

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to FIG. 2A. We respectfully request entry of these replacement drawings. No new matter has been introduced in these drawings.

Attachment: Replacement sheets

REMARKS

This amendment is in response to the Notice to File Corrected Application Papers dated July 16, 2010. That Notice states that the drawings filed on March 30, 2006, included FIG. 2A but that the specification's brief description of the drawings does not describe a drawing with that designation.

The drawings originally submitted included FIG. 2. In our reply to a Notice to File Missing Parts, we submitted a set of replacement sheets, wherein we erroneously changed the label of original FIG. 2 to FIG. 2A. No substantive change was made to the figure.

Herewith, we submit a replacement sheet that includes FIG. 2, and we request that this figure replace current FIG. 2A. We submit this amendment will resolve any inconsistencies between the specification and the drawings. We respectfully request reconsideration.

We believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-0219, under Order No. 0290672.00129US2 from which the undersigned is authorized to draw.

Respectfully submitted,

Dated: July 16, 2010

/John V. Hobgood/
John V. Hobgood
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UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

23483 7590 06/29/2010

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER

REYES, MARIELA D

ART UNIT

PAPER NUMBER

2167

DATE MAILED: 06/29/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/312,908

12/20/2005

Sashikumar Venkataraman

0290672.00129US2

4622

TITLE OF INVENTION: METHOD AND SYSTEM FOR DYNAMICALLY PROCESSING AMBIGUOUS, REDUCED TEXT SEARCH QUERIES AND HIGHLIGHTING RESULTS THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	09/29/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
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Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

23483 7590 06/29/2010

**WILMERHALE/BOSTON
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BOSTON, MA 02109**

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622

TITLE OF INVENTION: METHOD AND SYSTEM FOR DYNAMICALLY PROCESSING AMBIGUOUS, REDUCED TEXT SEARCH QUERIES AND HIGHLIGHTING RESULTS THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	09/29/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
REYES, MARIELA D	2167	707-742000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622
23483	7590	06/29/2010	EXAMINER	
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			REYES, MARIELA D	
			ART UNIT	PAPER NUMBER
			2167	
DATE MAILED: 06/29/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 234 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 234 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	11/312,908	VENKATARAMAN ET AL.	
	Examiner	Art Unit	
	Mariela D. Reyes	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 03/26/2010.
2. ☒ The allowed claim(s) is/are 2-4, 6-9, 11-13, 15-18, 27-29 and 31-37.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>03/25/2010</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20100618</u>. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other ____. |
|--|---|

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John V. Hobgood (Reg. 61,540) on June 16, 2010.

The application has been amended as follows:

In Claim 35:

Line 10, after the terms "subset of items, determining" **insert** which

Line 11, after the terms "items of said subset" **insert** caused said items to be associated **delete** ~~that correspond to the alphabetical and numerical symbols in fixed association~~

Line 23, after the terms "that were determined to" **insert** have caused the displayed items to be associated **delete** ~~correspond to the alphabetical and numerical symbols in fixed association~~

Line 25, before the terms "unresolved keystrokes" **insert** strings of

Line 25, after the terms "unresolved keystrokes" **insert** that are directly mapped to said items **delete** ~~received~~

In Claim 36:

Line 11, after the terms "subset of items, determining" **insert** which

Line 12, after the terms “items of said subset” **insert** caused said items to be associated **delete** ~~that correspond to the alphabetical and numerical symbols in fixed association~~

Line 25, after the terms “that were determined to” **insert** have caused the displayed items to be associated **delete** ~~correspond to the alphabetical and numerical symbols in fixed association~~

Line 27, before the terms “unresolved keystrokes” **insert** strings of

Line 27, after the terms “unresolved keystrokes” **insert** that are directly mapped to said items **delete** ~~received~~

In Claim 37:

Line 12, after the terms “subset of items, determining” **insert** which

Line 13, after the terms “items of said subset” **insert** caused said items to be associated **delete** ~~that correspond to the alphabetical and numerical symbols in fixed association~~

Line 25, after the terms “that were determined to” **insert** have caused the displayed items to be associated **delete** ~~correspond to the alphabetical and numerical symbols in fixed association~~

Line 27, before the terms “unresolved keystrokes” **insert** strings of

Line 27, after the terms “unresolved keystrokes” **insert** that are directly mapped to said items **delete** ~~received~~

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: Claims 35, 36 and 37 recite a method for indexing a database for access using a device with overloaded keys; wherein the index is created by associating each item in the database with a string of unresolved keystrokes and upon receipt of a search request using said overloaded keys comparing the received unresolved keystrokes to the unresolved keystrokes mapped to the items in the database.

Thus, the prior art of record neither rendered obvious nor anticipated the combination of claimed elements in light of the specification, therefore claims 2-4, 6-9, 11-13, 15-18, 27-29 and 31-37 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariela D. Reyes whose telephone number is (571) 270-1006. The examiner can normally be reached on M - F 7:30- 5:00 East time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2167

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art
Unit 2167

/Mariela D Reyes/
Examiner, Art Unit 2167
June 18, 2010

AMENDMENTS TO THE CLAIMS

1. (Cancelled)
2. (Previously Presented) The method of claim 35 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.
3. (Previously Presented) The method of claim 35 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.
4. (Previously Presented) The method of claim 35 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.
5. (Canceled)
6. (Previously Presented) The method of claim 35 wherein said search query is processed by a server system remote from said user.
7. (Previously Presented) The method of claim 35 wherein said search query is processed by a device operated by said user.
8. (Previously Presented) The method of claim 35 wherein said items comprise television content items, or a product or service sought by the user.
9. (Previously Presented) The method of claim 7 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

10. (Cancelled)

11. (Previously Presented) The system of claim 36 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

12. (Previously Presented) The system of claim 36 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

13. (Previously Presented) The system of claim 36 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

14. (Canceled)

15. (Previously Presented) The system of claim 36 wherein said computer system comprises a server system remote from said user.

16. (Previously Presented) The system of claim 36 wherein said computer system is incorporated in or proximate a device operated by said user.

17. (Previously Presented) The system of claim 36 wherein said items comprise television content items, or a product or service sought by the user.

18. (Previously Presented) The system of claim 16 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

Claims 19-26. (Cancelled)

27. (Previously Presented) The computer program product of claim 37 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

28. (Previously Presented) The computer program product of claim 37 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

29. (Previously Presented) The computer program product of claim 37 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

30. (Canceled)

31. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a server system remote from said user.

32. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a device operated by said user.

33. (Previously Presented) The computer program product of claim 37 wherein said items comprise television content items, or a product or service sought by the user.

34. (Previously Presented) The computer program product of claim 32 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

35. (Currently Amended) A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an

item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings;

for at least one subset of items, determining letters and numbers present in the information associated with and describing the indexed items of said subset that correspond to the alphabetical and numerical symbols in fixed association with the strings of one or more unresolved keystrokes that are directly mapped to said subset;

subsequent to said indexing, receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identifying and displaying ~~at least one of the~~ subsets of items, and information associated therewith, that are associated with the strings of one or more unresolved keystrokes received from the user based on the direct mapping of strings of unresolved keystrokes to subsets of items, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

in response to each unresolved keystroke, as the identified items are displayed, highlighting the ~~alphabetical and numerical symbols of~~ letters and numbers present in the one or more words in said information describing the identified items that were determined to correspond to at least partially match the alphabetical and numerical symbols in fixed

association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

ordering the displayed items in accordance with one or more given criteria.

36. (Currently Amended) A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising a computer-readable medium comprising instructions for causing a computer system to:

index said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings;

for at least one subset of items, determine letters and numbers present in the information associated with and describing the indexed items of said subset that correspond to the alphabetical and numerical symbols in fixed association with the strings of one or more unresolved keystrokes that are directly mapped to said subset;

subsequent to said indexing, receive from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display on a display device at least one of the subsets of items, and information associated therewith, that are associated with the strings of one or more unresolved keystrokes received from the user based on

~~the direct mapping of strings of unresolved keystrokes to subsets of items, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;~~

in response to each unresolved keystroke, as the identified items are displayed, highlight on the display device the ~~alphabetical and numerical symbols of~~ letters and numbers present in the one or more words in said information describing the identified items that were determined to correspond to at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order on the display device the displayed items in accordance with one or more given criteria.

37. (Currently Amended) A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

index said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings;

for at least one subset of items, determine letters and numbers present in the information associated with and describing the indexed items of said subset that correspond to the alphabetical and numerical symbols in fixed association with the strings of one or more unresolved keystrokes that are directly mapped to said subset;

subsequent to said indexing, receive from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display at least one of the subsets of items, and information associated therewith, that are associated with the strings of one or more unresolved keystrokes received from the user based on the direct mapping of strings of unresolved keystrokes to subsets of items, ~~wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;~~

in response to each unresolved keystroke, as the identified items are displayed, highlight the ~~alphabetical and numerical symbols of~~ letters and numbers present in the one or more words in said information describing the identified items that were determined to correspond to ~~at least partially match~~ the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order the displayed items in accordance with one or more given criteria.

REMARKS

This amendment is in response to the Non-final Office Action dated December 3, 2009. Claims 2-4, 6-9, 11-13, 15-18, 27-29, and 31-37 were pending in the application. These claims were rejected for the reasons set forth below. Claims 35-37 have been amended. No claims have been added or cancelled. Reconsideration is respectfully requested.

Telephonic Interview of March 22, 2010

We thank Examiner Reyes for the telephonic interview held March 22, 2010, with the undersigned. During the interview, the participants discussed the rejection of claim 35, Verbeck Sibley et al. (U.S. Pat. Pub. No. 2006/0167859), Ortega et al. (U.S. Patent No. 6,564,213), Belfiore et al. (U.S. Patent No. 6,009,459), and potential claim amendments to clarify the highlighting aspect of the claimed invention. Examiner Reyes stated that amendments further clarifying the highlighting aspect of the claimed invention would be helpful.

Claim Rejections – 35 U.S.C. § 103

Claims 2-9, 11-18 and 27-37 were rejected under 35 U.S.C. 103(a) as being unpatentable over Verbeck in view of Ortega and Belfiore. See Office Action at pg. 2. We have amended claims 35-37 and respectfully request reconsideration. The comments below are directed to claim 35, as claims 36 and 37 include equivalent limitations.

Amended claim 35 now recites associating subsets of items with corresponding strings of one or more unresolved keystrokes so that the subsets are directly mapped to the corresponding strings and, for a subset, determining letters and numbers present in information associated with and describing the items of the subset that correspond to alphabetical and numerical symbols in fixed association with the strings of unresolved keystrokes that are directly mapped to said subset. The claim further includes receiving unresolved keystrokes from a user, identifying subsets of items directly mapped to the unresolved keystrokes, and highlighting the letters and numbers present in the words in the information describing the identified items that were determined to correspond to

the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received.

None of the cited references teach or suggest this combination of elements. Specifically, none of the cited references, alone or in combination, teach or suggest determining letters and numbers present in information associated with and describing items in a subset that correspond to alphabetical and numerical symbols in fixed association with the strings of unresolved keystrokes that are directly mapped to said subset and later highlighting these letters and numbers in response to a user's unresolved keystroke input. Thus, we submit that the claims, as amended, are patentable over the cited references.

The Office Action states that Verbeck discloses receiving a user search query of unresolved keystrokes and displaying items and information associated therewith based on matching alphabetical and numerical symbols which are in fixed association with the unresolved keystrokes with the words in the information associated with the items. See Office Action at pg. 3. The Office Action also states that Belfiore describes highlighting words in searched information that match the search terms entered by a user. See Office Action at pg. 5. The Office Action then concludes that the combination of Verbeck and Belfiore teach highlighting alphabetical and numerical symbols in words of information associated with items that at least partially match the symbols in fixed association with unresolved keystrokes received from a user. See Office Action at pgs. 5-6.

We disagree that the combination of Verbeck and Belfiore would result in the highlighting features recited in amended claim 35. First, simply highlighting in the result set any occurrence of the search term entered by the user is not the equivalent of the highlighting element of claim 35. Belfiore describes highlighting, in a returned web page, the search terms entered by the user. See Belfiore at col. 4, lns. 8-18. The search terms submitted to the search engine in Verbeck are unambiguous words resulting from a lexical expansion; meanwhile, the user input is ambiguous.

Thus, combining the teachings of Verbeck and Belfiore would result in highlighting any occurrence of the ambiguous search string in the returned web page, not the information passed to the search engine.

Secondly, neither Verbeck nor Belfiore teach or suggest determining letters and numbers present in information describing the items of a subset that correspond to the alphabetical and numerical symbols in fixed association with the strings of unresolved keystrokes that are directly mapped to the subset. As we mentioned above, we disagree that one having skill in the art would derive the highlighting of unambiguous letters and numbers appearing in search results that correspond to the alphabetical and numerical symbols in fixed association with a user's unresolved keystroke entry. However, even if one skilled in the art arrived that this combination, the highlighting feature recited in amended claim 35 is still distinguishable from this combination.

