

embodiments, only a subset of the predicted words **1072** corresponding to the best context **1070** matches may be presented to the user (e.g., just the top-1, top-2, or top-3 predicted words).

[**0145**] In some embodiments, the language data structure system **1050** may provide one or more recommended words in accordance with a state machine (corresponding to a Markov sequence or process) that corresponds to a language. For example, the application-specific dictionary **1068** may be based on a stochastic model of the relationships among letters, characters, symbols and/or words in a language.

[**0146**] A path memory (such as up to three characters in a word that is currently being entered and/or two or three previously entered words) of the probabilistic model represents a tradeoff between accuracy and the processing and power capabilities (for example, battery life) of the portable electronic device **100** (FIG. 1). In some embodiments, such a probabilistic model may be based on a lexicography and usage that is user-specific and/or, as discussed previously, even application specific. For example, user emails, address book and/or other documents may be analyzed to determine an appropriate probabilistic model for that user based on the syntax and/or lexicography (including names and slang) that are employed by the user. The probabilistic model may be updated continuously, after pre-determined time intervals, or when a new word or syntax is employed by the user.

[**0147**] In some embodiments, the probabilistic model may be based on one or more mistakes made by the user when using the click wheel **114** (FIG. 1) and/or a touch-sensitive display in the display system **112** (FIG. 1). For example, if the user accidentally selects the wrong icon when typing a respective word, the probabilistic model may be updated to account for such errors in the future. In an exemplary embodiment, a mistake may be determined based on a user activation of an icon corresponding to the delete function. This adaptability of the portable electronic device **100** (FIG. 1) may allow correction of user interface errors (such as parallax and/or left-right symmetry) associated with which finger(s) the user is using and how the user is holding the portable electronic device **100** (FIG. 1) while using it. This functionality is discussed further below with reference to FIG. 14.

[**0148**] In some embodiments the language data structure system **1050** may include fewer or more components. Two or more components may be combined and an order of two or more components may be changed.

[**0149**] Attention is now directed towards additional embodiments of user interfaces and associated processes that may be implemented on the device **100** (FIG. 1). FIG. 11A is a flow diagram of an embodiment of a symbol entry process **1100**. While the symbol entry process **1100** described below includes a number of operations that appear to occur in a specific order, it should be apparent that the process **1100** 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.

[**0150**] A plurality of icons may be displayed on a touch-sensitive display (**1110**). A respective icon may correspond to two or more symbols. A contact by a user with the display

that corresponds to selection of the respective icon may be detected (**1112**). A symbol in the two or more symbols for which the contact further corresponds may be determined (**1114**).

[**0151**] FIG. 11B is a flow diagram of an embodiment of a symbol entry process **1130**. While the symbol entry process **1130** described below includes a number of operations that appear to occur in a specific order, it should be apparent that the process **1130** 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.

[**0152**] A plurality of icons may be displayed on a touch-sensitive display (**1132**). A respective icon may correspond to two or more symbols. A first symbol may belong to a first subset of symbols and a second symbol may belong to a second subset of symbols. The first symbol may have a probability of occurrence greater than the second symbol. A contact by a user with the display that corresponds to selection of the respective icon may be detected (**1134**). A symbol in the two or more symbols for which the contact further corresponds may be determined (**1136**).

[**0153**] FIG. 11C is a flow diagram of an embodiment of a symbol entry process **1150**. While the symbol entry process **1150** described below includes a number of operations that appear to occur in a specific order, it should be apparent that the process **1150** 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.

[**0154**] A plurality of icons may be displayed on a touch-sensitive display (**1152**). A respective icon may correspond to two or more symbols. A first symbol may belong to a first subset of symbols and a second symbol may belong to a second subset of symbols. The second symbol may have a probability of occurrence immediately following the first symbol that is less than a pre-determined value. A contact by a user with the display that corresponds to selection of the respective icon may be detected (**1154**). A symbol in the two or more symbols for which the contact further corresponds may be determined (**1156**).

[**0155**] FIGS. 12A-12G are schematic diagrams illustrating embodiments of a user interface for a portable electronic device **1200**. These embodiments may utilize the symbol entry processes **1100** (FIG. 11A), **1130** (FIG. 11B) and/or **1150** (FIG. 11C) described previously. As shown in FIG. 12A, the device **1200** may include a keyboard **1210** with a plurality of icons. A respective icon may include two or more symbols. A first symbol for a respective icon may be selected by the user using a first gesture. A second symbol for a respective icon may be selected by the user using a second gesture. The first gesture may include a continuous contact with the display **208** and the second gesture may include a discontinuous contact with the display **208**.

[**0156**] The continuous contact may include a swipe and/or a rolling motion of the contact. The discontinuous contact may include one or more consecutive taps. A respective tap may include contact with the display **208** for a time interval that is less than a fourth pre-determined value, such as 0.1,