Id.* Accordingly, in my opinion, Jacobsen discloses rules for generating the result of the first data miner, *e.g.*, word scores.

87. Thus, in my opinion, Jacobsen discloses all the limitations of claim 19.

Claim 20

88. Claim 20 depends from claim 1 and adds the limitation “**wherein the result of the miner is useful for generating at least one index of the data store.**” I incorporate my above discussion of claim 1 in Ground 1. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 1, then in my opinion, this additional claim limitation is disclosed in Jacobsen. As discussed above, Jacobsen discloses that the result of the first data miner, *e.g.*, word scores, are saved and later used by the second data miner. *E.g.*, EX. 1003 at ¶¶[0068]-[0069]. Accordingly, in my opinion, the result of the first data miner is useful for generating an index of the data store, *e.g.*, pages with saved word scores.

89. Thus, in my opinion, Jacobsen discloses all the limitations of claim 20.

Claim 34

90. **“An information service, comprising: ...”** In my opinion, to the extent the preamble is limiting, Jacobsen discloses this claim limitation. As stated in the '526 patent, “[i]n a data mining system data is gathered into a data store using, *e.g.*, a Web crawler.” EX. 1001 at Abstract. Jacobsen discloses systems and methods where a “subject-specific search engine utilizes a smart web crawler and includes a capability of filtering out sites not relevant to the particular subject.” EX. 1003 at Abstract.

91. **“... means for accessing, with at least a first data miner, a data store containing information representing at least one Web page to process data in the store and output at least one result; ...”** In my opinion, Jacobsen discloses this claim limitation. For example, Jacobsen discloses smart crawler 16 operates in basically the same way as prior-art crawlers, *e.g.*, by visiting sites and transmitting information back to host computer 17, except that it does not operate under the “everything is relevant” principle. *Id.* at ¶[0045]. “[S]mart crawler 16 traverses the Internet 1 and then performs a screening operation, denoted by site filter 11. Site filter 11 determines, based on terminology of the profession to which the SSSE is directed (*e.g.*, law), whether or not each site is considered to be relevant to the profession.” *Id.* As one non-limiting example, Jacobsen describes the invention as being able to provide a particular profession (*e.g.*, law) with only

relevant content, similar to a specialized law library as opposed to a regular library.

Id. at ¶¶[0018]- [0019]; *see also, e.g.*, claim 1.

92. FIG. 6A, reproduced below, shows filtering operations according to the present invention. EX. 1003 at ¶[0041]. Step S11 is an optional step of removing extraneous material, *e.g.*, advertisements. EX. 1003 at ¶[0061]. At Step S12, the main part of the filter takes the page and compares it with a lexicon of terms (*e.g.*, legal terms) whose presence will indicate that the page may be relevant. *Id.* If comparison is favorable in Step S13, then the page is saved in Step S15. *Id.*

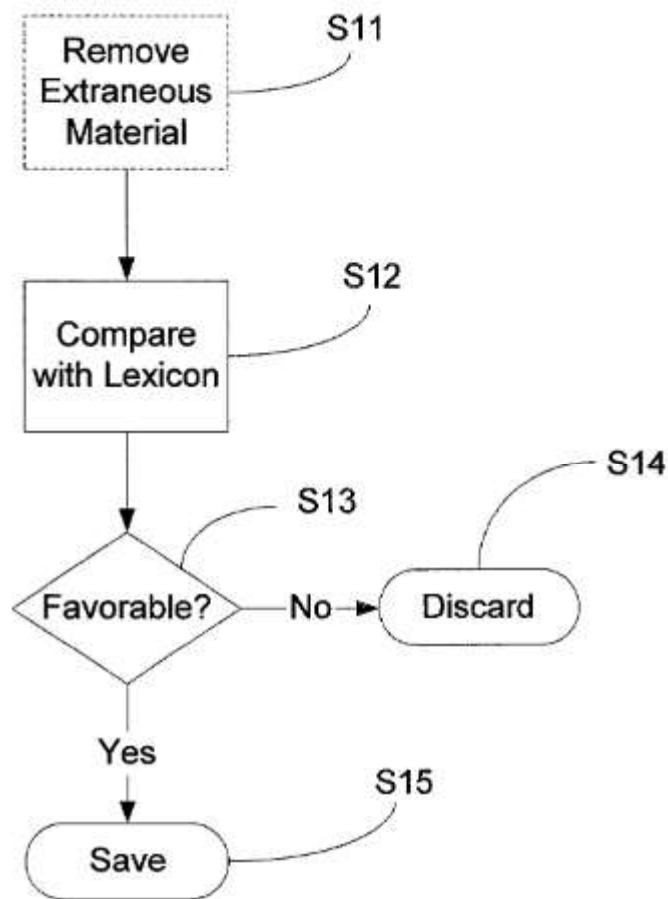


Figure 6A

93. As disclosed in Jacobsen, using a lexicon of legal terms would save relevant pages for a legal data store, similar to a specialized law library. Jacobsen also discloses that the components of the filter itself may be the same for any context/profession, where only the lexicon may be changed. For example, it is only necessary to change the lexicon to include medical terms, as opposed to legal terms, to create a data store for a different profession, *e.g.*, medicine. EX. 1003 at

¶[0066]. This may be done for example by referencing a different file in a memory for each lexicon for each profession. *Id.*

94. Jacobsen discloses a first data miner, *e.g.*, word scoring feature. This word scoring feature involves accessing the saved (relevant) web pages for processing and outputting at least one result, *e.g.*, word scores.

95. As disclosed in Jacobsen, “[t]he basic idea of this technique is to assign numerical scores to words and to sum the scores of the words on a page to determine a score for the page.” EX. 1003 at ¶[0068]. A word score is saved for each word on each page. EX. 1003 at ¶[0069].

96. **“... means for receiving a customer request for information; ...”**
In my opinion, Jacobsen discloses this claim limitation. Jacobsen discloses receiving a customer request for information, *e.g.*, a user query. Jacobsen explains the process of crawlers where “[a]ny front-end query looks up the search terms in the information stored in the host’s database 9.” *Id.* at ¶[0007]. Jacobsen also discloses a user query, where its method includes “permitting a user to enter a query; and searching the database for information according to the query.” *Id.* at claim 28.

97. **“... means for creating at least a second data miner in response to the customer request for information, the second data miner accessing at least the result of the first data miner to generate an output; and ...”** In my opinion,

Jacobsen discloses this claim limitation. Jacobsen discloses creating a second data miner, *e.g.*, site ranking feature, in response to the customer request for information. The second data miner, *e.g.*, site ranking feature, accesses the word scores, which correspond to the result of the first data miner, in order to generate an output.

98. Jacobsen discloses that “[w]hen a user enters a query, the inventive SSSE determines a set of (relevant) pages that contain the query terms.” EX. 1003 at ¶[0069]. “For each page, the word scores are summed for the words of the query to compute a site ranking for that page.” *Id.* “The site rankings for the pages are then used in determining how to display the search results to the user.” *Id.*

99. The site ranking feature is a customized feature based on the words in the user query. The site ranking feature provides users with ease in retrieving the most relevant information. *Id.* at ¶[0026]. The site ranking feature is used to search the results of the first data miner to provide customized results to the user based on the user search request. The site ranking feature is described as “dynamic” based on the word scores and in response to user queries. EX. 1003 at ¶[0069].

100. **“... means for responding to the customer request for information at least partially based on the output of the second data miner.”** In my opinion, Jacobsen discloses this claim limitation. Jacobsen discloses that the site ranking feature is used to determine an order in which to display the results. EX. 1003 at

¶[0070]. “That is, the most relevant sites, as determined by their rankings, would be displayed earlier in the display and/or more prominently than less high ranking sites.” *Id.* This hierarchical display is meant to provide a user-friendly display of results. *See, e.g.*, EX. 1003, FIGS. 8A and 8B. With respect to, for example, FIG. 8A, Jacobsen discloses that the user can click on the document 21 to access the information or site. EX. 1003 at ¶[0071].

101. Thus, in my opinion, Jacobsen discloses all the limitations recited in claim 34.

Claim 36

102. Claim 36 depends from claim 34 and adds the limitation **“wherein the service is provided to the customer as a service, and the means for accessing, receiving, creating, and responding are executed at a vendor facility.”** I incorporate my discussion of claim 34 in Ground 1 discussed above. In my opinion, Jacobsen discloses this limitation. For at least the reasons discussed above with respect to claim 3, Jacobsen discloses wherein the service is provided to the customer as a server, and the means for accessing, receiving, creating, and responding are executed at a vendor facility. Thus, in my opinion, Jacobsen discloses all the limitations recited in claim 36.

Claim 52

103. Claim 52 depends from claim 34 and adds the limitation **“wherein the data miner includes rule means for generating the result.”** I incorporate my discussion of claim 34 in Ground 1 discussed above. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 34, then in my opinion, this additional claim limitation is disclosed in Jacobsen. For at least the reasons discussed above with respect to claim 19, in my opinion, Jacobsen discloses the additional limitations recited in claim 52.

Claim 53

104. Claim 53 depends from claim 52 and adds the limitation **“means for generating at least one index of the data store at least partially based on the result of the miner.”** I incorporate my discussion of claim 34 in Ground 1, as well as my discussion of claim 52 in Ground 1 discussed above. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 34, then in my opinion, this additional claim limitation is disclosed in Jacobsen. For at least the reasons discussed above with respect to claim 20, in my opinion, Jacobsen discloses the additional limitations recited in claim 53.

GROUND 2: OBVIOUSNESS OF CLAIMS 2 AND 35 BASED ON JACOBSEN (EX. 1003)

105. In my opinion, the combination of Jacobsen and the general knowledge of a POSA renders obvious each of the limitations of claims 2 and 35 of the '526 patent.

Claim 2

106. Claim 2 depends from claim 1 and adds the limitation **“comprising billing the customer for responding to the customer request for information.”**

107. I incorporate my discussion of claim 1 in Ground 1 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen combined with his or her general knowledge.