Claim 35 requires the determination of what letters and numbers in information describing particular items caused the items to be grouped in a particular subset that is directly mapped to a particular string of unresolved keystrokes. It is these letters and numbers that are later highlighted upon identification and display of the subset of items, not simply any letters and numbers that correspond to the unresolved keystrokes. The Application provides an example of this feature in Fig. 6B and the description at ¶¶ 35-38, as filed. Specifically, if a user enters the unresolved keystrokes "866", the system returns the subset of items shown in Fig. 6B that are directly mapped to that string. The item "Twelve Monkeys(1995)" is one of the items included in the subset directly mapped to "866".

The item "Twelve Monkeys(1995)" was included in the subset mapped to "866" because the first word "Twelve" begins with a "T", which corresponds to the "8" entered by the user, and the second word "Monkeys" starts with "Mo", which corresponds to the "66" entered by the user. Thus, it is these specific letters that are highlighted in the item's title in the subset of items displayed. In contrast, because none of the cited references teach a determination of what letters and numbers in an item's information correspond to the symbols associated with unresolved

keystroke strings mapped to the subset, the combination set forth in the Office Action would not achieve this result. Rather, no characters would be highlighted in the item “Twelve Monkeys(1995)”, because none of the lexical expansion¹ results for “866” (as disclosed by Verbeck) would match the letters in the title of that item. Said differently, there is no sequence of letters in “Twelve Monkeys(1995)” that match any of the 27 permutations of “T U V” (corresponding to “8”) and “M N O” (corresponding to the first “6”) and “M N O” (corresponding to the second “6”) that Verbeck would submit to a search engine in response to receiving “866” from the user.

In contrast, claim 35 now requires determining letters and numbers present in information associated with and describing items in a subset that correspond to alphabetical and numerical symbols in fixed association with the strings of unresolved keystrokes that are directly mapped to said subset and later highlighting these letters and numbers in response to a user’s unresolved keystroke input. This combination of elements allows for great flexibility in what forms of input are accepted from a user (*e.g.*, a single-word term, a multi-word term, an abbreviation, etc.) while maintaining the ability to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. See Application at ¶¶ 30-39. The cited references do not teach or suggest these elements.

Thus, as the cited references do not teach or suggest all elements of amended independent claim 35, we respectfully submit that the Office Action does not set forth a *prima facie* case for obviousness for claim 35. Claims 36 and 37 include equivalent limitations to those found in claim 35. Thus, for the reasons given above, we submit that independent claims 35-37 are patentable over the cited references. Claims 2-4, 6-9, 11-13, 15-18, 27-29, and 31-34 depend from one of claims

¹ In our Amendment dated September 4, 2009, we explained that Verbeck describes performing a “lexical expansion” of the ambiguous search string to generate many unambiguous search strings and then performs a search for content based on the unambiguous search strings. Thus, as each character is entered, the number of unambiguous search strings that are generated increase at a geometric rate. Each of these search strings is then compared to metadata associated with the content items to determine if the content item qualifies as a result. See Verbeck at ¶¶ 24-57.

35-37 and include the combination recited therein. Thus, we submit these claims are also patentable for the reasons set forth above.

In view of the above amendment, we submit the pending application is in condition for allowance.

We include a petition for a one-month extension of time and authorization to charge the appropriate fees herewith. We believe no other fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-0219, under Order No. 0290672.00129US2 from which the undersigned is authorized to draw.

Respectfully submitted,

Dated: March 26, 2010

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

michael.mathewson@wilmerhale.com
teresa.carvalho@wilmerhale.com
sharon.matthews@wilmerhale.com

Office Action Summary	Application No. 11/312,908	Applicant(s) VENKATARAMAN ET AL.	
	Examiner Mariela D. Reyes	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-9, 11-18 and 27-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-9, 11-18 and 27-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 4, 2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-9, 11-18 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verbeck et al (US PG Pub 2006/0167859) in view of Ortega et al (US Patent 6,564,213) and Belfiore et al (US Patent 6,009,459).

With respect to independent claim 35:

Verbeck teaches:

A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries

being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

Receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying at least one of the subset of items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

Indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings; in response to each unresolved keystroke, as the identified items are displayed, highlighting the

alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Ortega teaches:

Indexing said items by associating subsets of said items (datasets) with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings; (Column 2 Lines 6-10, discloses indexing the database objects by creating datasets that contain the autocomplete strings for the system. This datasets being directly associated with the input of the unresolved keywords, therefore when a user enters an ambiguous keystroke the datasets are accessed to retrieve the object that is mapped to said entered keystroke)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings** because this would significantly reduce the number of keystrokes needed to enter a query. (See Ortega Column 2 Lines 42-44)

The combination of Verbeck and Ortega does not appear to explicitly disclose:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **In response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed**

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association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items because this would help a user in identifying why that search result matches the search query.

With respect to claim 2:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 3:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 4:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 6:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 7:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 8:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 9:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 36:

Verbeck teaches:

A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetical character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising a computer readable medium comprising instructions for causing a computer system to:

Receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying at least one of the subset of items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011],

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discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria.

(Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

Indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings; in response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Ortega teaches:

Indexing said items by associating subsets of said items (datasets) with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings; (Column 2 Lines 6-10, discloses indexing the database objects by creating datasets that contain the autocomplete strings for the system. This datasets being directly associated with

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the input of the unresolved keywords, therefore when a user enters an ambiguous keystroke the datasets are accessed to retrieve the object that is mapped to said entered keystroke)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings** because this would significantly reduce the number of keystrokes needed to enter a query. (See Ortega Column 2 Lines 42-44)

The combination of Verbeck and Ortega does not appear to explicitly disclose:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received

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so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **In response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query.

With respect to claim 11:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 12:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 13:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 15:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 16:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 17:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 18:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 37:

Verbeck teaches:

A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable

medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

Receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying at least one of the subset of items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

Indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings; in response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information

that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Ortega teaches:

Indexing said items by associating subsets of said items (datasets) with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings; (Column 2 Lines 6-10, discloses indexing the database objects by creating datasets that contain the autocompletion strings for the system. This datasets being directly associated with the input of the unresolved keywords, therefore when a user enters an ambiguous keystroke the datasets are accessed to retrieve the object that is mapped to said entered keystroke)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of un resolved keystrokes for various search query prefix substrings** because this would significantly reduce the number of keystrokes needed to enter a query. (See Ortega Column 2 Lines 42-44)

The combination of Verbeck and Ortega does not appear to explicitly disclose:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **In response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user**

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how the unresolved keystrokes entered match the information associated with the displayed items because this would help a user in identifying why that search result matches the search query.

With respect to claim 27:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 28:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 29:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 31:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 32:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 33:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 34:

Verbeck teaches:

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Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

Response to Arguments

The following is in response to the arguments filed on September 4, 2009.

Claim Rejections - 35 USC § 103

With respect to independent claims:

Applicant's arguments with respect to the indexing limitation previously being taught by Verbeck are moot in view of the new ground(s) of rejection.

Applicant also argues “**Belfiore fails to disclose highlighting in response to each unresolved keystroke, the portions of the content items that match the user’s search query**” Examiner respectfully disagrees. Verbeck (Paragraph [011]) discloses after each keystroke is entered presenting a result set based on the keystrokes. Belfiore (Column 4 Lines 9-19) discloses highlighting the search results after a search is executed. Belfiore is relied upon for the highlighting of the matching (to the query) search terms; however Verbeck teaches presenting real time results to entering a search query. The combination of both references teaches the method of highlighting the dynamically generated search results.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariela D. Reyes whose telephone number is (571) 270-1006. The examiner can normally be reached on M - F 7:30- 5:00 East time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art
Unit 2167

/Mariela D Reyes/
Examiner, Art Unit 2167
November 24, 2009



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622
23483	7590	09/16/2009		
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER REYES, MARIELA D	
			ART UNIT 2167	PAPER NUMBER
			NOTIFICATION DATE 09/16/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

michael.mathewson@wilmerhale.com
teresa.carvalho@wilmerhale.com
sharon.matthews@wilmerhale.com

Interview Summary	Application No. 11/312,908	Applicant(s) VENKATARAMAN ET AL.	
	Examiner Mariela D. Reyes	Art Unit 2167	

All participants (applicant, applicant's representative, PTO personnel):

(1) Mariela D. Reyes. (3) ____.

(2) John Hobgood. (4) ____.

Date of Interview: 02 September 2009.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: ____.

Claim(s) discussed: 35.

Identification of prior art discussed: Verbeck et al.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant further explained the invention and how the indexing from the words to the ambiguous keys is created, some possible amendments were discussed to overcome the rejections of record. This amendments include further defining the indexing limitation to recite that the mapping is between a given string and the ambiguous keys that make it up and would overcome the Verbeck rejection. However upon receipt of a formal response a new search would have to be done.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Mariela D Reyes/ Examiner, Art Unit 2167	/John R. Cottingham/ Supervisory Patent Examiner, Art Unit 2167
--	--

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

AMENDMENTS TO THE CLAIMS

1. (Cancelled)
2. (Previously Presented) The method of claim 35 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.
3. (Previously Presented) The method of claim 35 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.
4. (Previously Presented) The method of claim 35 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.
5. (Canceled)
6. (Previously Presented) The method of claim 35 wherein said search query is processed by a server system remote from said user.
7. (Previously Presented) The method of claim 35 wherein said search query is processed by a device operated by said user.
8. (Previously Presented) The method of claim 35 wherein said items comprise television content items, or a product or service sought by the user.
9. (Previously Presented) The method of claim 7 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.
10. (Cancelled)

11. (Previously Presented) The system of claim 36 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

12. (Previously Presented) The system of claim 36 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

13. (Previously Presented) The system of claim 36 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

14. (Canceled)

15. (Previously Presented) The system of claim 36 wherein said computer system comprises a server system remote from said user.

16. (Previously Presented) The system of claim 36 wherein said computer system is incorporated in or proximate a device operated by said user.

17. (Previously Presented) The system of claim 36 wherein said items comprise television content items, or a product or service sought by the user.

18. (Previously Presented) The system of claim 16 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

Claims 19-26. (Cancelled)

27. (Previously Presented) The computer program product of claim 37 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

28. (Previously Presented) The computer program product of claim 37 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

29. (Previously Presented) The computer program product of claim 37 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

30. (Canceled)

31. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a server system remote from said user.

32. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a device operated by said user.

33. (Previously Presented) The computer program product of claim 37 wherein said items comprise television content items, or a product or service sought by the user.

34. (Previously Presented) The computer program product of claim 32 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

35. (Currently Amended) A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

indexing said items by ~~creating a many-to-many mapping of said information associated~~
with associating subsets of said items with corresponding strings of one or more
unresolved keystrokes for overloaded keys so that the subsets of items are directly

mapped to the corresponding strings of unresolved keystrokes for ~~to numeric strings~~
~~corresponding to~~ various search query prefix substrings;

subsequent to said indexing, receiving from a user a search query for desired items
composed of unresolved keystrokes, said search query comprising a prefix substring for
at least one word in information associated with the desired item;

in response to each unresolved keystroke, identifying and displaying at least one of the
subsets of items and information associated therewith, wherein each item displayed has
one or more words in the information associated therewith that at least partially match
the alphabetical and numerical symbols in fixed association with the unresolved
keystrokes received;

in response to each unresolved keystroke, as the identified items are displayed, highlighting
the alphabetical and numerical symbols of the one or more words in said information
that at least partially match the alphabetical and numerical symbols in fixed association
with the unresolved keystrokes received so as to illustrate to the user how the unresolved
keystrokes entered match the information associated with the displayed items; and

ordering the displayed items in accordance with one or more given criteria.

36. (Currently Amended) A system for processing unresolved keystroke entries by a user
from a keypad with overloaded keys in which a given key is in fixed association with a number and
at least one alphabetic character, said unresolved keystroke entries being directed at identifying an
item from a set of items, each of said items being associated with information describing the item
comprising one or more words, said system comprising a computer-readable medium comprising
instructions for causing a computer system to:

index said items by ~~creating a many to many mapping of said information associated with~~
associating subsets of said items with corresponding strings of one or more unresolved
keystrokes for overloaded keys so that the subsets of items are directly mapped to the

corresponding strings of unresolved keystrokes for ~~to numeric strings corresponding to~~
various search query prefix substrings;

subsequent to said indexing, receive from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display on a display device at least one of the subsets of items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

in response to each unresolved keystroke, as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order on the display device the displayed items in accordance with one or more given criteria.

