[0044] Once the user selects a key by either of the methods **401** or **402**, user then navigates through the character cluster as described earlier. The users' choice is then automatically selected once the timeout expires **404**. If the user presses the center button in the five-button interface within the timeout period, then the next character in the character cluster is highlighted on the screen **306**. The ease of cycling through the characters with just the press of a button, where the collating sequence on the key is rendered on the on-screen keypad, is a much less of a cognitive task than linearly navigating a larger space. The trade-off here is the potential tension introduced in the user's mind due to the timeout based auto-selection. Adjusting the timeout period dynamically to match the user's planar navigation rate can reduce this potential tension. The timeout may be adjustable by the user or the system may automatically adjust the timeout based on the user's interaction with the system. For example, based on the user's linear navigation rate (or the latency between inter-key press latency), the threshold for timeout for auto-selection could be adjusted. While this will always have a minimum threshold, this value could be higher for a person who is navigating the keypad very slowly.

[0045] FIG. **8** illustrates the highlighting of a key that was selected either by linear navigation or by direct key press. The collating sequence of alphabets (**501** and **502**) in this cluster is the standard lexicographic ordering, that is to say the letters of the cluster appear in alphabetical order. However, the alphabets in the cluster may be arranged according to a different order to reduce the number of user actions needed to select a desired letter of the cluster. For example, the alphabet occurrence frequency chart of FIG. **9** illustrates a frequency of occurrence of letters of the alphabet in a given word sample. The frequencies in the alphabet occurrence frequency chart can be determined for an entire language or for a particular searchable subset of content.

[0046] FIG. **10** illustrates the on-screen keyboard highlighting where the collating sequence of characters on the cluster **601** are based on the alphabet occurrence frequency in the words of the language (FIG. **9**). The alphabet cluster "ABC"**602** is in lexicographic order (i.e., alphabetical order). FIG. **11** illustrates that when the user selects a key (either by planar navigation or by direct key selection), the order of the characters of the key changes to the specialized collating sequence order **701**. The mode of character ordering can be toggled between the standard lexicographic order or the "specialized collating sequence" order, and the current order can be visually displayed **702** (e.g., by the "VLet" designation). Even in the specialized collating sequence mode, the keys on virtual keypad in non-active mode (i.e., those keys not in focus) display keys in lexicographic order to assist user in easily navigating the keypad. By doing this, the system exploits the visuo-spatial memory etched into users' minds by the ubiquitous phone keypad. Since the same interface seamlessly supports multiple input styles, users can pick and choose the input style they are most comfortable with.

[0047] In another embodiment of the invention, the collating sequence may be based on the actual frequency of occurrence of characters in the results space terms. The ordering sequence may even be dynamic based on the frequency of the alphabet from a particular set of data spaces (instead of just English), and the ordering itself could be a function of the character count user entered. The specialized collating sequence of character clusters (which is either statically or dynamically determined as described above) would obviate the need to even etch the alphabets on the physical remote control keypads since that ordering is subject to change dynamically. Thus the on-screen virtual keypad with visual cues enables all existing remote controls (even ones lacking letters, such as the one with numbers only as shown in FIG. **1**) to be compatible with and benefit from the present invention.

[0048] FIG. **12**, FIG. **13** and FIG. **14** illustrate a further embodiment of the invention utilizing the VTAP style input described above. Using this input style, a user presses a single key for each character of the search text string to be entered. As user presses each key, the key and/or its associated letter cluster, is displayed on the screen, as shown by **801** (e.g., the user has entered the string "TOO" in FIG. **12**). Thus, all letters and numerals associated with the particular key pressed are entered into a single character position of the search input. The system includes an interface for lazy disambiguation at the letter level, if required. The currently active input style may be indicated on the keypad, as by indication **802**.

[0049] In this example embodiment, the interface is used for an information retrieval system where the ambiguous text input could be disambiguated using a results space with relevance associated with each result. Thus, rather than presenting user with choices of search terms matching the ambiguous text entry, user is presented with results matching the ambiguous text input. If the user does not retrieve the results of interest, user can navigate through any of the character keys he pressed and disambiguate each character **901**, as shown in FIG. **13**. For example, the user can use a five-button control to navigate to cluster **902** and press the center button of the control to sequence through the letters of the cluster until the "O" letter is selected. Once a character on a key is disambiguated, the other alphabets in that key can be made visually less prominent, as shown by darkened characters **1001** in FIG. **14**.

[0050] Embodiments described above may be used with the techniques and systems described in U.S. patent application Ser. No. 11/136,261, filed on May 24, 2005, entitled Method and System for Performing Searches for Television Programming Using Reduced Text Input, and U.S. patent application Ser. No. 11/246,432, filed on Oct. 7, 2005, 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, both of which are hereby incorporated by reference. However, the techniques and system described in those applications are not necessary to practice the following invention. Thus, the embodiments described above can be used with other applications requiring text entry.

[0051] It will be appreciated that the scope of the present invention is not limited to the above-described embodiments, but rather is defined by the appended claims, and these claims will encompass modifications of and improvements to what has been described. For example, embodiments have been described in terms of entering text search queries using a 12-key keypad image. However, keypad