108. The '526 Patent discloses: “[t]he results are provided to the customer at block 70 and the customer is billed, on a per request basis or on a subscription basis.” EX. 1001 at 8:54-56. As discussed above, in my opinion, the applicant’s statements during prosecution amount to clear disclaimer of billing the customer on a subscription basis. Regardless, Jacobsen in combination with a POSA’s general knowledge teaches the limitations of claim 2.

109. I also note that the '526 Patent does not disclose any specific means or methods for billing the customer, which in my opinion supports that it would have been within the general knowledge of a POSA to utilize known means or methods for doing so.

110. In my opinion, it would have been obvious for a POSA to incorporate the additional step of billing the user for responding to the user request for information on a per request basis into the methods of Jacobsen. For example, a POSA would have been motivated to bill the user for responding to the user request for information and effectuate payment prior to allowing the user to access the desired documents (*see e.g.*, EX. 1003 at ¶¶[0071]-[0072]) in order to ensure payment. It would also have been obvious to bill the user for responding to the user request for information on a subscription basis, for example, if the user frequently used the system of Jacobsen.

111. Billing the user for responding to the user request for information would allow Jacobsen's services to make a profit in order to maintain the system so that it continues to provide services and products to users. In my opinion, this would have been merely combining known methods (subject-specific search methods and known methods of billing customers) to yield predictable results (profit to continue provision of services).

112. For at least these reasons, in my opinion, Jacobsen combined with the general knowledge of a POSA teaches all the limitations recited in claim 2.

Claim 35

113. Claim 35 depends from claim 34 and adds the limitation **“comprising means for billing the customer for responding to the customer request for information.”**

114. I incorporate my discussion of claim 34 in Ground 1 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen combined with his or her general knowledge. For at least the same reasons discussed above with respect to claim 2, in my opinion, it would have been obvious for a POSA to incorporate the additional means for billing the user for responding to the user request for information into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with the general knowledge of a POSA teaches all the limitations recited in claim 35.

GROUND 3: OBVIOUSNESS OF CLAIMS 2 AND 35 BASED ON JACOBSEN (EX. 1003) AND JARAMILLO (EX. 1005)

115. In my opinion, the combination of Jacobsen and Jaramillo renders obvious each of the limitations of claims 2 and 35 of the '526 patent.

Motivations to Combine Regarding Jacobsen and Jaramillo

116. A POSA would be motivated to combine the teaching of Jacobson with his or her own general knowledge of Internet communications and databases, especially as it concerns web crawling and web pages. This general knowledge is

reflected in part by Jacobsen, which is prior art to the '526 Patent, at least because Jacobsen was a published patent application filed before the priority date of the '526 Patent.

117. Jacobsen titled “Subject Specific Search Engine” is an invention described as “[a] subject-specific search engine [that] utilizes a smart web crawler and includes a capability of filtering out sites not relevant to the particular subject.” EX. 1003 at Abstract. *See also supra* at ¶¶54-57.

118. Jaramillo titled “Method of Providing a Reference Standard Within a Web Site on an Internet” is an invention described as methods to facilitate searching of reference standards. EX. 1005 at ¶[0022].¹¹ The methods also include “the steps of identifying if a user has permission to access the reference standard database on the web site and selecting a search criteria for a reference standard by the user, if the user has permission to access the reference standard database.” EX. 1005 at Abstract. *See also supra* at ¶¶61-64.

119. Jaramillo discloses it was known for search engines to use automated software programs that traverse the Internet cataloging documents and storing the information in a computer database, where it is filtered, categorized and stored. *Id.* at ¶[0006]. Jaramillo discloses it was known to charge a user to access a particular

¹¹ Contrary to the applicant’s arguments during prosecution, Jaramillo relates to searching and accessing relevant documents, e.g., reference standards.

web site and for a user to pay a fee for the service provided by the web site on a per-use basis. *Id.* at ¶[0026]. Jaramillo also discloses it was known to charge a user for a subscription to a website for predetermined access to a reference standard for paying a predetermined subscription fee. *Id.*¹²

120. A POSA would be motivated to combine the teachings of Jacobsen and Jaramillo to achieve the benefits both provide to Internet searching. A POSA would be motivated to improve the methods of Jacobsen with the billing methods of Jaramillo in order to ensure a user of Jacobsen has permission to use/access the subject-specific search engine services. Further, in my opinion, billing the user would allow Jacobsen's services to make a profit in order to maintain the system so that it continues to provide services and products to users. In my opinion, this would have been merely combining known methods (subject-specific search methods and known methods of billing customers) to yield predictable results (profit to continue provision of services).

Claim 2

121. Claim 2 depends from claim 1 and adds the limitation **“comprising billing the customer for responding to the customer request for information.”**

¹² Contrary to the applicant's arguments during prosecution, Jaramillo discloses billing the customer as claimed at least because Jaramillo expressly discloses billing on a per-use basis, as well as billing by subscription.

122. I incorporate my discussion of claim 1 in Ground 1 discussed above. In my opinion, billing the user for responding to the user request for information would have been obvious to a POSA based on the teachings of Jacobsen and Jaramillo discussed above.

123. The ‘526 Patent discloses: “[t]he results are provided to the customer at block 70 and the customer is billed, on a per request basis or on a subscription basis.” EX. 1001 at 8:54-56. As discussed above, in my opinion, the applicant’s statements during prosecution amount to clear disclaimer of billing the customer on a subscription basis. Regardless, Jacobsen in combination with Jaramillo teaches the limitations of claim 2.

124. I also note that the ‘526 Patent does not disclose any specific means or methods for billing the customer, which in my opinion supports that it would have been within the general knowledge of a POSA to utilize known means or methods for doing so.

125. Jaramillo teaches billing the user for responding to the user request for information. For example, “[o]ne example of a user 12 is an individual who accesses the web site 40 and pays a fee for the service provided by the web site 40 on a per-use basis” and “[a]nother example is for a user 12 that subscribes to the web site 40 for predetermined access to the reference standard services by paying a predetermined subscription fee.” *Id.* at ¶[0026].

126. It would have been obvious to a POSA to combine the teachings of Jacobsen and Jaramillo to add the step of billing the user for responding to the user request for information, as disclosed by Jaramillo, into the methods of Jacobsen. For example, like in Jaramillo, a POSA would have been motivated to bill the user for responding to the user request for information and effectuate payment prior to allowing the user to access the desired documents (*see e.g.*, EX. 1003 at ¶¶[0071]-[0072]) in order to ensure payment. Like in Jaramillo, billing the use could be done on a per request/use basis or on a subscription basis. For at least these reasons, in my opinion, Jacobsen combined with Jaramillo teaches all the limitations recited in claim 2.

Claim 35

127. Claim 35 depends from claim 34 and adds the limitation **“comprising means for billing the customer for responding to the customer request for information.”**

128. I incorporate my discussion of claim 34 in Ground 1 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Jaramillo discussed above. For at least the same reasons discussed above with respect to claim 2, in my opinion, it would have been obvious for a POSA to incorporate the additional means for billing the user for responding to the user request for information, as disclosed by Jaramillo, into the

system of Jacobsen. Thus, in my opinion, Jacobsen combined with Jaramillo teaches all the limitations recited in claim 35.

GROUND 4: OBVIOUSNESS OF CLAIMS 6-9, 11, 16-17, 39-42, 44, and 49-50 BASED ON JACOBSEN (EX. 1003) AND HEGLI (EX. 1006)

129. In my opinion, the combination of Jacobsen and Hegli renders obvious each of the limitations of claims 6-9, 11, 16-17, 39-42, 44, and 49-50 of the '526 patent.

Motivation to Combine Jacobsen and Hegli

130. A POSA would be motivated to combine the teaching of Jacobsen with his or her own general knowledge of Internet communications and databases, especially as it concerns web crawling and web pages. This general knowledge is reflected in part by Jacobsen, which is prior art to the '526 Patent, at least because Jacobsen was a published patent application filed before the priority date of the '526 Patent.

131. Jacobsen titled "Subject Specific Search Engine" is an invention described as "[a] subject-specific search engine [that] utilizes a smart web crawler and includes a capability of filtering out sites not relevant to the particular subject." EX. 1003 at Abstract. Jacobsen addresses these problems by disclosing a specific search engine (SSSE), where the strategy adopted is to collect and index only the

pages deemed relevant for a specific subject, e.g., law or medicine.” *Id.* at ¶[0010].

The analysis disclosed by Jacobsen includes use of a lexicon of terms (e.g., legal terms) whose presence will indicate that the page may be relevant. *Id.* at ¶[0061].

The analysis disclosed by Jacobsen further includes use of a word scoring feature and a site ranking feature. *Id.* at ¶¶[0068]-[0069]. *See also supra* at ¶¶54-**Error!**

Reference source not found..

132. Hegli titled “System and Method for Controlling Access to Internet Sites” is an invention described as “[a] method and system for providing flexible access to Internet sites.” EX. 1006 at Abstract. Hegli is directed to a system that “includes a database of Internet sites that have been categorized so that the system determines the category of information that a user is accessing.” *Id.* Hegli discloses where “embodiments of this system include a training database that is created by analysis of lexical elements appearing on Internet sites that are strongly associated with a particular category” and “[i]n this context, a lexical element is a word or plurality of words that appear on the site under analysis.” *Id.* at 4:20-25. *See also supra* at ¶¶65-67.¹³

¹³ Contrary to the applicant’s arguments during prosecution, Hegli is related to a categorized database of Internet sites, including relevancy scores at least partially defined by lexical terms, as well as controlling user access to categories. *See, e.g.*, EX. 1006, claim 1. Hegli is not limited to the context of pornography. I also note that the ‘526 Patent mentions pornography, yet is not limited to the context of pornography.