37. (Currently Amended) A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

index said items by ~~creating a many to many mapping of said information associated with~~
associating subsets of said items with corresponding strings of one or more unresolved
keystrokes for overloaded keys so that the subsets of items are directly mapped to the
corresponding strings of unresolved keystrokes for ~~to numeric strings corresponding to~~
various search query prefix substrings;

subsequent to said indexing, receive from a user a search query for desired items composed
of unresolved keystrokes, said search query comprising a prefix substring for at least one
word in information associated with the desired item;

in response to each unresolved keystroke, identify and display at least one of the subsets of
items and information associated therewith, wherein each item displayed has one or
more words in the information associated therewith that at least partially match the
alphabetical and numerical symbols in fixed association with the unresolved keystrokes
received;

in response to each unresolved keystroke, as the identified items are displayed, highlight the
alphabetical and numerical symbols of the one or more words in said information that at
least partially match the alphabetical and numerical symbols in fixed association with the
unresolved keystrokes received so as to illustrate to the user how the unresolved
keystrokes entered match the information associated with the displayed items; and

order the displayed items in accordance with one or more given criteria.

REMARKS

This amendment accompanies a Request for Continued Examination. Entry of the amendment is respectfully requested before further consideration. This amendment is in response to the Final Office Action dated June 30, 2009. Claims 2-4, 6-9, 11-13, 15-18, 27-29, and 31-37 were pending in the application. These claims were rejected for the reasons set forth below. Claims 35-37 have been amended. No claims have been added or cancelled. Reconsideration is respectfully requested.

Telephonic Interview of September 2, 2009

Applicants thank Examiner Reyes for the telephonic interview held September 2, 2009, with the undersigned. During the interview, the participants discussed the rejection of claim 35, U.S. Pat. App. Pub. 2006/0167859 (“Verbeck”), and potential claim amendments to the indexing portion of claim 35. Examiner Reyes stated that amendments further clarifying the indexing step of claim 35 would be viewed favorably, subject to further search.

Rejections under 35 U.S.C. §103(a)

Claims 2-9, 11-18, and 27-37 are rejected under 35 U.S.C. §103(a) as being unpatentable over Verbeck in view of U.S. Pat. No. 6,009,459 to Belfiore et al. (herein “Belfiore”). Applicants have amended claims 35-37 and respectfully request reconsideration. The comments below are directed to claim 35, as claims 36 and 37 include equivalent limitations.

Amended claim 35 now recites indexing items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings. This claim also requires, subsequent to the indexing, receiving a search query from a user for desired items. Thus, claim 35 requires that the indexing be both (1) performed before receiving a search query, and (2) a direct mapping of subsets of items to

unresolved keystrokes. The Office Action states that Verbeck discloses these aspects of claim 35. However, as set forth in detail below, Verbeck does not teach or suggest these elements.

Verbeck discloses a method for searching television content of interest to a viewer. Verbeck describes receiving a search string comprised of ambiguous characters, that is, characters that represent more than one letter or number. The ambiguous search string is disambiguated into all of the potential words that can be formed from the ambiguous search string. Each of the potential words is then submitted to a search engine to identify results that match any of the potential words. For example, if the user entered “8”, the technique of Verbeck would submit four search queries to the search engine: “8”, “V”, “W”, and “X”. If the user then entered “2” after “8”, a total of 16 search queries would be submitted to the search engine because each of the characters “2”, “D”, “E”, and “F” would be appended to each of the four search queries stemming from the “8” entry. See Verbeck at Abstract and ¶¶ 24-57.

The fact that Verbeck discloses searching based on disambiguated strings, not unresolved keystrokes, is further reinforced by Verbeck’s disclosure stating that the search engine performs various linguistic analyses to further expand the set of strings used to search. For example, Verbeck suggests including in the search query synonyms of words entered by the user. See Verbeck at ¶¶ 58-69. In order for the system to determine a synonym, the system must first have an unambiguous word to analyze, as strings of unresolved keystrokes do not have synonyms.

Thus, Verbeck is not concerned with associating subsets of items with corresponding strings of unresolved keystrokes and later selecting subsets of items in response to unresolved keystrokes input by a user. Verbeck essentially performs a “lexical expansion” of the ambiguous search string to generate many unambiguous search strings and performs a search for content based on the unambiguous search strings. Thus, as each character is entered, the number of unambiguous search strings that are generated increase at a geometric rate. Each of these search strings is then compared to metadata associated with the content items to determine if the content item qualifies as a result. Such an approach results in a need to perform very large number of comparisons, which consume time and computational resources.

Belfiore teaches a method for automatically initiating a search when a user has entered text into the URL bar of a web browser that is not a valid URL. See Belfiore at col. 2, lns. 12-21. The search returns web pages relevant to the entered text. Optionally, these returned webpages “may include highlighting where the search terms passed to the search engine are highlighted within the returned web pages.” See Belfiore at col. 4, lns. 9-11. Belfiore is not concerned with unresolved keystrokes at all.

In contrast, amended claim 35 requires indexing items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings. The cited references do not teach or suggest these elements.

Furthermore, claim 35 recites highlighting alphabetical and numerical symbols that match alphabetical and numerical symbols that are in fixed association with unresolved keystrokes received by the user to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. Thus, claim 35 does not simply require highlighting the words of a search query found in a result set. Rather, claim 35 highlights the letters and numbers associated with the unresolved keystrokes received by the user.

The Office Action points to the language of col. 4, lns. 8-18 as teaching the highlighting element of claim 35 and states that Belfiore “discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user”. However, as explained above, simply highlighting in the result set any occurrence of the search term entered by the user is not the equivalent of the highlighting element of claim 35. Belfiore describes highlighting, in a returned web page, the search terms entered by the user. See Belfiore at col. 4, lns. 8-18. Meanwhile, as set forth above, although the search terms submitted to the search engine in Verbeck are unambiguous words resulting from a lexical expansion, the user input is initially ambiguous. Thus, combining the teachings of Verbeck and Belfiore would result in highlighting any occurrence of the ambiguous search string in the returned web page.

In contrast, claim 35 recites highlighting alphabetical and numerical symbols that match alphabetical and numerical symbols that are in fixed association with unresolved keystrokes received by the user. The cited references do not teach or suggest this element.

Thus, as the cited reference do not teach or suggest all elements of independent claim 35, applicants respectfully submit that the Office Action does not set forth a *prima facie* case for obviousness for claim 35. Claims 36 and 37 include equivalent limitations to those found in claim 35. Thus, for the reasons given above, applicants submit that independent claims 35-37 are patentable over the cited references. Claims 2-4, 6-9, 11-13, 15-18, 27-29, and 31-34 depend from one of claims 35-37 and include the combination recited therein. Thus, applicants submit these claims are also patentable for the reasons set forth above.

Conclusion

In view of the above amendment, applicants submit the pending application is in condition for allowance. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-0219, under Order No. 0290672.00129US2 from which the undersigned is authorized to draw.

Respectfully submitted,

Dated: September 4, 2009

/John V. Hobgood/
John V. Hobgood
Registration No.: 61,540
Attorney for Applicant(s)

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622
23483	7590	06/30/2009		
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER REYES, MARIELA D	
			ART UNIT 2167	PAPER NUMBER
			NOTIFICATION DATE 06/30/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

michael.mathewson@wilmerhale.com
teresa.carvalho@wilmerhale.com
sharon.matthews@wilmerhale.com

Office Action Summary	Application No. 11/312,908	Applicant(s) VENKATARAMAN ET AL.	
	Examiner Mariela D. Reyes	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4,6-9,11-13,15-18,27-29 and 31-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4,6-9,11-13,15-18,27-29 and 31-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action has been issued in response to the amendment filed on April 17, 2009. Claims 2-4, 6-9, 11-13, 15-18, 27-29 and 31-37 are pending; claims 5, 14 and 30 are cancelled. Applicant's arguments have been carefully and respectfully considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-9, 11-18 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verbeck et al (US PG Pub 2006/0167859) in view of Belfiore et al (US Patent 6,009,459).

With respect to independent claim 35:

Verbeck teaches:

A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

Indexing said items by creating a many to many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings; (Paragraph [024], discloses a database storing a plurality of items to be searched (index) and using a mapping from the numeric string to letters to create the string to be searched. Because each number has a plurality of letter possibilities there is a many to many mapping)

Subsequent to said indexing, receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

In response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and

numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

In response to each unresolved keystroke, As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **In response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query.

With respect to claim 2:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 3:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 4:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 6:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 7:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 8:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 9:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 36:

Verbeck teaches:

A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetical character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising a computer readable medium comprising instructions for causing a computer system to:

Indexing said items by creating a many to many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings; (Paragraph [024], discloses a database storing a plurality of items to be searched (index) and using a mapping from the numeric string to letters to create the string to be searched. Because each number has a plurality of letter possibilities there is a many to many mapping)

Subsequent to said indexing, receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

in response to each unresolved keystroke, identify and display on a display device items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with

the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

order on the display device the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

In response to each unresolved keystroke, as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

In response to each unresolved keystroke, as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **In response to each unresolved keystroke, as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query.

With respect to claim 11:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 12:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

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(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 13:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 15:

Verbeck teaches:

Said search query is processed by a server system remote from said user.
(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 16:

Verbeck teaches:

Said search query is processed by said device operated by said user.
(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 17:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 18:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 37:

Verbeck teaches:

A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

Indexing said items by creating a many to many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings; (Paragraph [024], discloses a database storing a plurality of items to be searched (index) and using a mapping from the numeric

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string to letters to create the string to be searched. Because each number has a plurality of letter possibilities there is a many to many mapping)

Subsequent to said indexing, receive from a user a search query for desired items composed of unresolved keystrokes, aid search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

in response to each unresolved keystroke, identify and display items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Order the displayed items in accordance with one or more given criteria.
(Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

In response to each unresolved keystroke, As the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

In response to each unresolved keystroke,As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **In response to each unresolved keystroke,as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query.

With respect to claim 27:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 28:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 29:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 31:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 32:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 33:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 34:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

Response to Arguments

The following is in response to the arguments filed on April 17, 2009.

Claim Rejections - 35 USC § 103

With respect to independent claims:

Applicant argues **“Neither Verbeck nor Belfiore discloses highlighting in response to each unresolved keystroke, the portions of the content items that match the user’s search query”** Examiner respectfully disagrees. Verbeck (Paragraph [011]) discloses after each keystroke presented a result set based on the keystrokes. Belfion (Column 4 Lines 9-19) discloses highlighting the search results after a search is executed. Belfiori is relied upon for the highlighting of the matching (to the query) search terms; however Verbeck teaches presenting real time results to entering a search query. The combination of both references teaches the method of highlighting the dynamically generated search results.

Applicant also argues **“Neither Verbeck nor Belfiore discloses creating, prior to receiving a search query from the user, a many to many mapping between items and numeric strings corresponding to various search query prefix substrings”** Examiner respectfully disagrees. Verbeck (Paragraph [024]) discloses a database storing a plurality of items to be searched (index) and using a mapping from the numeric string to letters to create the string to be searched. Because each number has a plurality of letter possibilities there is a many to many mapping.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariela D. Reyes whose telephone number is (571) 270-1006. The examiner can normally be reached on M - F 7:30- 5:00 East time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art
Unit 2167

/Mariela D Reyes/
Examiner, Art Unit 2167
June 25, 2009

Application/Control Number: 11/312,908
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AMENDMENTS TO THE CLAIMS

1. (Cancelled)
2. (Previously Presented) The method of claim 35 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.
3. (Previously Presented) The method of claim 35 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.
4. (Previously Presented) The method of claim 35 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.
5. (Canceled)
6. (Previously Presented) The method of claim 35 wherein said search query is processed by a server system remote from said user.
7. (Previously Presented) The method of claim 35 wherein said search query is processed by a device operated by said user.
8. (Previously Presented) The method of claim 35 wherein said items comprise television content items, or a product or service sought by the user.
9. (Previously Presented) The method of claim 7 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.
10. (Cancelled)

11. (Previously Presented) The system of claim 36 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

12. (Previously Presented) The system of claim 36 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

13. (Previously Presented) The system of claim 36 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

14. (Canceled)

15. (Previously Presented) The system of claim 36 wherein said computer system comprises a server system remote from said user.

16. (Previously Presented) The system of claim 36 wherein said computer system is incorporated in or proximate a device operated by said user.

17. (Previously Presented) The system of claim 36 wherein said items comprise television content items, or a product or service sought by the user.

18. (Previously Presented) The system of claim 16 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

Claims 19-26. (Cancelled)

27. (Previously Presented) The computer program product of claim 37 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

28. (Previously Presented) The computer program product of claim 37 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

29. (Previously Presented) The computer program product of claim 37 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

30. (Canceled)

31. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a server system remote from said user.

32. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a device operated by said user.

33. (Previously Presented) The computer program product of claim 37 wherein said items comprise television content items, or a product or service sought by the user.

