

sequence of words. In some embodiments, the current set of characters **1210_1** includes a grammatical error and/or a lexicography error. In some embodiments, the current set of characters **1210_1** includes a misspelled word (e.g., “djde”, as shown in FIG. 12A) or an extra word (e.g., “Hey dude, how how are you doing?”, not shown). In some embodiments, the current set of characters **1210_1** is missing a word (e.g., “Hey dude, are you doing?”, not shown). The user commands may be provided using the click wheel **310**. In other embodiments, the user commands may be provided using one hand or one finger, for example, using a touch-sensitive display.

[0126] In FIG. 12B, the user has deleted (i.e., provided user commands to delete) characters in the current set of characters, resulting in a new current set of characters **1210_2**. Based on a determination of a potential replay condition, the device **1200** displays replay recommendations in the recommended words **814**. These correspond to at least a subset of the previously deleted words from the current set of characters **1210_1**. These previously deleted words are presented in reverse sequential order relative to an order in which at least the subset of the deleted words was deleted.

[0127] In FIG. 12C, the user has selected one or the recommended words **814**. The word is added to a current set of characters **1210_3** and is removed from the recommended words **814**. A next deleted word in the reverse sequential order of deleted words is displayed with the recommended words **814**. This process may be repeated until the message is completed, i.e., the current set of characters **1210_1** (FIG. 12A) is restored without the spelling error (i.e., the spelling error in **1210_1** is corrected).

[0128] In some embodiments, the recommended words **814** may include additional words, characters and/or symbols that were not deleted. These words, characters and/or symbols may be determined using the language data structure system **1450** (FIG. 14B). In some embodiments, the additional recommendations may include punctuation marks and/or pronunciation marks.

[0129] In some embodiments, a space may be automatically inserted in the message after one or more of the recommended words **814** are accepted. In some embodiments, such a space is automatically removed if a next user command corresponds to selection of a punctuation mark. In some embodiments, one or more words in the current sequence of words **1210_3** may be capitalized in accordance with a context of the one or more words, characters and/or symbols in the current sequence of words **1210_3**.

[0130] FIG. 13 is a flow diagram of an embodiment of a replay recommendation process **1300**. While the replay recommendation process **1300** described below includes a number of operations that appear to occur in a specific order, it should be apparent that the process **1300** can include more or fewer operations, which can be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment), an order of two or more operations may be changed and/or two or more operations may be combined into a single operation.

[0131] A current set of characters is received in response to user commands (**1310**). The set of characters includes a sequence of words. Additional user commands that specify characters to delete from and/or add to the current set of

characters are received (**1312**). Replay recommendations for words to be added to the current set of characters are provided (**1314**). The replay recommendations include one or more deleted words that correspond to the deleted characters. A user command corresponding to acceptance of a respective recommended word is received, the respective recommended word is removed from the replay recommendations, and the respective word is added to the current set of characters (**1316**). Operations **1312** and **1314** may be optionally repeated **1318**.

[0132] Attention is now directed towards embodiments of data structure systems that may be used in implementing the text messaging module **140** (FIG. 1), the text entry process (**1000**), the replay recommendation process **1300** (FIG. 13) and/or other applications **136** on the device **100** (FIG. 1). FIG. 14A is a block diagram illustrating an embodiment of a user word history data structure **1400**. The user word history **150** may include a deleted word stack **1410** and multiple words **1416**. The words **1416** may include one or more characters and/or one or more symbols. The deleted word stack **1410** includes one or more words **1414** in a sequential order in which the one or more words **1414** were deleted by the user in an application, such as the text messaging module **140** (FIG. 1). The deleted word stack **1410** may be used in the device **1200** (FIGS. 12A-12C) and in the replay recommendation process **1300** (FIG. 13).

[0133] A respective word in the words **1416**, such as word **1416-M**, may include multiple records. A respective record may include a time-weighted score **1418**, use statistics **1420** (such as a time of use and/or a frequency of use), a context **1422** and one or more applications **1424**. The time-weighted score **1418** may indicate a probability that the word **1416-M** is a next predicted word based on the context **1422** (one or more characters, symbols and/or words that have previously been provided by the user) and/or the application **1424**. For example, the time-weighted score **1418** for an email application may be different than the time-weighted score for the text messaging module **140** (FIG. 1). The time-weighted score **1418** may be computed to favorably weight (e.g., give a higher probability) to words that are used recently. For example, the time-weighted score **1418** may give favorable weighting to words **1416** that are used within the last 24 hours or week. Words **1416** used on longer time scales (e.g., more than a day or a week ago) may have their corresponding time-weighted scores **1418** reduced by a pre-determined ratio (such as 0.9) for each additional time interval (e.g., each day or week) since the words **1416** were last used.

[0134] The user history data structure **1400** may include static information (for example, corresponding to a dictionary and/or grammatical and syntax rules for one or more languages) as well as dynamic information (based on recent usage statistics and/or patterns). The user word history data structure **1400** may include a static dictionary built up by scanning a user's address book, emails, and other documents. The user history data structure **1400** may be dynamically updated continuously, after pre-determined time intervals, or when a new word or syntax is employed by the user. In some embodiments the user history data structure **1400** may include fewer or more components. Two or more components may be combined and an order of two or more components may be changed.

[0135] FIG. 14B is a block diagram illustrating an embodiment of a language data structure system **1450**. The