133. A POSA would be motivated to combine the teachings of Jacobsen and Hegli to achieve the benefits both provide to Internet searches. A POSA would be motivated to improve the subject specific search engine of Jacobsen with the controlled and categorized searching of Hegli in order to improve functionality related to the collection, storage, and retrieval of information from the Internet. A POSA reading Jacobsen would have been motivated to use the analysis of lexical elements and determination of categories of information as taught by Hegli. For example, Jacobsen's analogy of a specialized law library would be further improved with Hegli's categorization methods in order to create sections of the library for particular subjects, *e.g.*, patent law. Further, given that Jacobsen discloses different lexicons for different professions, a POSA would have been motivated to modify Jacobsen to allow certain customers to access the legal search results and other customers to access the medical search results depending on, for example, a customer's profession. In some cases, a lawyer may need to also access medical search results and a doctor may need to also access legal search results, which would be provided for in a modified system of Jacobsen, based on the teachings of Hegli. The combination of Jacobsen and Hegli would have been merely combining known known methods (search engines and lexical analysis) to yield predictable results (categorized search results).

Claim 6

134. Claim 6 depends from claim 1 and adds the limitation **“wherein the result output by the first data miner includes at least one key representing at least one characteristic of at least one entity in the data store.”** I incorporate my discussion of claim 1 in Ground 1 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

135. As discussed above, Jacobsen discloses word scores corresponding to the result output by the first data miner. In my opinion, it would have been obvious to incorporate the teachings of Hegli into Jacobsen such that the result output by the first data miner additionally includes at least one key representing at least one characteristic (*e.g.*, word ID, category, relevance score, pair, adjacent) of at least one entity in the data store.

136. For example, Hegli teaches the use of analysis of lexical elements “that are strongly associated with a particular category.” EX. 1006 at 4:21-23. Hegli teaches “[e]xamples of lexical elements include individual words, word pairs, adjacent words, and triplets of words.” *Id.* at 4:25-27. As discussed in Hegli, “the words, word pairs and word adjacencies from new Internet sites are tested against the category prototypes to determine if the new page should be categorized within any particular category.” *Id.* at 5:23-25. For example, the words “football

team” would be given a strong relevance score to the Sports category and a low relevance score to the Commerce category. *Id.* at 4:35-39; *see also id.* at 7:51-8:14.

137. With respect to Figure 3, reproduced below, Hegli teaches the use of word identification table 200 that includes lists of words and a corresponding ID for each word. EX. 1006 at 8:31-33. Hegli further teaches the use of a category ID table 205 including the alpha score and beta score for each category. EX. 1006 at 8:49-67. Hegli further teaches the use of the use of a word relevance table 210 that provides the relevance scores of word pairs and word adjacencies with particular categories in the system. EX. 1006 at 9:1-20.

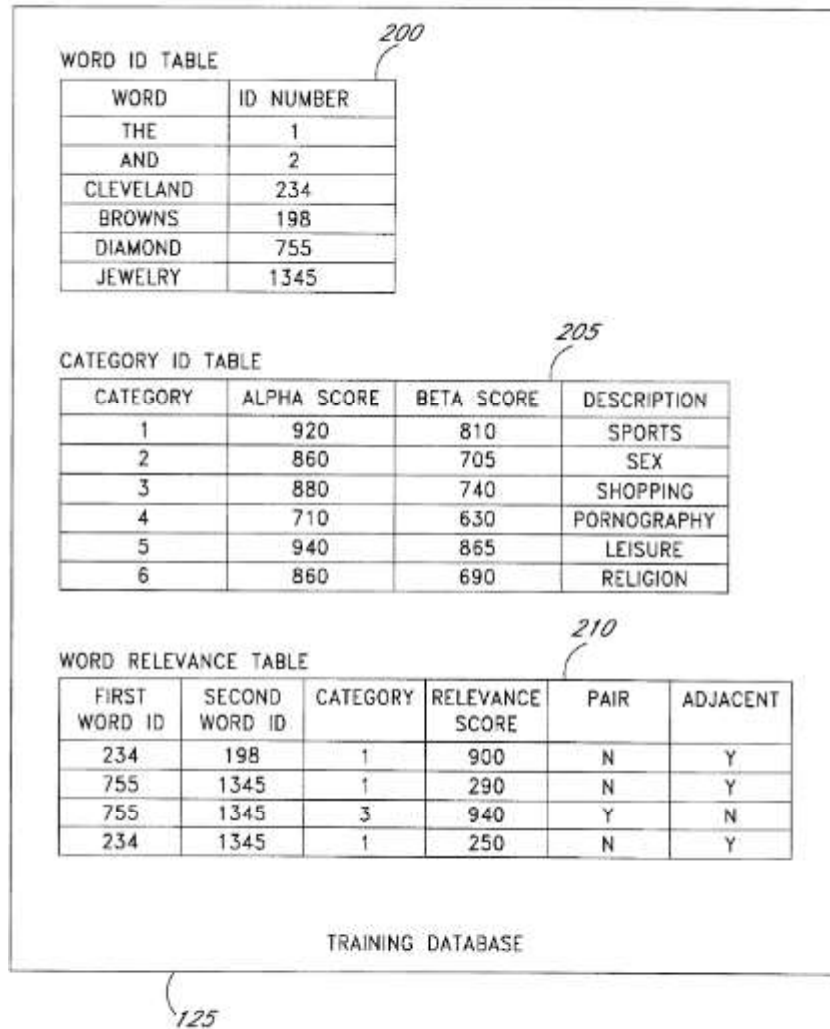


FIG. 3

138. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 6.¹⁴

¹⁴ I also note that the examiner also relied on col. 4:21-29 and col. 9:13-20 of Hegli for teaching the limitations of claim 6, which was not disputed by the applicant during prosecution. The applicant only argued that a different primary prior art reference (Chipman) was not properly combinable with Hegli. The applicant did not argue that Hegli did not disclose the additional claim elements.

Claim 7

139. Claim 7 depends from claim 6 and adds the limitation **“wherein the key is added to a table having therein plural entities, at least some entities having at least one attribute.”** I incorporate my discussion of claim 1 in Ground 1, as well as my discussion of claim 6 in Ground 4 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

140. With respect to Fig. 3 of Hegli, shown above, Hegli teaches wherein the key is added to a table having therein plural entities, at least some entities having at least one attribute. For example, Hegli teaches the use of a category ID table 205. Hegli describes “category identification table 205 that provides a category ID number for each category within the system” where “table 205 also includes an alpha and beta score that provide the cut-off values for assigning a particular page to the selected category.” EX. 1006. at 8:49-54.

141. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 7.¹⁵

¹⁵ I also note that the examiner also relied on Fig. 3 of Hegli for teaching the limitations of claim 7, which was not disputed by the applicant during prosecution. The applicant only argued that a different primary prior art reference (Chipman) was not properly combinable with Hegli. The applicant did not argue that Hegli did not disclose the additional claim elements.

Claim 8

142. Claim 8 depends from claim 6 and adds the limitation **“wherein the value of the key is a binary value.”** I incorporate my discussion of claim 1 in Ground 1, as well as my discussion of claim 6 in Ground 4 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

143. With respect to Fig. 3 of Hegli, shown above, Hegli teaches wherein the value of the key is a binary value. For example, Hegli teaches the use of a word relevance table 210. The word relevance table 210 illustrates binary key values indicating whether words are adjacent, *i.e.*, “Y” or “N”, and whether the words are a pair, *i.e.*, “Y” or “N”.

144. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 8.¹⁶

Claim 9

145. Claim 9 depends from claim 6 and adds the limitation **“wherein the value of the key is a non-binary value.”** I incorporate my discussion of claim 1 in Ground 1, as well as my discussion of claim 6 in Ground 4 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

¹⁶ I also note that the examiner also relied on Fig. 3 of Hegli for teaching the limitations of claim 8, which was not disputed by the applicant during prosecution. The applicant only argued that a different primary prior art reference (Chipman) was not properly combinable with Hegli. The applicant did not argue that Hegli did not disclose the additional claim elements.

146. With respect to Fig. 3 of Hegli, shown above, Hegli teaches wherein the value of the key is a binary value. For example, Hegli teaches the use of a word relevance table 210. The word relevance table 210 illustrates non-binary key values indicating the relevance score.

147. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 9.¹⁷

Claim 11

148. Claim 11 depends from claim 6 and adds the limitation **“wherein the key represents whether the associated entity is a high quality entity.”** I incorporate my discussion of claim 1 in Ground 1, as well as my discussion of claim 6 in Ground 4 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

149. For example, Hegli, in Fig. 6, illustrates “a process 328 of analyzing the word content of pages to determine their relevance to particular categories is illustrated.” *Id.* at 12:33-35. Hegli further discloses a quality rating of the relevance score where “the relevance score of a word pair within a particular category varies

¹⁷ I also note that the examiner also relied on Fig. 3 of Hegli for teaching the limitations of claim 9, which was not disputed by the applicant during prosecution. The applicant only argued that a different primary prior art reference (Chipman) was not properly combinable with Hegli. The applicant did not argue that Hegli did not disclose the additional claim elements.

from 0 to 1,000, with 1,000 being a word pair that is perfectly associated with a category.” *Id.* at 12:52-54.

150. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 11.¹⁸

Claim 16

151. Claim 16 depends from claim 6 and adds the limitation “**wherein the entity represents a Web page.**” I incorporate my discussion of claim 1 in Ground 1, as well as my discussion of claim 6 in Ground 4 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

152. As discussed above, Jacobsen discloses the entity in the data store represents a Web page. *See, e.g.*, EX. 1003 at ¶¶[0068]-[0069]. Jacobsen also discloses computing a word score associated with each word (except stop words) on each web page. *See, e.g.*, EX. 1003 at claim 56. Also, for example, with respect to Fig. 8A, Jacobsen discloses the files 20, 22 represent the actual Web pages/sites. EX. 1003 at ¶[0071]. As discussed above, Hegli additionally discusses the analysis of web pages in a data store. *See also, e.g.*, EX. 1006 at 14:51-53 and 14:58-60.