34. (Previously Presented) The computer program product of claim 32 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

35. (Currently Amended) A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character ~~a plurality of alphabetical and numerical symbols~~, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

indexing said items by creating a many-to-many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings;

subsequent to said indexing, receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

in response to each unresolved keystroke, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

ordering the displayed items in accordance with one or more given criteria.

36. (Currently Amended) A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character ~~a plurality of alphabetical and numerical symbols~~, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising a computer-readable medium comprising instructions for causing a computer system to:

index said items by creating a many-to-many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings;

subsequent to said indexing, receive[[d]] from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display on a display device items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

in response to each unresolved keystroke, as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order on the display device the displayed items in accordance with one or more given criteria.

37. (Currently Amended) A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character ~~a plurality of alphabetical and numerical symbols~~, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

index said items by creating a many-to-many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings;

subsequent to said indexing, receive from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

in response to each unresolved keystroke, as the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order the displayed items in accordance with one or more given criteria.

REMARKS

Claims 2-9, 11-18, and 27-37 are currently pending in the application. Claims 2-9, 11-18, and 27-37 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. PGPUB 2006/0167859 (“Verbeck”) in view of U.S. Patent No. 6,009,459 (“Belfiore”). By this amendment, applicants are amending claims 35-37, and canceling claims 5, 14, and 30.

Claim Objections

The Examiner has objected to claim 36 because of informalities (Office Action at 2). Accordingly, the word “received” in claim 36 has been changed to “receive.”

Claim Rejections – 35 U.S.C. §103(a)

Applicants submit that claims 2-4, 6-9, 11-13, 15-18, 27-29, and 31-37 are patentable over the cited art. Independent claims 35-37 require highlighting matching portions of the content items incrementally, in response to each unresolved keystroke. These claims as amended also require indexing items by creating, prior to receiving a search query from the user, a many-to-many mapping between items and numeric strings corresponding to various search query prefix substrings. Neither Verbeck nor Belfiore teaches this limitation.

Verbeck discloses a method for searching television content for content of interest to a viewer. It describes receiving a search string comprised of ambiguous characters, that is, characters that represent more than one letter or number. The ambiguous search string is disambiguated into all of the potential words that can be formed from the ambiguous search string. Each of the potential words is submitted to a search engine to identify results that match any of the potential words. For example, if the user entered “8”, the technique of Verbeck would submit four search queries to the search engine: “8”, “V”, “W”, and “X”. If the user then entered “2” after “8”, a total of 16 search queries would be submitted to the search engine because each of the characters “2”, “D”, “E”, and “F” would be appended to each of the four search queries stemming from the “8” entry. See Verbeck at Abstract and ¶¶ 24-57.

Belfiore teaches a method for automatically initiating a search when a user has entered text into the URL bar of a web browser that is not a valid URL (*see* Belfiore, col. 2, ll. 12-21). The search returns web pages relevant to the entered text. Optionally, these returned webpages “may include highlighting where the search terms passed to the search engine are highlighted within the returned web pages” (*id.*, col. 4, ll. 9-11).

Neither Verbeck nor Belfiore discloses highlighting, in response to each unresolved keystroke, the portions of the content items that match the user’s search query. This feature, as claimed in the present application, allows a user to determine in real-time why a given content item matches the current ambiguous query string. One benefit of the incremental highlighting claimed in the present application, as explained in our interview with the Examiner, is that it allows the user to look at the display while typing on an ambiguous keypad. By contrast, Belfiore teaches highlighting the search query in full-text documents returned by a search engine only after the user has finished typing the search query and explicitly initiated a search.

Further, neither Verbeck nor Belfiore discloses creating, prior to receiving a search query from the user, a many-to-many mapping between items and numeric strings corresponding to various search query prefix substrings, as required by independent claims 35-37. Therefore, claims 35-37, as amended, are patentable over Verbeck combined with Belfiore.

Claims 2-4 and 6-9 depend from independent claim 35 and include all limitations recited therein. Thus, these claims are patentable over Verbeck combined with Belfiore for at least the reasons set forth for claim 35, above.

Claims 11-13 and 15-18 depend from independent claim 36 and include all limitations recited therein. Thus, these claims are patentable over Verbeck combined with Belfiore for at least the reasons set forth for claim 36, above.

Claims 27-29 and 31-34 depend from independent claim 37 and include all limitations recited therein. Thus, these claims are patentable over Verbeck combined with Belfiore for at least the reasons set forth for claim 37, above.

Conclusion

In view of the above amendments, applicant believes the pending application is in condition for allowance.

Please charge any fee that may be due in connection with this matter to our Deposit Account No. 08-0219, under Order No. 0290672.00129US2 from which the undersigned is authorized to draw.

Respectfully submitted,

Dated: April 17, 2009

_____/Peter M. Dichiaro/
Peter M. Dichiaro
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Attorney for Applicant(s)

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11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622
23483	7590	12/18/2008	EXAMINER	
WILMERHALE/BOSTON			REYES, MARIELA D	
60 STATE STREET			ART UNIT	
BOSTON, MA 02109			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 11/312,908	Applicant(s) VENKATARAMAN ET AL.	
	Examiner Mariela D. Reyes	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-9, 11-18 and 27-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-9, 11-18 and 27-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 1st, 2008 has been entered.

Claim Objections

Claim 36 is objected to because of the following informalities: The instant claim recites **"...causing a computer system to: received from a user..."** The correct term should be receiving. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-9, 11-18 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verbeck et al (US PG Pub 2006/0167859) in view of Belfiore et al (US Patent 6,009,459).

With respect to independent claim 35:

Verbeck teaches:

A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

Receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Haestrup teaches:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. With respect to independent claim 35:

Verbeck teaches:

A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

Receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at

least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the

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unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumerical symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query.

With respect to claim 2:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 3:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 4:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 5:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 6:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 7:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 8:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 9:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 36:

Verbeck teaches:

A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising a computer readable medium comprising instructions for causing a computer system to:

receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

in response to each unresolved keystroke, identify and display on a display device items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

order on the display device the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information

that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **as the identified items are displayed, highlight on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the**

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displayed items because this would help a user in identifying why that search result matches the search query.

With respect to claim 11:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 12:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 13:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-

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word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 14

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 15:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 16:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 17:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 18:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 37:

Verbeck teaches:

A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

receive from a user a search query for desired items composed of unresolved keystrokes, aid search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

in response to each unresolved keystroke, identify and display items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Order the displayed items in accordance with one or more given criteria.
(Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

A the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Belfiore teaches:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least

partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 4 Lines 20-29, discloses highlighting words (alphanumeric symbols) in the searched information that match the search term entered by the user this is done so that user can easily identify the information being requested)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query.

With respect to claim 27:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Belfiori teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 4 Lines 20-29)

With respect to claim 28:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 29:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 30:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

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(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 31:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 32:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 33:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 34:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

Response to Arguments

The following is in response to the arguments filed on December 1, 2008.

Claim Rejections - 35 USC § 103

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariela D. Reyes whose telephone number is (571) 270-1006. The examiner can normally be reached on M - F 7:30- 5:00 East time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art
Unit 2167

/Mariela D Reyes/
Examiner, Art Unit 2167
December 11, 2008

REMARKS

This amendment accompanies a Request for Continued Examination. Applicants respectfully request entry of this amendment before further consideration. This amendment is filed in response to the Final Office Action dated August 29, 2008. Claims 2-9, 11-18, and 27-37 were pending in the application. Claims 14-16 and 36 have been amended. Applicants respectfully request reconsideration of the application in view of the following remarks.

Rejections under 35 U.S.C. § 101

Claims 11-18 and 36 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. These claims have been amended to recite a computer-readable medium comprising instructions for causing a computer system to receive a search query from a user, identify and display items in response to unresolved keystrokes of the search query, and highlight alphabetical and numerical symbols found in information associated with items displayed as search results, among other actions. Moreover, these claims recite a tangible result, as items are displayed on a display device. Applicants submit the claims recite the necessary structural elements to be considered an apparatus and, thus, include statutory subject matter.

Applicants note that the Application describes an illustrative example of a system for implementing embodiments of the invention. See Application at ¶¶ 22-28. One component of such a system includes a computer. Thus, applicants submit that the computer-readable medium recited in the claims is supported by the specification. For example, a computer-readable medium includes computer memory. Other illustrative examples of systems include

a personal digital assistant (PDA), a television system, and a mobile telephone.

Rejections under 35 U.S.C. § 103(a)

Claims 2-9, 11-18, and 27-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. App. Pub. 2006/0167859 of Verbeck Sibley et al. (herein “Verbeck Sibley”) in view of U.S. Pat. No. 6,223,059 to Hastrup (herein “Hastrup”). Applicants respectfully request reconsideration. The following comments are directed to the invention recited in independent claim 35.

Verbeck Sibley discloses a method for searching television content for content of interest to a viewer. Verbeck Sibley describes receiving a search string comprised of ambiguous characters, that is, characters that represent more than one letter or number. The ambiguous search string is disambiguated into all of the potential words that can be formed from the ambiguous search string. Each of the potential words is submitted to a search engine to identify results that match any of the potential words. For example, if the user entered “8”, the technique of Verbeck Sibley would submit four search queries to the search engine: “8”, “V”, “W”, and “X”. If the user then entered “2” after “8”, a total of 16 search queries would be submitted to the search engine because each of the characters “2”, “D”, “E”, and “F” would be appended to each of the four search queries stemming from the “8” entry. See Verbeck Sibley at Abstract and ¶¶ 24-57.

Verbeck Sibley is not concerned with highlighting alphabetical and numerical symbols in information associated with items displayed in response to each unresolved keystroke entered by a user directed at identifying desired items. As described above, Verbeck Sibley

merely describes performing a “lexical expansion” of the ambiguous search string to generate many unambiguous search strings and performing a search for content based on the unambiguous search strings. Verbeck Sibley does not teach or suggesting highlighting of any kind.

Hastrup discloses a mobile telephone with a predictive text editor. Hastrup describes a system that receives data entry in the form of individual alphanumeric keys, where some of the keys have multiple meanings represented by letter, numbers, and symbols printed on the keys. Hastrup states that the predictive text editor is able to interpret individual keys and multiple key sequences in several ways simultaneously. A selection list displays various interpretations of the data entry and allows the user to step-through and select the desired interpretation. See Hastrup at col. 2, line 32-col. 3, line 45.

Hastrup does not teach or suggest highlighting alphabetical and numerical symbols in information associated with items identified by a user’s unresolved keystroke entry so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. Hastrup states, “The word presently being entered is underlined or reversed in colors in order to indicate that the letter string has not been fixed yet.” See Hastrup at col. 3, lines 32-34. However, applicants submit this is not the equivalent of what is recited in claim 35.

First, Hastrup does not teach or suggest highlighting symbols in information associated with items identified by a user’s unresolved keystroke entry because Hastrup is not concerned with matching the user’s entry to information associated with items to be

presented. Rather, Hastrup merely describes a method of text entry, not a method of searching for items based on information associated therewith. Thus, in Hastrup, it is the “word presently being entered” (emphasis added) that is underlined, not information associated with items that have been identified and displayed in response to the search query entered by the user. See Hastrup at col. 3, lines 32-34. Second, the underlining disclosed by Hastrup does not illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. Rather, the underlining described by Hastrup is to show that the displayed characters, which is the user’s entry, are merely temporary characters while the predictive editor program is evolving a match. See Hastrup at col. 5, lines 47-56.

In contrast, applicants’ claim 35 is directed to a method of processing unresolved keystroke entries by a user from a keypad with overloaded keys. A given key is in fixed association with a plurality of alphabetical and numerical symbols. The unresolved keystroke entries are directed at identifying an item from a set of items. Each of the items are associated with information describing the item comprising one or more words.

The method calls for receiving from a user a search query for desired items composed of unresolved keystrokes. In response to each unresolved keystroke, the method identifies and displays items and information associated therewith. The method also calls for highlighting alphabetical and numerical symbols in information associated with the displayed items, as the identified items are displayed. The highlighted alphabetical and numerical symbols at least partially match alphabetical and numerical symbols in fixed association with

the unresolved keystrokes received. The method illustrates to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Consequently, the claimed method does not call for highlighting portions of the user's input. Rather, the method highlights the alphabetical and numerical symbols in the information associated with the displayed items as the items are displayed in response to each unresolved keystroke entered by the user. Because the search query itself is composed of unresolved keystrokes, it is difficult for the user to know what alphabetical and numerical symbol combinations correspond to the unresolved keystrokes entered. Thus, the claimed method enables the user to recover from an error during entry of the search query by illustrating what the user's input matches in the information associated with the identified items. See Application at ¶36.