¹⁸ I also note that the examiner also relied on Fig. 6 of Hegli for teaching the limitations of claim 11, which was not disputed by the applicant during prosecution. The applicant only argued that a different primary prior art reference (Chipman) was not properly combinable with Hegli. The applicant did not argue that Hegli did not disclose the additional claim elements.

153. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 16.

Claim 17

154. Claim 17 depends from claim 6 and adds the limitation “**wherein the entity represents a hyperlink.**” I incorporate my discussion of claim 1 in Ground 1, as well as my discussion of claim 6 in Ground 4 discussed above. In my opinion, the combination of Jacobsen and Hegli teaches this claim limitation.

155. For example, with respect to Figs. 8A and 8B, Jacobsen discloses the “files or “site types” may consist of URLs of sites and contain the sites linked to from those URLs. EX. 1003 at ¶[0073].

156. Thus, in my opinion, the combination of Jacobsen and Hegli teaches all limitations of claim 17.

Claim 39

157. Claim 39 depends from claim 34 and adds the limitation “**wherein the result output by the first data miner includes at least one key representing at least one characteristic of at least one entity in the data store.**” I incorporate my discussion of claim 34 in Ground 1 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 6, in my opinion, it would have been obvious for a POSA to incorporate the

teachings of Hegli, wherein the result output by the first data miner includes at least one key representing at least one characteristic of at least one entity in the data store, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 39.

Claim 40

158. Claim 40 depends from claim 39 and adds the limitation **“further comprising means for adding the key to a table having therein plural entities, at least some entities having at least one attribute.”** I incorporate my discussion of claim 34 in Ground 1 discussed above, as well as my discussion of claim 39 in Ground 4 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 7, in my opinion, it would have been obvious for a POSA to incorporate means for adding the key to a table having therein plural entities, at least some entities having at least one attribute, as disclosed in Hegli, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 40.

Claim 41

159. Claim 41 depends from claim 39 and adds the limitation **“wherein the value of the key is a binary value.”** I incorporate my discussion of claim 34 in Ground 1 discussed above, as well as my discussion of claim 39 in Ground 4

discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 8, in my opinion, it would have been obvious for a POSA to incorporate the teachings of Hegli, wherein the value of the key is a binary value, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 41.

Claim 42

160. Claim 42 depends from claim 39 and adds the limitation **“wherein the value of the key is a non-binary value.”** I incorporate my discussion of claim 34 in Ground 1 discussed above, as well as my discussion of claim 39 in Ground 4 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 9, in my opinion, it would have been obvious for a POSA to incorporate the teachings of Hegli, wherein the value of the key is a non-binary value, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 42.

Claim 44

161. Claim 44 depends from claim 39 and adds the limitation **“wherein the key represents whether the associated entity is a high quality entity.”** I incorporate my discussion of claim 34 in Ground 1 discussed above, as well as my

discussion of claim 39 in Ground 4 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 11, in my opinion, it would have been obvious for a POSA to incorporate the teachings of Hegli, wherein the key represents whether the associated entity is a high quality entity, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 44.

Claim 49

162. Claim 49 depends from claim 39 and adds the limitation **“wherein the entity represents a Web page.”** I incorporate my discussion of claim 34 in Ground 1 discussed above, as well as my discussion of claim 39 in Ground 4 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 16, in my opinion, it would have been obvious for a POSA to incorporate the teachings of Hegli, wherein the entity represents a Web page, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 49.

Claim 50

163. Claim 50 depends from claim 39 and adds the limitation **“wherein the entity represents a hyperlink.”** I incorporate my discussion of claim 34 in

Ground 1 discussed above, as well as my discussion of claim 39 in Ground 4 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Jacobsen and Hegli discussed above. For at least the same reasons discussed above with respect to claim 17, in my opinion, it would have been obvious for a POSA to incorporate the teachings of Hegli, wherein the entity represents a hyperlink, into the system of Jacobsen. Thus, in my opinion, Jacobsen combined with Hegli teaches all the limitations recited in claim 50.

GROUND 5: ANTICIPATION OF CLAIMS 1, 6, 9, 11, 13, 19, 20, 34, 39, 42, 44, 46, 52, AND 53 BY SEIBEL (EX. 1004)

164. In my opinion, Seibel discloses each of the limitations of claims 1, 6, 9, 11, 13, 19, 20, 34, 39, 42, 44, 46, 52, and 53 of the '526 patent.

Claim 1

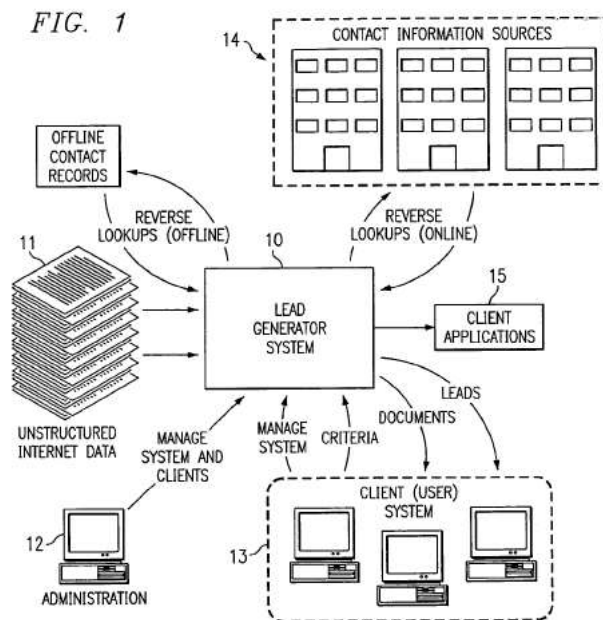
165. **“A method for data mining, comprising: ...”** In my opinion, to the extent the preamble is limiting, Seibel discloses this claim limitation. As stated in the '526 patent, “[i]n a data mining system data is gathered into a data store using, *e.g.*, a Web crawler.” EX. 1001 at Abstract.

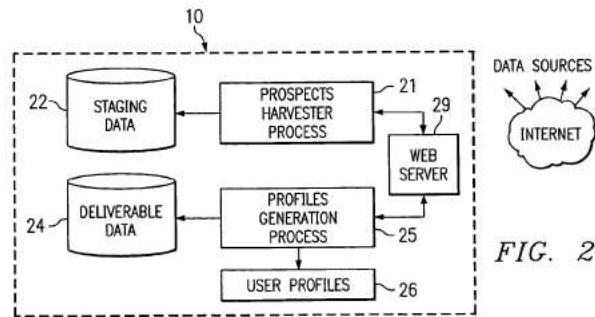
166. Seibel describes a customer lead generation system 10 that uses the Internet and multiple data sources to mine text data to enhance businesses:

167. “FIG. 1 illustrates the operating environment for a web based customer lead generation system 10 in accordance with the invention. System 10 is

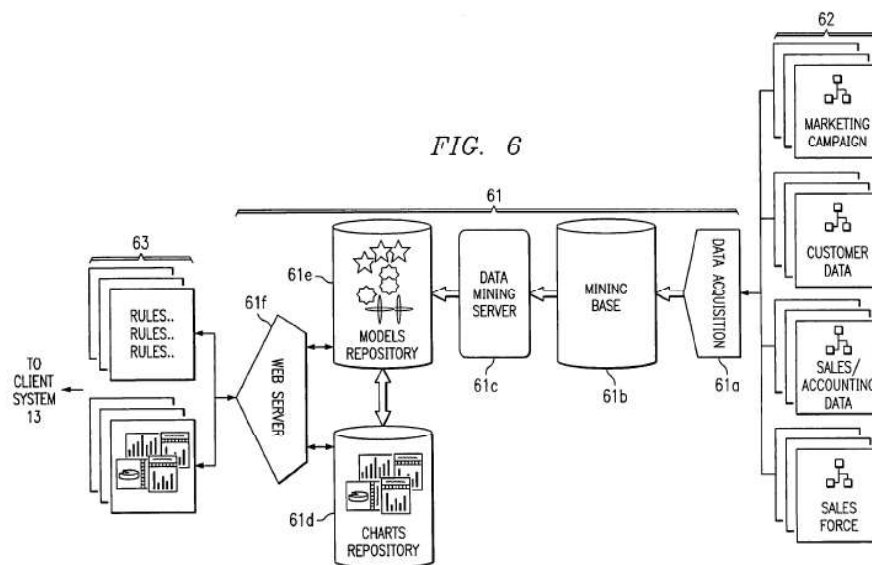
in communication, via the Internet, with unstructured data sources 11, an administrator 12, client systems 13, reverse look-up sources 14, and client applications 15.” EX. 1004 at 2:47-52.

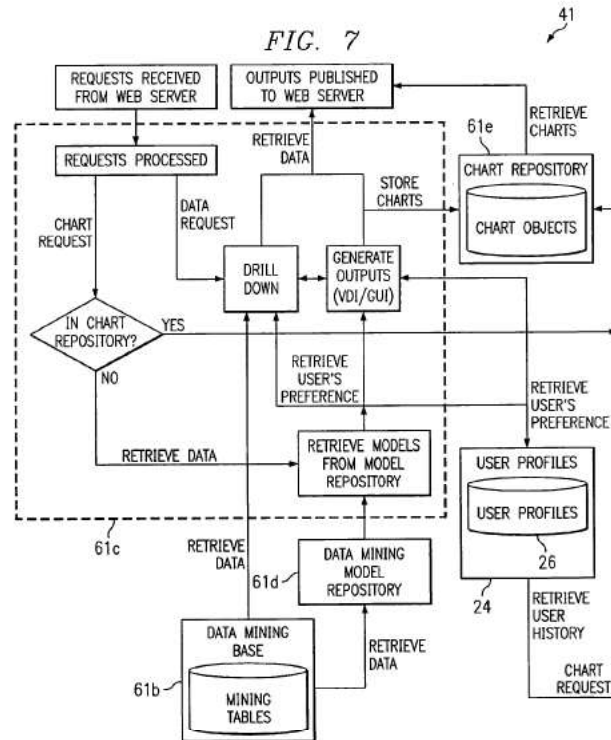
168. “The users of system 10 may be any business entity that desires to conduct more effective marketing campaigns. These users may be direct marketers who wish to maximiz[e] the effectiveness of direct sales calls, or e-commerce web site who wish to build audiences.” *Id.* at 2:53-57. FIGS. 1 and 2 are reproduced below:





169. Seibel discloses a method for data mining. For example, “FIGS. 6 and 7 illustrate a data mining system 61, which may be used within system 10 of FIGS. 1 and 2.” *Id.* at 7:48-49. FIGS. 6 and 7 are reproduced below:





170. “... crawling the Internet to return Web pages to a data store; ...”