As set forth above, neither Verbeck Sibley nor Haestrup teach or suggest highlighting alphabetical and numerical symbols in information associated with items displayed in response to each unresolved keystroke entered during the search process. Thus, applicants submit that claim 35 is patentable over the cited references. Claims 2-9 depend from claim 35 and, therefore, include the limitations of claim 35. Thus, applicants submit these claims are also patentable over the cited references for the reasons given above.

Amended independent claim 36 recites a computer-readable medium comprising instructions for causing a computer system to receive from a user a search query for desired items composed of unresolved keystrokes, identify and display items and information associated therewith in response to each unresolved keystroke, and highlight alphabetical and

numerical symbols in information associated with the displayed items. Thus, applicants submit that claim 36 is patentable over the cited references for the reasons provided above in connection with claim 35.

Claims 11-18 depend from claim 36 and, therefore, include the limitations of claim 36. Thus, applicants submit these claims are also patentable over the cited references for the reasons given above.

Independent claim 37 recites a computer program product having a plurality of instructions, which, when executed by a processor, cause the processor to receive from a user a search query for desired items composed of unresolved keystrokes, identify and display items and information associated therewith in response to each unresolved keystroke, and highlight alphabetical and numerical symbols in information associated with the displayed items, as the identified items are displayed. Thus, applicants submit that claim 37 is patentable over the cited references for the reasons provided above in connection with claim 35.

Claims 27-34 depend from claim 37 and, therefore, include the limitations of claim 37. Thus, applicants submit these claims are also patentable over the cited references for the reasons given above.

Conclusion

Applicants respectfully request an early and favorable reconsideration and issuance of this application as amended herein. The Examiner is encouraged to contact the undersigned to expedite prosecution of this application.

Authorization to charge the fee for the Request for Continued Examination accompanies this response. No other fees are believed to be due in connection with this response. However, please charge any fees due in connection with this application, including any extension of time required, or credit any overpayments to Deposit Acct. No. 08-0219.

Respectfully submitted,

Date: December 1, 2008

/John V. Hobgood/
John V. Hobgood
Registration No. 61,540
Attorney for Applicants

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Amendments to the Claims:

The following listing of the claims will replace all prior versions and listings of claims in the application.

Listing of the Claims:

1. (Cancelled)
2. (Previously Presented) The method of claim 35 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.
3. (Previously Presented) The method of claim 35 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.
4. (Previously Presented) The method of claim 35 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.
5. (Previously Presented) The method of claim 35 wherein said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings.
6. (Previously Presented) The method of claim 35 wherein said search query is processed by a server system remote from said user.
7. (Previously Presented) The method of claim 35 wherein said search query is processed

by a device operated by said user.

8. (Previously Presented) The method of claim 35 wherein said items comprise television content items, or a product or service sought by the user.

9. (Previously Presented) The method of claim 7 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

10. (Cancelled)

11. (Previously Presented) The system of claim 36 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

12. (Previously Presented) The system of claim 36 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

13. (Previously Presented) The system of claim 36 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

14. (Currently Amended) The system of claim 36 wherein said overloaded keys each represent a number and at least two alphabetic characters, and the computer-readable medium further comprising a fifth logic for instructions for causing the computer system to index[[ing]] said items by performing a many-to-many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings.

15. (Currently Amended) The system of claim 36 wherein said computer system comprises a server system remote from said user.

16. (Currently Amended) The system of claim 36 wherein said computer system is

incorporated in or proximate a device operated by said user.

17. (Previously Presented) The system of claim 36 wherein said items comprise television content items, or a product or service sought by the user.

18. (Previously Presented) The system of claim 16 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

Claims 19-26. (Cancelled)

27. (Previously Presented) The computer program product of claim 37 wherein said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

28. (Previously Presented) The computer program product of claim 37 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

29. (Previously Presented) The computer program product of claim 37 wherein said displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

30. (Previously Presented) The computer program product of claim 37 wherein said overloaded keys each represent a number and at least two alphabetic characters, and wherein said plurality of instructions further cause the processor to index said items by performing a many-to-many mapping of said information associated with said items to numeric strings corresponding to various search query prefix substrings.

31. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a server system remote from said user.

32. (Previously Presented) The computer program product of claim 37 wherein said search query is processed by a device operated by said user.

33. (Previously Presented) The computer program product of claim 37 wherein said items comprise television content items, or a product or service sought by the user.
34. (Previously Presented) The computer program product of claim 32 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.
35. (Previously Presented) A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:
- receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;
 - in response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;
 - as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and
 - ordering the displayed items in accordance with one or more given criteria.
36. (Currently Amended) A system for processing unresolved keystroke entries by a user

from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising a computer-readable medium comprising instructions for causing a computer system to:

~~a first logic for receiving~~ received from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

~~a second logic for,~~ in response to each unresolved keystroke, identify[[ing]] and display[[ing]] on a display device items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

~~a third logic for,~~ as the identified items are displayed, highlight[[ing]] on the display device the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

~~a fourth logic for order~~[[ing]] on the display device the displayed items in accordance with one or more given criteria.

37. (Previously Presented) A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items

being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

receive from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

as the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order the displayed items in accordance with one or more given criteria.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622
23483	7590	08/29/2008		
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER REYES, MARIELA D	
			ART UNIT 2167	PAPER NUMBER
			NOTIFICATION DATE 08/29/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

michael.mathewson@wilmerhale.com
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sharon.matthews@wilmerhale.com

Office Action Summary	Application No. 11/312,908	Applicant(s) VENKATARAMAN ET AL.	
	Examiner Mariela D. Reyes	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-9, 11-18 and 27-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-9, 11-18 and 27-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/15/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action has been issued in response to the amendment filed on May 13th, 2008. Claims 1, 10 and 19-26 have been cancelled; claims 2-9, 11-18 and 27-37 are pending. Applicant's arguments have been carefully and respectfully considered.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

For the following 35 U.S.C 101 rejections refer to MPEP 2106.1 an excerpt of which is presented here:

I. FUNCTIONAL DESCRIPTIVE MATERIAL: "DATA STRUCTURES " REPRESENTING DESCRIPTIVE MATERIAL *PER SE* OR COMPUTER PROGRAMS REPRESENTING COMPUTER LISTINGS *PER SE*

Data structures not claimed as embodied in computer-readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material *per se* from claims that define statutory inventions.

Claims 11-18 and 36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The instant claims are read as software per se because the system claims are missing functional hardware components for executing the claim's limitations. Software per-se is non-descriptive material therefore it doesn't fall into one of the statutory categories for patentability.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-9, 11-18 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verbeck et al (US PG Pub 2006/0167859) in view of Haestrup (US Patent 6,223,059).

With respect to independent claim 35:

Verbeck teaches:

A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said

items being associated with information describing the item comprising one or more words, said method comprising:

Receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

In response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Haestrup teaches:

As the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 3 Lines 32-36, discloses underlining and presenting the possible words that may correlate to the strokes entered by the user while the user is entering the characters)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query and would allow the user not to have to enter the whole word.

With respect to claim 2:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Haestrup teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 3 Lines 32-36)

With respect to claim 3:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 4:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 5:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by

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performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 6:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 7:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 8:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 9:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 36:

Verbeck teaches:

A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising:

A first logic for receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;
(Paragraph [010], discloses using an ambiguous keypad to enter a search query)

A second logic for, in response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

A fourth logic for ordering the displayed items in accordance with one or more given criteria. (Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

A third logic for, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Hastrup teaches:

A third logic for, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 3 Lines 32-36, discloses underlining and presenting the possible words that may correlate to the strokes entered by the user while the user is entering the characters)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **a third logic for, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least**

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partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; because this would help a user in identifying why that search result matches the search query and would allow the user not to have to enter the whole word.

With respect to claim 11:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Haestrup teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 3 Lines 32-36)

With respect to claim 12:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 13:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 14

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 15:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 16:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 17:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 18:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 37:

Verbeck teaches:

A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a

computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

receive from a user a search query for desired items composed of unresolved keystrokes, aid search query comprising a prefix substring for at least one word in information associated with the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

in response to each unresolved keystroke, identify and display items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

Order the displayed items in accordance with one or more given criteria.
(Paragraph [012], discloses ranking the results)

Verbeck does not appear to explicitly disclose:

A the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Haestrup teaches:

As the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items. (Column 3 Lines 32-36, discloses underlining and presenting the possible words that may correlate to the strokes entered by the user while the user is entering the characters)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **as the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items** because this would help a user in identifying why that search result matches the search query and would allow the user not to have to enter the whole word.

With respect to claim 27:

Verbeck does not appear to explicitly disclose **Said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Haestrup teaches **said alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 3 Lines 32-36)

With respect to claim 28:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 29:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 30:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by

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performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 31:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 32:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 33:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 34:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

Response to Arguments

The following is in response to the arguments filed on May 13th, 2008.

Double Patenting

Applicant's amendments to the instant application and application 11/235928 overcome the double patenting rejection therefore the rejection has been removed.

Claim Rejections - 35 USC § 103

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariela D. Reyes whose telephone number is (571) 270-1006. The examiner can normally be reached on M - F 7:30- 5:00 East time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. L./
Primary Examiner, Art Unit 2169

/John R. Cottingham/
Supervisory Patent Examiner, Art
Unit 2167

Application/Control Number: 11/312,908
Art Unit: 2167

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/M. D. R./
Examiner, Art Unit 2167
August 18, 2008



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/312,908	12/20/2005	Sashikumar Venkataraman	0290672.00129US2	4622
23483	7590	05/13/2008		
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER REYES, MARIELA D	
			ART UNIT 2167	PAPER NUMBER
			NOTIFICATION DATE 05/13/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Interview Summary	Application No. 11/312,908	Applicant(s) VENKATARAMAN ET AL.	
	Examiner Mariela D. Reyes	Art Unit 2167	

All participants (applicant, applicant's representative, PTO personnel):

- | | |
|--------------------------------|--------------------------------|
| (1) <u>Mariela D. Reyes.</u> | (3) <u>Murali Aravamudan .</u> |
| (2) <u>Debbie Le (primary)</u> | (4) <u>Ajit Rajasekharan</u> |
| (4) <u>Peter Dichiaro.</u> | (5) <u>John Hobgood</u> |

Date of Interview: May 7th, 2008.

Type: a) ☐ Telephonic b) ☐ Video Conference
c) ☒ Personal [copy given to: 1) ☒ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☒ Yes e) ☐ No.

If Yes, brief description: Applicant demonstrated the system for querying a database using overloaded keys and how after each keystroke the search result is highlighted.

Claim(s) discussed: 1.

Identification of prior art discussed: Verbeck (US PG Pub 2006/0167859) and Patel et al (US Patent 6,839,702).

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant further described and did a demonstration of their invention. Proposed amendments were discussed and applicant was advised that they would likely overcome the prior art of record but that a search will need to be done when a formal response is filed.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/DEBBIE M LE/
Primary Examiner, Art Unit 2168

Examiner's signature, if required

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Amendments to the Claims:

The following listing of the claims will replace all prior versions and listings of claims in the application.

Listing of the Claims:

1. (Cancelled)
2. (Currently Amended) The method of claim [[1]]35 wherein said ~~characters~~ alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.
3. (Currently Amended) The method of claim [[1]]35 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.
4. (Currently Amended) The method of claim [[1]]35 wherein said ~~one or more~~ displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.
5. (Currently Amended) The method of claim [[1]]35 wherein said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said [[names]]information associated with said items to numeric strings corresponding to various search query prefix substrings.
6. (Currently Amended) The method of claim [[1]]35 wherein said search query is processed by a server system remote from said user.
7. (Currently Amended) The method of claim [[1]]35 wherein said search query is processed

by [[said]]a device operated by said user.

8. (Currently Amended) The method of claim [[1]]35 wherein said items comprise television content items, or a product or service sought by the user.

9. (Currently Amended) The method of claim [[1]]7 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

10. (Cancelled)

11. (Currently Amended) The system of claim [[10]]36 wherein said ~~characters~~ alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

12. (Currently Amended) The system of claim [[10]]36 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

13. (Currently Amended) The system of claim [[10]]36 wherein said ~~one or more displayed~~ items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

14. (Currently Amended) The system of claim [[10]]36 wherein said overloaded keys each represent a number and at least two alphabetic characters, and ~~wherein said processor further comprising a fifth logic for indexing indexes~~ said items by performing a many-to-many mapping of said [[names]] information associated with said items to numeric strings corresponding to various search query prefix substrings.

15. (Currently Amended) The system of claim [[10]]36 wherein said system comprises a server system remote from said user.

16. (Currently Amended) The system of claim [[10]]36 wherein said system is incorporated in or proximate [[said]]a device operated by said user.

17. (Currently Amended) The system of claim ~~[[10]]~~36 wherein said items comprise television content items, or a product or service sought by the user.

18. (Currently Amended) The system of claim ~~[[10]]~~16 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

Claims 19-26. (Cancelled)

27. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said ~~characters~~ alphabetical and numeric symbols are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.

28. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

29. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said ~~one or more~~ displayed items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches.

30. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said overloaded keys each represent a number and at least two alphabetic characters, and wherein said ~~method further comprises indexing~~ plurality of instructions further cause the processor to index said items by performing a many-to-many mapping of said ~~[[names]]~~ information associated with said items to numeric strings corresponding to various search query prefix substrings.

31. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said search query is processed by a server system remote from said user.

32. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said search query is processed by ~~[[said]]~~ a device operated by said user.

33. (Currently Amended) The computer program product of claim ~~[[26]]~~37 wherein said items

comprise television content items, or a product or service sought by the user.

34. (Currently Amended) The computer program product of claim ~~[[26]]~~32 wherein said device is a cell phone, desk phone, a PDA, or a remote control device for a television.

35. (New) A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

ordering the displayed items in accordance with one or more given criteria.

36. (New) A system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a

set of items, each of said items being associated with information describing the item comprising one or more words, said system comprising:

a first logic for receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

a second logic for, in response to each unresolved keystroke, identifying and displaying items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

a third logic for, as the identified items are displayed, highlighting the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

a fourth logic for ordering the displayed items in accordance with one or more given criteria.

37. (New) A computer program product for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a plurality of alphabetical and numerical symbols, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause the processor to:

receive from a user a search query for desired items composed of unresolved keystrokes,

said search query comprising a prefix substring for at least one word in information associated with the desired item;

in response to each unresolved keystroke, identify and display items and information associated therewith, wherein each item displayed has one or more words in the information associated therewith that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received;

as the identified items are displayed, highlight the alphabetical and numerical symbols of the one or more words in said information that at least partially match the alphabetical and numerical symbols in fixed association with the unresolved keystrokes received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

order the displayed items in accordance with one or more given criteria.

REMARKS

Claims 1-34 were pending in the application. Claims 1, 10, and 19-26 have been cancelled. Claims 35-37 have been added. Applicants respectfully request reconsideration of the application in view of the following remarks.

In-person Interview on May 7, 2008

Applicants thank Examiners Reyes and Le for the in-person interview held on May 7, 2008, with Murali Aravamudan, Ajit Rajasekharan, Peter Dichiera, and John Hobgood. During this interview, the participants discussed a proposed amendment to claim 1 and the references cited in the Office Action dated January 10, 2008. In particular, the participants discussed U.S. Pat. App. No. 2006/0167859 of Verbeck Sibley et al. (herein "Verbeck Sibley") and U.S. Pat. No. 6,839,702 to Patel et al. (herein "Patel") and the distinctions between the claimed invention and the teachings of the cited references.

In addition, Applicants demonstrated a system for processing unresolved keystroke entries by a user from a keypad with overloaded keys in which alphabetical and numerical symbols in information associated with displayed items are highlighted as each keystroke is entered and the items are displayed.

Rejections under 35 U.S.C. § 103(a)

Claims 1-34 were rejected under 35 U.S.C. § 103(a) as being obvious over Verbeck Sibley in view of Patel. Claims 1, 10, and 19-26 have been cancelled, and, thus, those rejections are moot. However, new claims 35-37 are presented in lieu of claims 1, 10, and 26, respectively, to more particularly claim the invention. Support for the new claims may be found throughout the

application. In particular, support for entry of unresolved overloaded keystrokes can be found at least in ¶¶20-24 and 31 of the application as filed. Support for highlighting alphabetical and numerical symbols in information associated with items as they are displayed can be found at least in ¶¶34-41. The following comments are directed to the invention recited in new independent claim 35.

Verbeck Sibley discloses a method for searching television content for content of interest to a viewer. Verbeck Sibley describes receiving a search string comprised of ambiguous characters, that is, characters that represent more than one letter or number. The ambiguous search string is disambiguated into all of the potential words that can be formed from the ambiguous search string. Each of the potential words is submitted to a search engine to identify results that match any of the potential words. For example, if the user entered “8”, the technique of Verbeck Sibley would submit four search queries to the search engine: “8”, “V”, “W”, and “X”. If the user then entered “2” after “8”, a total of 16 search queries would be submitted to the search engine because each of the characters “2”, “D”, “E”, and “F” would be appended to each of the four search queries stemming from the “8” entry. See Verbeck Sibley at Abstract and ¶¶ 24-57.

Verbeck Sibley is not concerned with highlighting alphabetical and numerical symbols in information associated with items displayed in response to each unresolved keystroke entered by a user directed at identifying desired items. As described above, Verbeck Sibley merely describes performing a “lexical expansion” of the ambiguous search string to generate many unambiguous search strings and performing a search for content based on the unambiguous search strings. Verbeck Sibley does not teach or suggesting highlighting of any kind.

Patel discloses a system for highlighting search terms in documents distributed over a network. Patel describes a system that generates a search query that includes a search term, and receives a list of one or more references to documents in the network in response to the search query. The system receives a selection of one of the references and retrieves a document that corresponds to the selected reference. The system then highlights the search terms in the retrieved document. See Patel at Abstract.

Patel does not teach or suggest highlighting alphabetical and numerical symbols in information associated with items displayed in response to each unresolved keystroke entered during the search process. Only after the search is completed does Patel suggest highlighting whole words appearing in the textual description of the document links or in the document selected by the user. Moreover, Patel does not teach or suggest identifying and displaying items and information associated therewith in response to each unresolved keystroke. See Patel at col. 5, line 44-col. 6, line 48.

In contrast, applicants' claim 35 is directed to a method of processing unresolved keystroke entries by a user from a keypad with overloaded keys. A given key is in fixed association with a plurality of alphabetical and numerical symbols. The unresolved keystroke entries are directed at identifying an item from a set of items. Each of the items are associated with information describing the item comprising one or more words.

The method calls for receiving from a user a search query for desired items composed of unresolved keystrokes. In response to each unresolved keystroke, the method identifies and displays items and information associated therewith. The method also calls for highlighting

alphabetical and numerical symbols in information associated with the displayed items, as the identified items are displayed. The highlighted alphabetical and numerical symbols at least partially match alphabetical and numerical symbols in fixed association with the unresolved keystrokes received. The method illustrates to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Consequently, the claimed method does not call for completing a search in order to return a list of items and highlighting letters of the items only after the search is completed. Rather, the method highlights the alphabetical and numerical symbols in the information associated with the displayed items as the items are displayed in response to each unresolved keystroke entered by the user. Because the search query itself is composed of unresolved keystrokes, it is difficult for the user to know what alphabetical and numerical symbol combinations correspond to the unresolved keystrokes entered. Thus, the claimed method enables the user to recover from an error during entry of the search query in contrast to discovering that no results match after completing the search query entry. See Application at ¶36.

As set forth above, neither Verbeck Sibley nor Patel teach or suggest highlighting alphabetical and numerical symbols in information associated with items displayed in response to each unresolved keystroke entered during the search process. Thus, applicants submit that new claim 35 is patentable over the cited references. Claims 2-9 depend from claim 35 and, therefore, include the limitations of claim 35. Thus, applicants submit these claims are also patentable over the cited references for the reasons given above.

New independent claim 36 recites logic for receiving from a user a search query for

desired items composed of unresolved keystrokes, identifying and displaying items and information associated therewith in response to each unresolved keystroke, and highlighting alphabetical and numerical symbols in information associated with the displayed items, as the identified items are displayed. Thus, applicants submit that claim 36 is patentable over the cited references for the reasons provided above in connection with claim 35.

Claims 11-18 depend from claim 36 and, therefore, include the limitations of claim 36. Thus, applicants submit these claims are also patentable over the cited references for the reasons given above.

New independent claim 37 recites a computer program product having a plurality of instructions, which, when executed by a processor, cause the processor to receive from a user a search query for desired items composed of unresolved keystrokes, identify and display items and information associated therewith in response to each unresolved keystroke, and highlight alphabetical and numerical symbols in information associated with the displayed items, as the identified items are displayed. Thus, applicants submit that claim 37 is patentable over the cited references for the reasons provided above in connection with claim 35.

Claims 27-34 depend from claim 37 and, therefore, include the limitations of claim 37. Thus, applicants submit these claims are also patentable over the cited references for the reasons given above.

Provisional rejection for obviousness-type double patenting

Claims 1-34 were rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-43 of copending U.S. Pat. App. No.

11/235,928. Applicants enclose a terminal disclaimer in response to this rejection and respectfully request reconsideration.

Conclusion

Applicants respectfully request an early and favorable reconsideration and issuance of this application as amended herein. The Examiner is encouraged to contact the undersigned to expedite prosecution of this application.

A request for a two-month extension of time and authorization to charge the \$230.00 accompany this response. Also, authorization to charge the \$65 fee in connection with the terminal disclaimer is enclosed. No other fees are believed to be due in connection with this response. However, please charge any fees due in connection with this application, including any extension of time required, or credit any overpayments to Deposit Acct. No. 08-0219.

Respectfully submitted,

Date: May 13, 2008

/John V. Hobgood/
John V. Hobgood
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			ART UNIT 2167	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

11/312,908

Applicant(s)

VENKATARAMAN ET AL.

Examiner

Mariela D. Reyes

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/17/2006, 12/26/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

This office action is in response to application filed on 12/20/2005 which claims priority of application 60/711866 filed on 08/26/2005.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-43 of copending Application No. 11/235,928. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are substantially similar in scope claiming a method of processing and outputting results of an ambiguous search query.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Instant Application	Application 11/235928
A method of processing a search query entered by a user of a device having a text input interface with overloaded keys, said search query being directed at identifying an item from a set of items, each of said items having a name comprising one or more words, said method comprising:	A method of processing a search query entered by a user of a device having a text input interface with overloaded keys, said search query being directed at identifying an item from a set of items, each of said items having one or more associated descriptors, said method

	comprising:
(a) receiving from the user an ambiguous search query directed at identifying a desired item, said search query comprising a prefix substring of at least one word in the name of the desired item;	(a) receiving from the user an ambiguous search query directed at identifying a desired item, said search query comprising a prefix substring of each of at least two words relating to said desired item;
(b) dynamically identifying a group of one or more items from said set of items having one or more words in the names thereof matching said search query as said user enters each character of said search query;	(b) dynamically identifying a group of one or more items from said set of items having one or more descriptors matching said search query as said user enters each character of said search query; and
(c) Ordering said one or more items of said group identified in (b) in accordance with one or more given criteria; and	Claim 2: The method of claim 1 further comprising ordering said one or more items of said group identified in (b) in accordance with one or more given criteria.
(d) outputting the names of said one or	(c) Outputting identification of said one or

more items of said group identified in (b) to be displayed on the device operated by said user as ordered in (c) with the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.	more items of said group identified in (b) to be displayed on the device operated by said user.
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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verbeck et al (US PG Pub 2006/0167859) in view of Patel et al (US Patent 6,839,702).

With respect to independent claim 1:

Verbeck teaches:

A method of processing a search query entered by a user of a device having a text input interface with overloaded keys, said search query being

directed at identifying an item from a set of items, each of said items having a name comprising one or more words, said method comprising:

(a) receiving from the user an ambiguous search query directed at identifying a desired item, said search query comprising a prefix substring of at least one word in the name of the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

(b) dynamically identifying a group of one or more items from said set of items having one or more words in the names thereof matching said search query as said user enters each character of said search query; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

(c) ordering said one or more items of said group identified in (b) in accordance with one or more given criteria; and (Paragraph [012], discloses ranking the results)

(d) outputting the names of said one or more items of said group identified in (b) to be displayed on the device operated by said user as ordered in (c) (Paragraph [013], discloses presenting the search results as ranked)

Verbeck does not appear to explicitly disclose **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.**

Patel teaches **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.**

(Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted** because this would help a user in identifying why that search result matches the search query.

With respect to claim 2:

Verbeck does not appear to explicitly disclose **Said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Patel teaches **said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**
(Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

With respect to claim 3:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 4:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 5:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 6:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 7:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 8:

Verbeck teaches:

**Said items comprise television content items, or a product or service
sought by the user. (Paragraph [005])**

With respect to claim 9:

Verbeck teaches:

**Said device is a cell phone, desk phone, a PDA, or a remote control device
for a television. (Paragraph [009])**

With respect to independent claim 10:

Verbeck teaches:

**A system for processing a search query entered by a user of a device
having a text input interface with overloaded keys, said search query being**

directed at identifying an item from a set of items, each of said items having a name comprising one or more words, said system comprising:

A memory for storing the name of each item in said set of items; and

(Paragraph [011], discloses that the items will be stored in a database)

A processor for (a) receiving from the user an ambiguous search query directed at identifying a desired item, said search query comprising a prefix substring of at least one word in the name of the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query) (b) dynamically identifying a group of one or more items from said set of items having one or more words in the names thereof matching said search query as said user enters each character of said search query; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user) (c) ordering said one or more items of said identified group in accordance with one or more given criteria; and (Paragraph [012], discloses ranking the results) (d) outputting the names of said one or more items of said identified group to be displayed on the device operated by said user as ordered (Paragraph [013], discloses presenting the search results as ranked)

Verbeck does not appear to explicitly disclose **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.**

Patel teaches **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.**

(Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted** because this would help a user in identifying why that search result matches the search query.