In my opinion, Seibel discloses this claim limitation. For example, Seibel discloses a lead generation system 10, shown in Figs. 1 and 2. The processes of the lead generation system 10 include crawling the Internet using a prospect harvester process 21 or crawler process 31.

171. Seibel describes “prospects harvester process 21 uses a combination of external data sources, client internal data sources and user parameter extraction interfaces, in conjunction with a search, recognition and retrieval system, to harvest contact information from the web and return it to a staging data base 22.”

Id. at 3:63-4:1.

172. Seibel further discloses that crawler process 31 is a text mining tool that provides access to data sources. E.g., *id.* at 4:63-65. Fig. 3, reproduced below, provides additional detail of the data sources of Figs. 1 and 2.

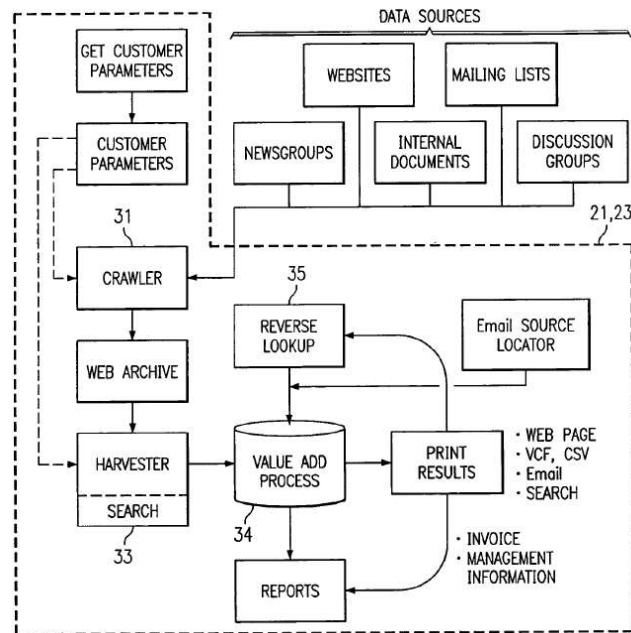


FIG. 3

173. Seibel further discloses that one such data source obtained from a crawler process are “web pages from Internet web sites” where “[t]his function of the crawler process is similar to the functionality associated with web-discussion-forums” and that “[s]earches are controlled by user-specified parameters such as web site URL, starting page, the number of traversal levels and crawling frequency.” *Id.* at 5:52-57.

174. Seibel further discloses a database server system 41, which may be used within lead generation system 10 of Figs. 1 and 2. Fig 4, reproduced below,

shows database server system 41, including a data acquisition component 41a.

Seibel discloses that “data acquisition component 41a collects and extracts data from different data sources, applying appropriate transformation, aggregation and cleansing to the data collected. This component consists of predefined data conversions to accomplish most commonly used data transformations, for as many different types of data sources as possible.” *Id.* at 6:12-18.

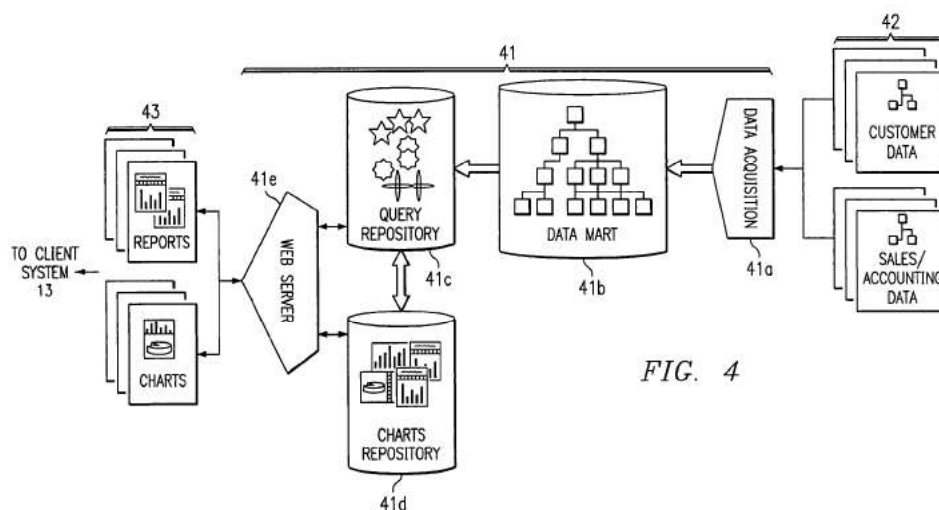


FIG. 4

175. Thus, Seibel discloses crawling the Internet using processes 21, 31 to return Web pages to a data store, e.g., database server system 41.

176. “... **accessing the data store with at least a first data miner to process data in the store and output at least one result; ...**” In my opinion, Seibel discloses this claim limitation. Seibel discloses a first data miner, e.g., profiles generation process 25, which processes customer data in the store to create a user (client) profiles database 26, which stores profiles of the client and its customers.

177. For example, Seibel discloses that “system 41 could be used to implement the profiles generation process 25, which collects profile data about the [user/] client.” *Id.* at 5:62-54. Seibel describes profiles generation process 25 which “analyzes the user’s in-house files and records related to the user's existing customers to identify and group those customers into profile categories based on the customer's buying patterns and purchasing volumes” and overlays the patterns and purchasing volumes of the existing customers on the salient contact information previously harvested to allow the aggregation of the revenue-based leads into prioritized demand generation sets. *Id.* at 4:23-39

178. Seibel further discloses that the “resulting profiles are then overlaid on the data obtained by [prospects harvester] process 21 to facilitate more accurate revenue projections and to enhance the sales and marketing process. The client may add certain value judgments (rankings) in a table that is linked to a unique lead id that can subsequently be analyzed by data mining or OLAP analytical tools.” *Id.* at 4:39-45.

179. **“... receiving a customer request for information; ...”** In my opinion, Seibel discloses this claim limitation.

180. Seibel discloses database server system 41, discussed above, which also includes a charts repository 41d. *Id.* at Fig. 4. Seibel discloses receiving a

customer request for information which includes “chart requests” and “data requests”. *Id.* at Fig. 5.

181. Seibel further discloses receiving customer requests: “When an end user requests a chart, system 41 first queries the chart repository 41d to see if there is an existing chart. If there is a preexisting chart, server 41e pulls that chart directly from the repository. If there is no preexisting chart, server 41e runs the corresponding predefined query from the query repository 41c in order to extract data from data mart 41b and subsequently feed the data to the requested chart.” *Id.* at 6:58-7:2.

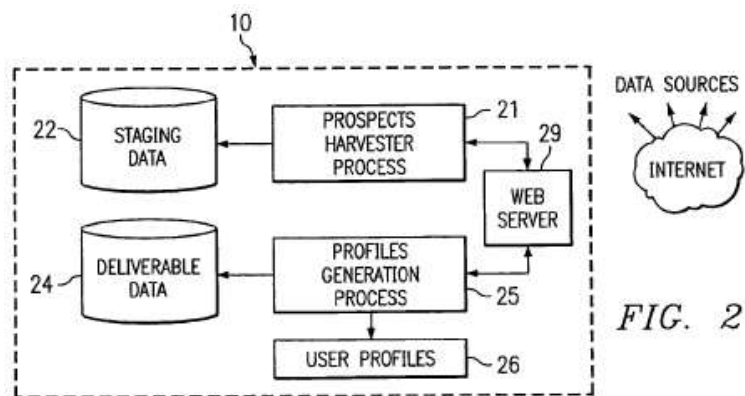
182. **“... creating at least a second data miner in response to the customer request for information, the second data miner accessing at least the result of the first data miner to generate an output; ...”** In my opinion, Seibel discloses this claim limitation. Seibel discloses creating at least a second data miner in response to the customer request for information. For example, Seibel discloses a second data miner, *e.g.*, server 41e runs a query using different parameters (*e.g.*, a quarterly revenue query where the parameters passed are the specific region, the specific year, and the specific quarter) to extract data from data mart 41b to feed the data to the requested chart. *Id.* at 6:44-7:2. Seibel further discloses that users may request charts by regions, by quarters, by products, by

companies, and by chart style (e.g., pie chart, bar chart, map view, or data view).

Id. at 7:29-39.

183. Server 41e extracts (e.g., mines) data in response to a user (e.g., customer) request. This is a customized extraction based on the parameters of the user request. This provides customized results to the user based on the user request.

184. Seibel discloses the second data miner accessing at least the result of the first data miner to generate an output. For example, profiles generation process 25 (e.g., the first data miner) generates resulting deliverable data 24 and user profiles 26, as seen in Fig. 2:



185. Seibel further discloses multiple other data miners, including server 41e, accessing those results to generate an output: “As explained above in connection with FIG. 2, the profiles generation process 25 may be used to generate a profiles database 26. This [profiles] database 26 stores information about the client and its customers that may be used to better identify prospective customers. ... as illustrated in FIG. 5, the database server 41e of database server system 41

may access database 24 [(which contains Profiles Database 26 - Fig. 5)] to determine user preferences in formulating queries and presenting outputs...” *Id.* at 10:60-11:8; *see also id.* at Fig. 9.