With respect to claim 11:

Verbeck does not appear to explicitly disclose **Said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Patel teaches **said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**
(Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

With respect to claim 12:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 13:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 14:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said processor further indexes said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

With respect to claim 5:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 15:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 16:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 17:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 18:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 19:

A system for processing search queries entered by users of devices having a text input interface with overloaded keys, each search query being directed at identifying an item from a set of items, each of said items having a name comprising one or more words, said system comprising:

A server;

A plurality of devices operated by said users, said devices each having a text input interface with overloaded keys, said devices each transmitting to the server an ambiguous search query directed at identifying a desired item, said search query comprising a prefix substring of at least one word in the name of the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

A network for transmitting data between said server and said devices; and

A database for storing the name of each item in said set of items;

(Paragraph [011], discloses that the items will be stored in a database)

Wherein for each search-query received from a device, said server dynamically identifies a group of one or more items from said set of items having one or more words in the names thereof matching said search query as the user of said device enters each character of said search query; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user) orders said one or more items of said identified group in accordance with one or more given criteria; (Paragraph [012], discloses ranking the results) and

transmits the names of said one or more items of said identified group to be displayed on the device operated by said user as ordered (Paragraph [013], discloses presenting the search results as ranked).

Verbeck does not appear to explicitly disclose **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.**

Patel teaches **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.** (Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted** because this would help a user in identifying why that search result matches the search query.

With respect to claim 20:

Verbeck does not appear to explicitly disclose **Said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Patel teaches **said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

(Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

With respect to claim 21:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 22:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 23:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to

numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 24:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 25:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

With respect to independent claim 26:

A computer program product for processing a search query entered by a user of a device having a text input interface with overloaded keys, said search query being directed at identifying an item from a set of items, each of said items having a name comprising one or more words, the computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by a processor, cause that processor to:

(a) receive from the user an ambiguous search query directed at identifying a desired item, said search query comprising a prefix substring of at least one word in the name of the desired item; (Paragraph [010], discloses using an ambiguous keypad to enter a search query)

(b) dynamically identify a group of one or more items from said set of items having one or more words in the names thereof matching said search query as said user enters each character of said search query; (Paragraph [011], discloses that as a new keystroke is entered a result is dynamically presented to the user)

(c) order said one or more items of said group identified in (b) in accordance with one or more given criteria; and (Paragraph [012], discloses ranking the results)

(d) output the names of said one or more items of said group identified in (b) to be displayed on the device operated by said user as ordered in (c) (Paragraph [013], discloses presenting the search results as ranked)

Verbeck does not appear to explicitly disclose **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.**

Patel teaches **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted.** (Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to implement **the characters of the one or more words in said names corresponding to said prefix substring of said search query being highlighted** because this would help a user in identifying why that search result matches the search query.

With respect to claim 27:

Verbeck does not appear to explicitly disclose **Said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.**

Patel teaches **said characters are highlighted by being colored, bolded, italicized, underlined, or changed to a different font, or some combination thereof.** (Column 1 Lines 50-52, discloses highlighting in the search results the matching search query)

With respect to claim 28:

Verbeck teaches:

Said one or more given criteria include one or more of: temporal relevance, location relevance, popularity, personal preferences and character count.

(Paragraph [022], discloses that the ranking criteria would be based on users personal preferences)

With respect to claim 29:

Verbeck teaches:

Said one or more items are ordered such that items having single-word or multi-word term matches are displayed before items having single-word or multi-word abbreviation matches. (Paragraphs [025]-[058], discloses presenting the search matches by first presenting exact search matches and then abbreviation matches)

With respect to claim 30:

Verbeck teaches:

Said overloaded keys each represent a number and at least two alphabetic characters, and wherein said method further comprises indexing said items by performing a many-to-many mapping of said names associated with said items to numeric strings corresponding to various search query prefix substrings.

(Paragraph [024], discloses that each entered key will have three possibilities and that this three possibilities are all searched)

With respect to claim 31:

Verbeck teaches:

Said search query is processed by a server system remote from said user.

(Paragraph [020], discloses that the query could be processed in a remote server)

With respect to claim 32:

Verbeck teaches:

Said search query is processed by said device operated by said user.

(Paragraph [020], discloses that the query could be processed in the TV)

With respect to claim 33:

Verbeck teaches:

Said items comprise television content items, or a product or service sought by the user. (Paragraph [005])

With respect to claim 34:

Verbeck teaches:

Said device is a cell phone, desk phone, a PDA, or a remote control device for a television. (Paragraph [009])

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariela D. Reyes whose telephone number is (571) 270-1006. The examiner can normally be reached on M - F 7:30- 5:00 East time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

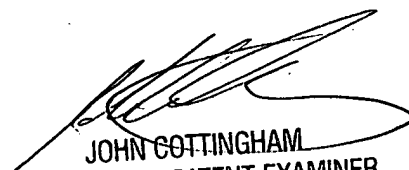
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JOHN COTTINGHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

**METHOD AND SYSTEM FOR DYNAMICALLY PROCESSING AMBIGUOUS,
REDUCED TEXT SEARCH QUERIES AND HIGHLIGHTING RESULTS
THEREOF**

5

RELATED APPLICATIONS

[0001] The present invention is based on and claims priority from U.S. Patent Application No. 60/711,866 filed August 26, 2005 and entitled "A Dynamic Highlighting Interface of Multi Word Prefixes of Results Obtained by Incremental Search with Reduced Text Entry on Television and Mobile Devices Using a Keypad with Overloaded Keys,"
10 which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

Field of Invention

[0002] The present invention generally relates to processing search queries and, more particularly, to methods and systems for processing ambiguous, reduced text, search queries
15 and highlighting results thereof.

Description of Related Art

[0003] There are many user-operated devices such as mobile phones, PDAs (personal digital assistants), and television remote control devices that have small keypads, which a user can use for text entry. In many of these devices, largely because of device size
20 constraints, the keypad is small and has only a small number of keys, which are overloaded with alpha-numeric characters. Text input using these keypads is cumbersome.

[0004] FIGURE 1 illustrates a common twelve-key keypad interface found in many cell phones and other mobile devices, and also increasingly in devices like television remote control devices. The keypad 10 includes twelve keys 12, most of which are overloaded with
25 multiple alpha-numeric characters or functions. The same key can be pressed to enter different characters. For instance, the "2" key can be used to enter the number "2" and the letters "A", "B" and "C". Text entry using such a keypad with overloaded keys can result in an ambiguous text entry, which requires some type of a disambiguation action. For instance, with a so-called multi-press interface, a user can press a particular key multiple times in

quick succession to select a desired character (e.g., to choose “B”, the user would press the “2” key twice quickly, and to choose “C”, the user would press the key three times quickly). Alternatively, text entry can be performed using the so-called T9 and other text input mechanisms that provide vocabulary based completion choices for each word entered.

- 5 Neither of these methods is however particularly suitable for use in performing searches because of the number of steps needed to get to the result. One deficiency of the multi-press interface is that too many key strokes are needed. A drawback of applying a vocabulary based word completion interface is the need for the additional step of making a choice from a list of all possible word matches generated by the ambiguous text input. Furthermore
- 10 vocabulary based word disambiguation systems are designed typically for composition applications (as opposed to search applications) where user explicitly disambiguates each word by performing a word completion action to resolve that word before proceeding to the next word in the composition. This deficiency is even more apparent for a multi-word search system where results could ideally be obtained by the entry of just a few characters.
- 15 These methods suffer from the fact that the fewer the number of characters entered, the greater the ambiguity of the input. (The ambiguity decreases as the input character count increases.) This has the undesirable consequence of reducing the usefulness of a search engine that has the potential to retrieve results with just a few input characters.

BRIEF SUMMARY OF EMBODIMENTS OF THE INVENTION

- 20 [0005] In accordance with one or more embodiments of the invention, a method and system are provided of processing a search query entered by a user of a device having a text input interface with overloaded keys. The search query is directed at identifying an item from a set of items. Each of the items has a name comprising one or more words. The system receives from the user an ambiguous search query directed at identifying a desired
- 25 item. The search query comprises a prefix substring of at least one word in the name of the desired item. The system dynamically identifies a group of one or more items from the set of items having one or more words in the names thereof matching the search query as the user enters each character of the search query. The system also orders the one or more items of the group in accordance with given criteria. The names of the one or more items of the
- 30 identified group are output to be displayed on the device operated by the user as ordered with

the characters of the one or more words in the names corresponding to the prefix substring of the search query being highlighted.

[0006] These and other features will become readily apparent from the following detailed description wherein embodiments of the invention are shown and described by way of illustration. As will be realized, the invention is capable of other and different embodiments and its several details may be capable of modifications in various respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature and not in a restrictive or limiting sense with the scope of the application being indicated in the claims.

10 BRIEF DESCRIPTION OF THE DRAWINGS

[0007] For a more complete understanding of various embodiments of the present invention, reference is now made to the following descriptions taken in connection with the accompanying drawings in which:

15 [0008] FIGURE 1 illustrates a keypad with overloaded keys in accordance with the prior art.

[0009] FIGURE 2 illustrates a search system in accordance with one or more embodiments of the invention.

[0010] FIGURE 3 illustrates exemplary device configuration options for various devices for performing searches in accordance with one or more embodiments of the invention.

20 [0011] FIGURE 4 is a flow chart illustrating a method for finding and highlighting results of a reduced text, ambiguous search query made using an overloaded keypad in accordance with one or more embodiments of the invention.

[0012] FIGURE 5A illustrates the different match possibilities for a single-word and multi-word prefix query in accordance with one or more embodiments of the invention.

25 [0013] FIGURE 5B illustrates possible ordering criteria for search results in accordance with one or more embodiments of the invention.

[0014] FIGURES 6A and 6B illustrate an exemplary text input interface and a display interface, respectively. The display interface shows the results of a sample incremental

search where the user has entered a single-word query in accordance with one or more embodiments of the invention.

[0015] FIGURES 7A and 7B illustrate an exemplary text input interface and a display interface, respectively. The display interface shows the results of a sample incremental
5 search where the user has entered a multi-word query in accordance with one or more embodiments of the invention.

[0016] Like reference numerals generally refer to like elements in the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] Briefly, methods and systems are provided in accordance with various
10 embodiments of the invention for performing searches using ambiguous text input from devices having limited text input interfaces, and highlighting results of the searches.

[0018] As described in further detail below, in accordance with various embodiments of the invention, methods and systems are provided for processing a search query entered by a user of a device having a text input interface with overloaded keys. The search query is
15 directed at identifying an item from a set of items. Each of the items has a name comprising one or more words.

[0019] Using the text input interface, the user can enter an ambiguous search query directed at identifying a desired item. The search query comprises a prefix substring of at least one word in the name of the desired item. A prefix substring of a word is a variable
20 length string of characters that contains fewer than all the characters making up the word.

[0020] The system dynamically identifies a group of one or more items from the set of items having one or more words in the names thereof matching said search query as the user enters each character of said search query. The group of the one or more items is displayed on the device operated by the user with the characters of the one or more words in the names
25 corresponding to the prefix substring of the search query being highlighted. The items are preferably displayed in an order of expected interest to the user.

[0021] The user types in the prefix input query by pressing overloaded keys of the text input interface once to form each character of an ambiguous query string. In accordance with

one or more embodiments of the invention, the search space containing the searchable items is initially indexed by performing a many-to-many mapping from the alphanumeric space of terms to numeric strings corresponding to the various prefixes of each alphanumeric term constituting the query string. In a numeric string, each alphanumeric character in the string is replaced by its corresponding numeric equivalent based on the arrangement of characters on the keypad, e.g., the commonly used twelve-key reduced keypad shown in FIGURE 1. This mapping scheme enables the system in accordance with one or more embodiments to incrementally retrieve results matching the ambiguous alphanumeric input query, as the user types in each character of the query. The user does not have to explicitly specify the termination of each word in the query to assist the system in disambiguating the input query; instead, the user only enters an input query that includes prefix substrings from the one or more words of the query. If multiple word prefixes are entered, the system can leverage off the multiple word prefixes to disambiguate it. A multiple word prefix based disambiguation method can reduce the amount of text and steps needed to enter a multiple word input query and retrieve results.

[0022] There are various possible applications for the search techniques described herein including, e.g., assisting television viewers in identifying desired television content items and channels, and assisting users of mobile devices such as cell phones and PDAs in performing searches for items in various databases (e.g., performing searches in directories of people or businesses, searching for and purchasing products/services like airline tickets, and searching for transportation schedules such as airline and train schedules, and for searching for audio and/or video content).

[0023] In the context of television systems, the term “television content items” can include a wide variety of video/audio content including, but not limited to, television shows, movies, music videos, or any other identifiable content that can be selected by a television viewer. Searching for television content items can be performed across disparate content sources including, but not limited to, broadcast television, VOD, IPTV, and PVR (local and network).

[0024] FIGURE 2 schematically illustrates an overall system for performing searches with reduced text entry using various devices in accordance with one or more embodiments

of the invention. The system includes a server farm or system 202, a network 204, and a variety of devices 206, 208, 210 operated by users with text input interfaces. In accordance with one or more embodiments of the invention, the server 202 processes search queries received from the user devices 206, 208, 210. In other embodiments, the search queries are
5 processed on the devices themselves. As discussed below, the server 202 can be the source of search data and relevance updates. If part of a television system, the server 202 can also be the source of or be linked to a source of at least some of the available television content (e.g., a cable or satellite television operator) from which the user can obtain content associated with search results.

10 [0025] The network 204 functions as the distribution framework for transmitting data from the server 202 to the devices operated by the users. The distribution network 204 could be wired or wireless connections or some combination thereof. Examples of possible networks include computer networks, cable television networks, satellite television networks, IP-based television networks, mobile communications networks (such as, e.g., wireless
15 CDMA and GSM networks), wired telephone networks, and IP-based wired and wireless networks.

[0026] The search devices could have a wide range of interface capabilities. A device, e.g., could be a hand-held mobile communications device 206 such as a cellular phone or PDA having a limited display size and a reduced keypad with overloaded keys. Another type
20 of search device is a television system 204 with a remote control device 208 having an overloaded keypad. Another possible search device is a desk telephone 210 with a reduced keyboard and a small display screen.

[0027] FIGURE 3 illustrates multiple exemplary configurations for search devices in accordance with various embodiments of the invention. In one configuration, a search device
25 (e.g., devices 206, 208, 210) can have a display 302, a processor 304, volatile memory 306, text input interface 308, remote connectivity 310 to the server 202 through the network 204, and a persistent storage 312. A device configuration for a device such as the hand-held device 206 might not include local persistent storage 312. In this case, the device 206 could have remote connectivity 310 to submit the query to the server 202 and retrieve results from
30 it. Another configuration of the devices 206, 208, 210 may not have remote connectivity

310. In this case, the search database may be locally resident on a local persistent storage
 312. The persistent storage 312 may be, e.g., a removable storage element such as SD,
 SmartMedia, CompactFlash card etc. In a configuration of the device with remote
 connectivity 310 and persistent storage 312 for performing searches (e.g., a television system
 5 208), the device may use the remote connectivity for search relevance data update or for the
 case where the search database is distributed on the local storage 312 and on the server 202.
 A preferred configuration in a memory constrained device is the search data residing
 remotely on a server. Unlike composition applications where the “most frequently used or
 popular terms space” are small in size and can be maintained in a local vocabulary, search
 10 spaces are typically larger inherently because people instinctively use unique word
 “signatures” to recall an item of interest. Hence maintaining search spaces locally may not
 be practical in many devices that have limited local memory, making a network based search
 configuration preferable.

[0028] In one exemplary embodiment, a television system 208 may have a set-top box or
 15 other device with a one-way link to a satellite network. In this configuration, all search data
 including relevance updates may be downloaded to the device through a satellite link to
 perform local searching. In this case, the set-top box preferably has sufficient storage
 capacity to maintain search spaces locally. Local storage is preferably large in this case to
 circumvent the deficiency of a one-way link.

[0029] FIGURE 4 illustrates a search process in accordance with one or more
 20 embodiments of the invention. At step 402, the user enters a character using an ambiguous
 text input interface, e.g., using a keypad with overloaded keys where a single key press is
 performed for each character entered. At 404, an incremental search system determines and
 displays at least some of the results that match the input character entered at 402. Since the
 25 input is ambiguous, the match of results would include the matches for all the ambiguous
 input characters represented by the single key press (including those not of interest to the
 user). To address this increased set of matches, an ordering scheme is preferably used to
 order the results to improve accessibility to results expected to be more of interest to the user.
 The ordering of results can be based on a variety of criteria including, e.g., temporal
 30 relevance, location relevance, popularity and personal preferences (that may have been
 determined implicitly or explicitly) or some combination of these criteria. (In a television

application, temporal relevance can be used to favor programs whose timing may be more of interest to the viewer. For example, if the user entered NBA, then the system would list the games in order of temporal relevance such as those in progress or are scheduled to begin in the near future are listed at the higher on the list. The popularity criterion can be used to favor programs or channels that are more popular than others. The personal preference criterion can be used to favor programs or channels that the user has indicated preference for in prior user selections. For example, if a user frequently scrolls down to "CNBC" and selects it, the system would over time place CNBC higher in the list of results over a more generally popular channel such as CNN. Furthermore, identity independent time-based usage pattern learning algorithms can be applied in conjunction with personalization to apply the results ordering rules in an appropriate context. Also, e.g., when using a PDA or cell phone to search for a business, the system may use location relevance as part of the ordering criteria.)

[0030] In addition, other ordering schemes can be used in addition to or instead of the schemes indicated above such as character count based subspace biasing. In a character count based subspace biasing scheme, items in the search space do not have a constant relevance value, but rather have a relevance value that is a function of the number of characters entered so far in the prefix substring. In such a scheme, the search space (i.e., set of items that can be searched for) can divided into multiple subspaces. The relative relevance of a given subspace (and all the items contained therein) is dynamically boosted or suppressed as a function of the number of characters in the search query. As an example, a subspace containing television channel names might be boosted when the character count is one because television viewers might expect to find a channel with a single key press. Various examples of character count based subspace biasing are described in U.S. Patent Application Serial No. 11/246,432 entitled "Method And System For Incremental Search With Reduced Text Entry Where The Relevance Of Results Is A Dynamically Computed Function Of User Input Search String Character Count" and filed on October 7, 2005, which is assigned to the assignee of the present application and is incorporated by reference herein in its entirety.

[0031] The ordering criteria can also give preference to the results matching the search query based on a lexical match of the type of query input, e.g., in the following order of preference: single term prefixes, multiple term prefixes, and lastly abbreviation matches.

[0032] In accordance with various embodiments of the invention and as will be described below with reference to FIGURES 6B and 7B, the characters in the search result items that match the search prefix substring characters are highlighted to provide the user with a visual indication of the relationship between the key or keys pressed and the incremental match results. This facilitates identification by the user of the item of interest from the group of items displayed.

[0033] If the user does not find the desired results at 406, he or she can continue to enter more characters to the search query at step 402. Then at step 404, the system will perform the search based on the cumulative substring of characters of the search query entered by the user up to that point.

[0034] In the scenario where user does not reach the result due to misspelling or due to the case of a word whose uniqueness (e.g., Tom Brown, Todd Brown) is embedded in the suffix of a word in the query (as opposed to the prefix), the user would have to either go back to the first word and enter more characters or erase one or more of the typed characters and re-enter characters to reach the desired result. The dynamic highlight of the prefix strings in the results for each character entry enables the user to recover from an error during the text entry process itself, in contrast to discovering that no results match after typing the entire text.

[0035] FIGURE 5A illustrates the two broad categories of input queries and the various potential matches they could have in the results space. Input queries that do not include an explicit space or other break character form a single-word prefix query. A single-word query 501 can either match a single-word term 503 or an abbreviation representing multiple words 505. Input queries that explicitly include a space character or other break character between character entries form a multi-word prefix query. A multi-word prefix query 502 can match a multi-word term 504 or an abbreviation presenting multiple words. In an exemplary search of a movie database, the matches could be a direct match on terms representing a title (e.g., for the search query “go mu”, a match could be the movie title Gods Must Be Crazy) or it

could be matches on terms representing different types of information (e.g., if a user is searching for a movie starring Tom Hanks that features volleyball, he or she may enter the search query “to vo” to get the result: Tom Hanks Volleyball). As described earlier, these matches are then ordered in decreasing relevance, and in one or more embodiments, in the following order: single-word term matches 506 and multi-word term matches 507 followed by multi-word abbreviation matches 508 as illustrated in FIGURE 5B.

[0036] FIGURES 6A and 6B illustrate an example of highlighted search results in accordance with one or more embodiments of the invention. FIGURE 6A illustrates an overloaded keypad interface 602, which can in a television application, be an on-screen interface. In this example, the user has entered a single-word text input query “866” using the keypad 602. The results of the search input are shown in FIGURE 6B, which shows single-word term matches 603 and 604 ordered before abbreviation matches 605 and 606. Because each key pressed by the user is overloaded and represents multiple possible search prefixes, simply displaying the text input “866” with the results will not provide the user sufficient information to associate his or her input with the match results. The “8” character entered initially by the user matches all items in the search database containing any word which begins with any of the alphanumeric characters “8”, “T”, “U” or “V”. Examples of matches to the first character would be “8MM” 604 and “Star Trek” (not shown here since what is shown is the result of the query 866, not 8). The “6” character next entered by the user limits these search results only to items containing words that begin with the alphanumeric characters “8”, “T”, “U” or “V” and whose second character is one of the alphanumeric characters “6”, “M”, “N” or “O” or to items containing words that begin with the alphanumeric characters “8”, “T”, “U” or “V” and that also contain subsequent words that begin with the alphanumeric characters “6”, “M”, “N” or “O”. The earlier match, “Star Trek”, would drop out of the match results when the user pressed the overloaded “6” key because the “r” following the “T” matched by the “8” character does not match “6”, “M”, “N” or “O” and there are no words following “Trek” to match the “6”, “M”, “N” or “O”.

[0037] The next “6” character entered by the user as the third overloaded character further limits the search result to only those matches that also contain the alphanumeric characters “6”, “M”, “N” or “O” immediately following one of the matched characters for the first “6” previously entered or that contain subsequent words that begin with the

alphanumeric characters “6”, “M”, “N” or “O”. This relationship between the overloaded characters entered by the user and the match results is complicated and not necessarily intuitive to the user. In various embodiments of the invention, the characters in the search result that match the overloaded single-word search prefix characters are highlighted,
5 providing the user with a visual indication of the relationship between the key pressed and the incremental match results. This facilitates identification by the user of the item of interest from the group of items displayed.

[0038] The term “highlighting” as used herein refers to making more prominent or otherwise making more distinct characters of interest in the search results relative to other
10 characters. Non-limiting examples of highlighting include bolding, italicizing, coloring, underlining, or changing font of (or some combination thereof) the characters of interest relative to the others.

[0039] In another example, FIGURE 7B illustrates the results for a multi-word text input “866 2” using a 12-key keypad 702 shown in FIGURE 7A. As discussed earlier, the multi-
15 word term matches 703 are preferably ordered ahead of multi-word abbreviation matches. The difference between the single-word search illustrated in FIGURE 6B and the multi-word search illustrated in FIGURE 7B is that the use of an explicit word separator in the user input (in this case a space character) before the “2” entry, further limits results of the search. Only the results of the search illustrated in FIGURE 6B for prefix substring “866” that also contain
20 at least two words and in which a subsequent word begins with “2”, “A”, “B”, or “C” are included in the results displayed to the user. A title such as “Tomb Raider” would not match the multi-word search even though the word “Tomb” matches the overloaded keys “8”, “6”, “6”, “2” because the “2” must match the first letter in a subsequent word. As in the FIGURE 6B example, the characters in the ordered result that match the multi-word overloaded search
25 prefix characters are highlighted to provide the user with immediate feedback relating the key pressed to the incremental match results.

[0040] Methods of processing ambiguous search query inputs from users and highlighting results in accordance with various embodiments of the invention are preferably implemented in software, and accordingly one of the preferred implementations is as a set of
30 instructions (program code) in a code module resident in the random access memory of a

computer. Until required by the computer, the set of instructions may be stored in another computer memory, e.g., in a hard disk drive, or in a removable memory such as an optical disk (for eventual use in a CD ROM) or floppy disk (for eventual use in a floppy disk drive), or downloaded via the Internet or some other computer network. In addition, although the
5 various methods described are conveniently implemented in a general purpose computer selectively activated or reconfigured by software, one of ordinary skill in the art would also recognize that such methods may be carried out in hardware, in firmware, or in more specialized apparatus constructed to perform the specified method steps.

[0041] Having described preferred embodiments of the present invention, it should be
10 apparent that modifications can be made without departing from the spirit and scope of the invention.

[0042] Method claims set forth below having steps that are numbered or designated by letters should not be considered to be necessarily limited to the particular order in which the steps are recited.

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