186. Seibel further discloses that server 41e is distinct from profiles generation process 25 (*e.g.*, a first data miner). For example, Fig. 5 shows that server 41e accesses user profiles and data 24 and 26, which, as discussed above, were already separately generated by profiles generation process 25.

187. “... **at least partially based on the output of the second data miner, responding to the customer request for information.**” In my opinion, Seibel discloses this claim limitation.

188. Seibel discloses responding to the customer request for information at least partially based on the output of the second data miner. For example, Seibel discloses that server 41e generates output 43, which is sent to client system 13, as seen in Fig. 4, reproduced below:

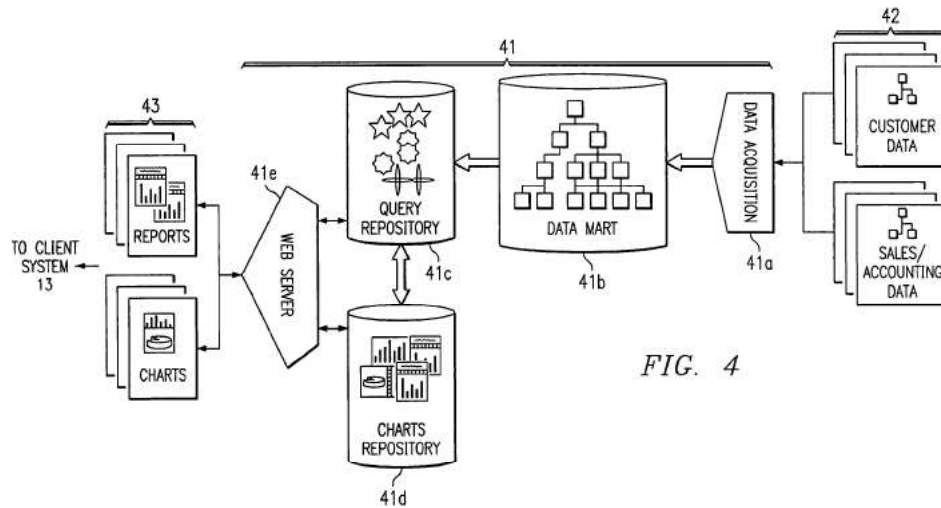


FIG. 4

189. Seibel further discloses a response to a customer request for information based at least partially on output 43. For example, Seibel discloses that output 43 can comprise business intelligence tailored to specific customer requests: “As output 43, database server system 41 delivers business intelligence about an organization's sales performance as charts over the Internet or corporate Intranet. Users can pick and choose charts by regions, by quarters, by products, by companies and even by different chart styles. Users can drill-down on these charts to reveal the underlying data sources, get detailed information charts or detailed raw data. All charts are drill-down enabled allowing users to navigate and explore information either vertically or horizontally. Pie charts, bar charts, map views and data views are delivered via the Internet or Intranet.” *Id.* at 7:29-39.

190. Thus, in my opinion, Seibel discloses all the limitations recited in claim 1.

Claim 6

191. Claim 6 depends from claim 1 and adds the limitation **“wherein the result output by the first data miner includes at least one key representing at least one characteristic of at least one entity in the data store.”** I incorporate my discussion of claim 1 in Ground 5 discussed above. In my opinion, Seibel discloses this claim limitation.

192. For example, Seibel discloses the profiles generation process 25 creates profiles of the client and its customers, e.g., the result output. Seibel further discloses that “profiles include items such as purchasing criteria, buying cycles and trends, cross-selling and up-selling opportunities, and effort to expense/revenue correlations.” *Id.* at 4:37-39. Seibel further discloses profiles include data obtained by process 21, such as the prospect’s name, email address, Web site address, and other contact information. *Id.* at 4:9-22. Seibel further discloses that a client may add certain value judgments (rankings) in a table that is linked to a unique lead id for later analysis. *Id.* at 4:42-45.

193. Thus, in my opinion, Seibel discloses all the limitations recited in claim 6.

Claim 9

194. Claim 9 depends from claim 6 and adds the limitation **“wherein the value of the key is a non-binary value.”** I incorporate my discussion of claim 1 in

Ground 5, as well as my discussion of claim 6 in Ground 5, discussed above. In my opinion, Seibel discloses this claim limitation.

195. As discussed above with respect to claim 6, as one example, the value of the key (*e.g.*, purchasing criteria) is a non-binary value. As another example, the value of the key (*e.g.*, prospect's name) is a non-binary value.

196. Thus, in my opinion, Seibel discloses all the limitations recited in claim 9.

Claim 11

197. Claim 11 depends from claim 6 and adds the limitation **“wherein the key represents whether the associated entity is a high quality entity.”** I incorporate my discussion of claim 1 in Ground 5, as well as my discussion of claim 6 in Ground 5, discussed above. In my opinion, Seibel discloses this claim limitation.

198. As discussed above with respect to claim 6, as one example, Seibel discloses the client may add certain value judgments (rankings) to show that the profile is associated with a high value contact. *Id.* at 4: 42-44. Seibel also discloses that the contact data provided by process 21 may include a related document to verify the high level value of the contact. *Id.* at 4:18-22.

199. Thus, in my opinion, Seibel discloses all the limitations recited in claim 11.

Claim 13

200. Claim 13 depends from claim 6 and adds the limitation **“wherein the key represents whether the associated entity represents a person.”** I incorporate my discussion of claim 1 in Ground 5, as well as my discussion of claim 6 in Ground 5, discussed above. In my opinion, Seibel discloses this claim limitation.

201. As discussed above with respect to claim 6, as one example, the value of the key (e.g., person’s name) represents whether the associated entity represents a person.

202. Thus, in my opinion, Seibel discloses all the limitations recited in claim 13.

Claim 19

203. Claim 19 depends from claim 1 and adds the limitation **“wherein the data miner includes rules for generating the result.”** I incorporate my discussion of claim 1 in Ground 5 discussed above. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 1, then in my opinion, this additional claim limitation is disclosed in Seibel.

204. For example, Seibel discloses the profiles generation process 25 creates profiles of the client and its customers, e.g., the result output. Seibel further

discloses that the process 25 may include rules to identify and group customers into profile categories based on the customer's buying patterns and purchasing volumes. *Id.* at 4:23-27. Process 25 may also include rules to aggregate leads into prioritized demand generation sets. *Id.* at 4:27-31. Process 25 may also be used to create profiles of the most profitable customers. *Id.* at 4:34-37.

205. Thus, in my opinion, Seibel discloses all the limitations recited in claim 19.

Claim 20

206. Claim 20 depends from claim 1 and adds the limitation “**wherein the result of the miner is useful for generating at least one index of the data store.**” I incorporate my discussion of claim 1 in Ground 5 discussed above. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 1, then in my opinion, this additional claim limitation is disclosed in Seibel.

207. For example, Seibel discloses the profiles generation process 25 creates profiles of the client and its customers, e.g., the result of the first data miner. The resultant profiles are useful for generating at least one index (e.g., profiles database 26) which may be accessed during various data and text mining processes to better identify prospective customers of the client. *Id.* at 4:47-52.

208. Thus, in my opinion, Seibel discloses all the limitations recited in claim 20.

Claim 34

209. **“An information service, comprising: ...”** In my opinion, to the extent the preamble is limiting, Seibel discloses this claim limitation. As stated in the ’526 patent, “[i]n a data mining system data is gathered into a data store using, e.g., a Web crawler.” EX. 1001 at Abstract. The ’526 patent further states that “[t]he method may be provided to the customer as a service.” *Id.* at 2:21-22. Seibel further discloses that “system 10 may be described as a web-based Application Service Provider (ASP) data collection tool.” *Id.* at 2:58-59.

210. **“... means for accessing, with at least a first data miner, a data store containing information representing at least one Web page to process data in the store and output at least one result; ...”** In my opinion, Seibel discloses this claim limitation. Seibel discloses a lead generation system 10, shown in Figs. 1 and 2. The processes of the lead generation system 10 include crawling the Internet using a process 21 or crawler process 31 and then storing the results in a data store, *e.g.*, database server system 41.

211. For example, “prospects harvester process 21 uses a combination of external data sources, client internal data sources and user parameter extraction interfaces, in conjunction with a search, recognition and retrieval system, to

harvest contact information from the web and return it to a staging data base 22.”

Id. at 3:63-4:1.

212. Seibel further discloses that one such data source obtained from a crawler process are “web pages from Internet web sites” where “[t]his function of the crawler process is similar to the functionality associated with web-discussion-forums” and that “[s]earches are controlled by user-specified parameters such as web site URL, starting page, the number of traversal levels and crawling frequency.” *Id.* at 5:52-57.

213. Seibel discloses a first data miner, *e.g.*, profiles generation process 25, which processes customer data in the store to create a user (client) profiles database 26, which stores profiles of the client and its customers.

214. For example, Seibel discloses that “profiles generation process 25 analyzes the user’s in-house files and records related to the user's existing customers to identify and group those customers into profile categories based on the customer's buying patterns and purchasing volumes. The patterns and purchasing volumes of the existing customers are overlaid on the salient contact information previously harvested to allow the aggregation of the revenue-based leads into prioritized demand generation sets. Process 25 uses an analysis engine and both data and text mining engines to mine a company’s internal client records, digital voice records, accounting records, contact management information and

other internal files. It creates a profile of the most profitable customers, reveals additional prospecting opportunities, and enables sales cycle improvements. Profiles include items such as purchasing criteria, buying cycles and trends, cross-selling and up-selling opportunities, and effort to expense/revenue correlations.” *Id.* at 4:23-39.

215. Seibel further discloses that the “resulting profiles are then overlaid on the data obtained by [prospects harvester] process 21 [(which “harvest[s] contact information from the web”)] to facilitate more accurate revenue projections and to enhance the sales and marketing process. The client may add certain value judgments (rankings) in a table that is linked to a unique lead id that can subsequently be analyzed by data mining or OLAP analytical tools.” *Id.* at 4:39-45.

216. **“... means for receiving a customer request for information; ...”** In my opinion, Seibel discloses this claim limitation. Seibel discloses database server system 41, discussed above, which also includes a charts repository 41d. *Id.* at Fig. 4. Seibel discloses receiving a customer request for information which includes “chart requests” and “data requests”. *Id.* at Fig. 5.

217. Seibel further discloses receiving customer requests: “When an end user requests a chart, system 41 first queries the chart repository 41d to see if there is an existing chart. If there is a preexisting chart, server 41e pulls that chart directly from the repository. If there is no preexisting chart, server 41e runs the

corresponding predefined query from the query repository 41c in order to extract data from data mart 41b and subsequently feed the data to the requested chart.” *Id.* at 6:58-7:2.

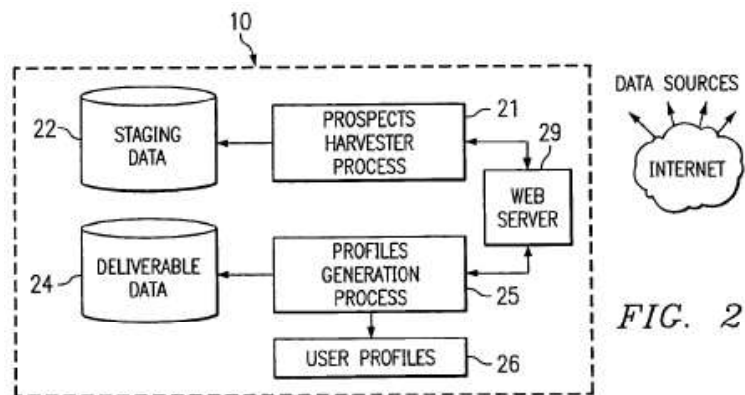
218. **“... means for creating at least a second data miner in response to the customer request for information, the second data miner accessing at least the result of the first data miner to generate an output; ...”** In my opinion, Seibel discloses this claim limitation.

219. Seibel discloses creating at least a second data miner in response to the customer request for information. For example, Seibel discloses a second data miner, *e.g.*, server 41e runs a query using different parameters (*e.g.*, a quarterly revenue query where the parameters passed are the specific region, the specific year, and the specific quarter) to extract data from data mart 41b to feed the data to the requested chart. *Id.* at 6:44-7:2. Seibel further discloses that users may request charts by regions, by quarters, by products, by companies, and by chart style (*e.g.*, pie chart, bar chart, map view, or data view). *Id.* at 7:29-39.

220. Server 41e extracts (*e.g.*, mines) data in response to a user (*e.g.*, customer) request. This is a customized extraction based on the parameters of the user request. This provides customized results to the user based on the user request.

221. Seibel discloses the second data miner accessing at least the result of the first data miner to generate an output. For example, profiles generation process

25 (e.g., the first data miner) generates resulting deliverable data 24 and user profiles 26, as seen in Fig. 2:

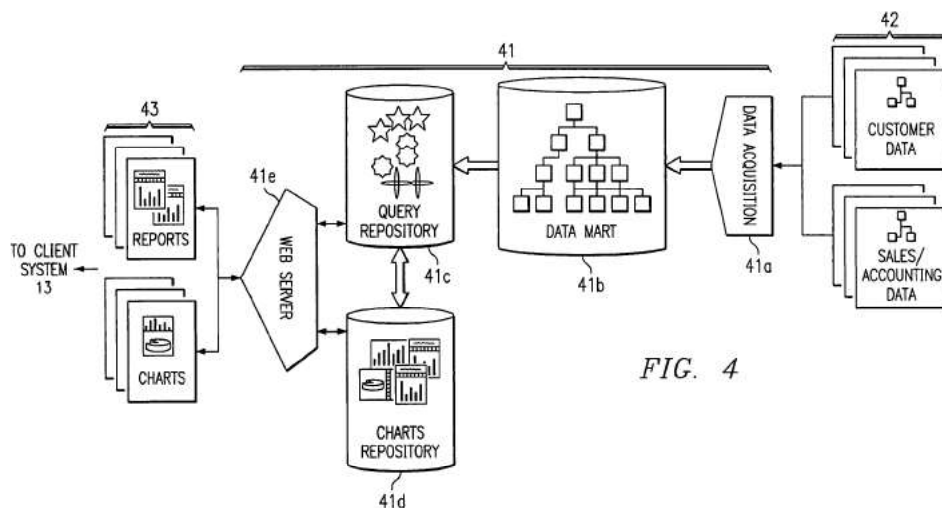


222. Seibel further discloses multiple other data miners, including server 41e, accessing those results to generate an output: “As explained above in connection with FIG. 2, the profiles generation process 25 may be used to generate a profiles database 26. This [profiles] database 26 stores information about the client and its customers that may be used to better identify prospective customers. ... as illustrated in FIG. 5, the database server 41e of database server system 41 may access database 24 [(which contains Profiles Database 26 - Fig. 5)] to determine user preferences in formulating queries and presenting outputs...” *Id.* at 10:60-11:8; *see also id.* at Fig. 9.

223. Seibel further discloses that server 41e is distinct from profiles generation process 25 (e.g., a first data miner). For example, Fig. 5 shows that server 41e accesses user profiles and data 24 and 26, which, as discussed above, were already separately generated by profiles generation process 25

224. “... means for responding to the customer request for information at least partially based on the output of the second data miner.” In my opinion, Seibel discloses this claim limitation.

225. Seibel discloses responding to the customer request for information at least partially based on the output of the second data miner. For example, Seibel discloses that server 41e generates output 43, which is sent to client system 13, as seen in Fig. 4, reproduced below:



226. Seibel further discloses a response to a customer request for information based at least partially on output 43. For example, Seibel discloses that output 43 can comprise business intelligence tailored to specific customer requests:

227. “As output 43, database server system 41 delivers business intelligence about an organization's sales performance as charts over the Internet or corporate Intranet. Users can pick and choose charts by regions, by quarters, by products, by companies and even by different chart styles. Users can drill-down on

these charts to reveal the underlying data sources, get detailed information charts or detailed raw data. All charts are drill-down enabled allowing users to navigate and explore information either vertically or horizontally. Pie charts, bar charts, map views and data views are delivered via the Internet or Intranet.” *Id.* at 7:29-39.

228. Thus, in my opinion, Seibel discloses all the limitations recited in claim 34.

Claim 39

229. Claim 39 depends from claim 34 and adds the limitation **“wherein the result output by the first data miner includes at least one key representing at least one characteristic of at least one entity in the data store.”** I incorporate my discussion of claim 34 in Ground 5 discussed above. For at least the reasons discussed above with respect to claim 6, in my opinion, Seibel discloses this claim limitation.

Claim 42

230. Claim 42 depends from claim 39 and adds the limitation **“wherein the value of the key is a non-binary value.”** I incorporate my discussion of claim 34 in Ground 5, as well as my discussion of claim 39 in Ground 5, discussed above. For at least the reasons discussed above with respect to claim 9, in my opinion, Seibel discloses this claim limitation.

Claim 44

231. Claim 44 depends from claim 39 and adds the limitation **“wherein the key represents whether the associated entity is a high quality entity.”** I incorporate my discussion of claim 34 in Ground 5, as well as my discussion of claim 39 in Ground 5, discussed above. For at least the reasons discussed above with respect to claim 11, in my opinion, Seibel discloses this claim limitation.

Claim 46

232. Claim 46 depends from claim 39 and adds the limitation **“wherein the key represents whether the associated entity represents a person.”** I incorporate my discussion of claim 34 in Ground 5, as well as my discussion of claim 39 in Ground 5, discussed above. For at least the reasons discussed above with respect to claim 13, in my opinion, Seibel discloses this claim limitation.

Claim 52

233. Claim 52 depends from claim 34 and adds the limitation **“wherein the data miner includes rule means for generating the result.”** I incorporate my discussion of claim 34 in Ground 5 discussed above. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 34, then in my opinion, this additional claim limitation is disclosed in Seibel. For at

least the reasons discussed above with respect to claim 19, in my opinion, Seibel discloses the additional limitations recited in claim 52.

Claim 53

234. Claim 53 depends from claim 52 and adds the limitation **“means for generating at least one index of the data store at least partially based on the result of the miner.”** I incorporate my discussion of claim 52 in Ground 5 discussed above. It is unclear which data miner this claim refers to, but if the PTAB determines this claim refers to the first data miner because this claim refers to “the result” having antecedent basis in claim 34, then in my opinion, this additional claim limitation is disclosed in Seibel. For at least the reasons discussed above with respect to claim 20, in my opinion, Seibel discloses the additional limitations recited in claim 53.

GROUND 6: OBVIOUSNESS OF CLAIMS 2 AND 35 BASED ON SEIBEL (EX. 1004)

235. In my opinion, the combination of Seibel and the general knowledge of a POSA renders obvious each of the limitations of claims 2 and 35 of the ‘526 Patent.

Claim 2

236. Claim 2 depends from claim 1 and adds the limitation **“comprising billing the customer for responding to the customer request for information.”**

237. I incorporate my discussion of claim 1 in Ground 5 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Seibel combined with his or her general knowledge.

238. The ‘526 Patent discloses: “[t]he results are provided to the customer at block 70 and the customer is billed, on a per request basis or on a subscription basis.” EX. 1001 at 8:54-56. As discussed above, in my opinion, the applicant’s statements during prosecution amount to clear disclaimer of billing the customer on a subscription basis. Regardless, Seibel in combination with a POSA’s general knowledge teaches the limitations of claim 2.

239. I also note that the ‘526 Patent does not disclose any specific means or methods for billing the customer, which in my opinion supports that it would have been within the general knowledge of a POSA to utilize known means or methods for doing so.

240. In my opinion, it would have been obvious for a POSA to incorporate the additional step of billing the user for responding to the user request for information on a per request basis into the methods of Seibel. For example, Seibel expressly discloses administrative system 14 manages user accounts and billing. EX. 1004 at 3:47-52. In my opinion, a POSA would have been motivated to bill the user for responding to the user request for information, *e.g.*, bill the user per chart. It would also have been obvious to bill the user for responding to the user

request for information on a subscription basis, for example, if the user frequently used the system of Seibel.

241. Billing the user for responding to the user request for information would allow Seibel's services to make a profit in order to maintain the system so that it continues to provide services and products to users. In my opinion, this would have been merely combining known methods (data mining and known methods of billing customers) to yield predictable results (profit to continue provision of services).

242. For at least these reasons, in my opinion, Seibel combined with the general knowledge of a POSA teaches all the limitations recited in claim 2.

Claim 35

243. Claim 35 depends from claim 34 and adds the limitation **“comprising means for billing the customer for responding to the customer request for information.”**

244. I incorporate my discussion of claim 34 in Ground 5 discussed above. In my opinion, this claim limitation would be obvious to a POSA based the teachings of Seibel combined with his or her general knowledge. For at least the same reasons discussed above with respect to claim 2, in my opinion, it would have been obvious for a POSA to incorporate the additional means for billing the user for responding to the user request for information into the system of Seibel.

Thus, in my opinion, Seibel combined with the general knowledge of a POSA teaches all the limitations recited in claim 35.

.....

In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office, and that I may accordingly be subject to cross-examination. If such cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

This declaration represents the opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials produced in this proceeding.

I declare that the foregoing is true and correct under penalty of perjury of the laws of the United States of America.

Signed in Danville, CA on 26 Sep, 2023.

Tim Arthur Williams

Dr. Tim Arthur Williams

EXHIBIT A

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Dr. Williams has 45 years of professional experience in wireless communications, networking and telecom technology. He is an entrepreneur who has participated in the organization and operation of start up companies that brought wireless LAN, software VoIP PBX, and 2-way paging technology to the marketplace. Dr. Williams holds numerous patents in wireless and signal processing technology. He is an experienced litigation support consultant with experience in patent infringement matters. Dr. Williams is also a registered Patent Agent.

- Wireless LAN
- Cellular and PCS Standards
- Cellular Telephone Architecture
- Digital Signal Processing
- Telecommunications Technology
- VoIP Technology
- Computer Networking
- Wireless Networks & Protocols

Year	University	Degree
1991	University of Texas at Austin	MBA
1985	University of Texas at Austin	Ph.D., Dissertation: “Digital Signal Processing Techniques for Acoustic Log Data”
1982	University of Texas at Austin	MSEE, Thesis: “Cepstral Processing of Speech Signals”
1976	Michigan Technological University	BSEE

Professional Experience

From: 2008
To: 2010
Organization: Expressume, Inc / Montage Inc. – Milwaukee, WI
Title: Board Member
Summary: This company sells software for human resource recruiting. This company was sold in June 2019.

From: 2008
To: 2014
Organization: Faculte, Inc. – San Jose, CA
Title: Board Member
Summary: This company provided SaaS (Software as a Service) web video based communication products.

From: 2008
To: 2010
Organization: BitRail Networks Inc. – Miami, FL
Title: Founder, Board Member
Summary: This company sold computer networking solutions.

From: 2008
To: Present
Organization: Calumet Venture Management – Madison, WI
Title: Member
Summary: This company provides seed capital and management expertise to small companies.

From: 2006
To: 2015
Organization: BEEcube Inc. – Fremont, CA
Title: Founder, Board Member, Board Advisor
Summary: This company built high speed processing solutions. This company was sold to National Instruments, Inc. in Feb 2015.

Tim Arthur Williams, Ph.D.
Curriculum Vitae

From: 2006
To: 2015
Organization: Topaz Equity, LLC – Danville, CA
Title: Founder, Board Member
Summary: This is a private equity investment company. It owned AtomAMPD which develops, markets and sells software based network solutions.

From: 2004
To: Present
Organization: DoceoTech Inc. – Danville, CA
Title: Founder, Chairman
Summary: This was a training company that provides training for engineers in Wireless, Networking, and Telephony technologies. It is currently owned by Beach Technologies, LLC.

From: 2004
To: 2006
Organization: SiBEAM, Inc. – Sunnyvale, CA
Title: Founder, Chief Executive Officer
Summary: This is a fabless semiconductor company that develops high-speed wireless networking ICs. This company was sold to Silicon Image, Inc. in Apr 2011.

From: 2001
To: 2004
Organization: JetQue, Inc. – Danville, CA
Title: Founder, Chief Executive Officer
Summary: This company created messaging solutions for the mobile professional.

From: 1999
To: 2000
Organization: Atheros Communications, Palo Alto, CA
Title: Interim CEO, Advisory Board Member
Summary: This company builds wireless LAN ICs. Atheros became a public company in May 2004. (ATHR) This company was sold to QCOM in Jan 2011.

Tim Arthur Williams, Ph.D.
Curriculum Vitae

From: 1998
To: 2000
Organization: Picazo Communications, Inc. – San Jose, CA
Title: Chief Technology Officer, Advisory Board Member
Summary: This company built and sold software PBXs Telephony equipment using VoIP and Circuit Switched Technologies. The company was purchased by Intel.

From: 1996
To: Present
Organization: Beach Technologies, LLC – Danville, CA
Title: Chief Executive Officer
Summary: This is a consulting company that provides IP services. It owns DoceoTech LLC and Streaming Knowledge LLC, which perform the same services.

From: 1991
To: 1998
Organization: Wireless Access, Inc. – Santa Clara, CA
Title: Co-Founder, Chief Technical Officer, Vice President of Engineering, Vice President of Business Strategy
Summary: This was a startup company focusing on the Narrow Band PCS equipment market. The company developed the over the air protocols, the subscriber equipment and the ICs to deploy 2-way paging services. The company was sold to Glenarye Electronics.

From: 2014
To: 2021
Organization: Through Technology, LLC. – Chicago, IL
Title: Partner
Summary: This is a private equity investment company. It owns Through Technology Group, PTE LTD, which is registered in Singapore.

From: 1979
To: 1991
Organization: Motorola, Inc. – Austin, TX – Semiconductor Sector

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Title: Sr. Engineer, Member Technical Staff, Sr. MTS
Summary: Business manager, project leader, and senior technical member of the teams which were responsible for product development of the following systems:

- ADPCM transcoder,
- ISDN U-reference point transceiver,
- CT-2 voice codec and channel modem,
- GSM voice codec and channel modem,
- TDMA voice codec and channel modem
- CDMA voice codec and channel modem, and
- Japanese Digital Cellular voice codec and channel modem.

From: 1976

To: 1979

Organization: Motorola Inc. - Chicago, IL - Communications Sector - Digital Voice Privacy Group

Title: Engineer

Summary: This group built the first commercial digitally encrypted two-way FM land mobile radio system.

Professional Certifications

▪ Patent Agent – U.S. Patent and Trademark Office #50,790 (Jan 2002)

Issued Patents

Patent	Date	Description
9,787,471	2017	Data Enciphering or Deciphering using a Hierarchical Assignment System
7,904,117	2011	Wireless Communication Device using Adaptive Beamforming
6,781,962	2004	Apparatus and Method for Stored Voice Message Control
6,600,481	2003	Data entry apparatus and method
6,088,457	2000	Method and apparatus for over the air programming a communication device
5,854,595	1998	Communications apparatus and method with a computer interchangeable integrated circuit card
5,557,642	1996	Direct conversion receiver for multiple protocols

Tim Arthur Williams, Ph.D.
Curriculum Vitae

5,428,638	1995	Method and apparatus for reducing power consumption in digital communications devices
5,345,406	1994	Bandpass sigma delta converter suitable for multiple protocols
5,101,344	1992	Data processor having split level control store
5,001,661	1991	Data processor with combined adaptive LMS and general multiplication functions
4,989,169	1991	Digital tone detector using a ratio of two demodulators of differing frequency
4,972,356	1990	Systolic IIR decimation filter
4,965,762	1990	Mixed size radix recoded multiplier
4,947,363	1990	Pipelined processor for implementing the least-mean-squares algorithm
4,876,542	1989	Multiple output oversampling A/D converter with each output containing data and noise
4,862,169	1989	Oversampled A/D converter using filtered, cascaded noise shaping modulators
4,843,585	1989	Pipelineable structure for efficient multiplication and accumulation operations
4,843,390	1989	Oversampled A/D converter having digital error correction
4,796,219	1989	Serial two's complement multiplier
4,737,925	1988	Method and apparatus for minimizing a memory table for use with nonlinear monotonic arithmetic functions
4,734,876	1988	Circuit for selecting one of a plurality of exponential values to a predetermined base to provide a maximum value
4,727,508	1988	Circuit for adding and/or subtracting numbers in logarithmic representation
4,722,067	1988	Method and apparatus for implementing modulo arithmetic calculations
4,682,302	1987	Logarithmic arithmetic logic unit
4,618,946	1986	Dual page memory system having storage elements which are selectively swapped between the pages
4,406,010	1983	Receiver for CVSD modulation with integral filtering
4,398,262	1983	Time multiplexed n-ordered digital filter

Patent Applications and Continuation Applications

Appl. Num.	Pub. Date	Description
20070037528	2007	Wireless Communication Device using Adaptive Beamforming
20040252679	2004	Stored Voice message Control Extensions
15/711,590	2017	Data Enciphering or Deciphering using a Hierarchical Assignment

Tim Arthur Williams, Ph.D.
Curriculum Vitae

Published Papers

6 Sept 2016 Putnam, Jonathan D. and Williams, Tim A., The Smallest Salable Patent-Practicing Unit (SSPPU): Theory and Evidence. Available at SSRN: <https://ssrn.com/abstract=2835617>

Litigation Experience

See attached.