

BLISSYMBOLS ENTRY METHOD AND APPARATUS FOR A COMPUTING SYSTEM USING STANDARD "QWERTY" KEYBOARD

Field of the Invention

5 This invention relates to a system for displaying a symbol that represents a word in a language based upon a string input by user. More particularly, this invention relates to a system that receives an input of a character string where each string represents strokes used to generate the symbol and displays a particular symbol based on the input string. Still more particularly, this invention relates to a
10 system for displaying a particular Blissymbol based upon an input of a string of characters wherein each character represents a stroke used to generate the particular Blissymbol based upon a set of pre-defined rules.

Prior Art

15 There are several languages in which particular symbols are used to represent particular words instead of using an alphabet to generate particular words in the language. One example of such a language is Blissymbols. Blissymbols were created by Charles K. Bliss for communication with individuals that have speech disorders, speech impairments, and/or intellectual impairments. Blissymbols are
20 often used by placing the symbols on a blissboard and having a user point out the particular symbols that the user wants to use to convey a message. The symbols are usually placed on the board in particular categories to allow the user to quickly select the desired symbols.

25 It is a problem to use these types of languages to communicate using a computer system. Typically, previous software tools for displaying such symbols used a method similar to the Blissboard in which all of the symbols are displayed based upon categories. However, this is a problem because a user may have to scroll through many menus of symbols to find the desired symbol. Thus, those
30 skilled in the art are constantly striving to provide a quick and efficient method to allow a user to enter such symbols that does not require the user to browse through multiple menus to find a desired symbol.

Summary of the Invention

The above and other problems are solved and an advance in the art is made by a system in accordance with this invention. A first advantage of a system in accordance with this invention is that a user only has to enter one string to generate
5 a desired symbol. A second advantage of a system in accordance with this invention is that no more than a predetermined number of characters have to be entered to allow the user to select a desired character. A third advantage of a system in accordance with this invention is that a user may use a wild card character to display a group of symbols from which a character may be selected when a user does not
10 know the proper string to input to obtain a desired symbol.

In accordance with embodiments of this invention, the system is provided in the following manner. The system receives an input string of alphanumeric characters. The input string is then compared to the strings stored in records of a
15 database that identify the particular symbol. A matching symbol associated with the input string is then determined from the comparisons and displayed.

In accordance with some embodiments of this invention, the system determines each record that includes the input string and displays each of the
20 symbols associated with these records. The user then receives an input selecting one of the displayed symbols.

In accordance with some embodiments of the invention, each of the records includes multiple fields that each stores a predetermined length of the string. In these
25 embodiments, the system determines the length of the input string and determines the particular field in each of the records to compare to the input string based upon the length of the string. In some particular ones of these embodiments, the system may read the last character of the string and determine whether the last character is a wild card character. If the last character is a wild card character, the last character
30 is removed from the string and the length of the string is reduced by one.

In accordance with particular embodiments of this invention, the language of the desired symbols is Blissymbols. In accordance with these embodiments, the strokes used to derive each of the Blissymbols are each associated with a particular

alphanumeric character. Further, each particular Blissymbol is associated with a string of alphanumeric characters representing a set of the strokes that derive a particular Blissymbol and each record in the database includes a representation of a particular Blissymbol and the string representing the set of strokes associated with
5 that particular Blissymbol.

In accordance with further ones of these embodiments, each alphanumeric character is associated with one of the strokes based upon a frequency of use of the strokes in generating Blissymbols and a position of each alphanumeric character on
10 a QWERTY keyboard.

In accordance with further ones of these embodiments, rules for ordering the strokes for deriving the Blissymbols are used to determine the set of strokes that derive a particular Blissymbol. Further, the input string received from the user is also
15 generated in accordance with these rules. In a particular one of these embodiments, the rules include starting from the outer most strokes for deriving a particular symbol and moving inward, starting from a left side of the particular symbol and moving right, and starting at a top of the particular symbol and moving downward.

In accordance with further embodiments, the set of strokes for each particular symbol is restricted to no more than a predetermined number, N, of strokes. In accordance with these embodiments, the set of strokes for a particular symbol that requires greater than the predetermined number of strokes includes each of strokes needed in accordance to the rules until a N-1 stroke is reached and a last stroke
20 needed to generate the particular symbol as the Nth stroke.
25

In accordance with some of these embodiments, the database includes a record that corresponds to each particular Blissymbol. Each record includes a descriptor of the particular symbol, an Unicode of an Unicode character representing
30 the symbol and multiple string fields. Each of the predefined symbols is encoded with a respective Unicode character stored. Each of the string fields store a predetermined length of the string corresponding to the particular symbol beginning with a first character of the string.

Brief Description of the Drawings

The above and other features and advantages of this invention are described in the following detailed description and shown in the following drawings:

5 Figure 1 illustrating a computer system performing processes to provide a system in accordance with an embodiment of this invention;

 Figure 2 illustrating a block diagram of processing components of the computer system shown in Figure 1;

 Figure 3 illustrating a layout of a keyboard of the computer system in
10 accordance with embodiments of this invention;

 Figure 4 illustrating a database for storing symbols and associated strings in accordance with an embodiment of this invention;

 Figure 5 illustrating a flow diagram of a process for displaying symbols in accordance with this invention;

15 Figures 6-8 illustrating the first ordering rule in accordance with this invention;

 Figures 9-11 illustrating the second ordering rule in accordance with this invention; and

 Figures 12-14 illustrating the third ordering rule in accordance with this invention.

20

Detailed Description

 This invention relates to a system for displaying a symbol that represents a word in a language based upon a string input by user. More particularly, this invention relates to a system that receives an input of a character string where each
25 string represents strokes used to generate the symbol and displays a particular symbol based on the input string. Still more particularly, this invention relates to a system for displaying a particular Blissymbol based upon an input of a string of characters wherein each character represents a stroke used to generate the particular Blissymbol based upon a set of pre-defined rules.

30

 Figure 1 is an embodiment of a computer system that performs the processes for displaying Blissymbols in accordance with this invention. Computer system 100 is a conventional desktop computer. However, one skilled in art will recognize that any type of computer system may perform the processes in accordance with this

invention. Other examples include, but are not limited to, laptop computers, netbook computers, Personal Digital Assistants (PDAs), and Smartphones. One skilled in the art will also recognize that although all of the processes are described as being performed by one computer system, the processes may be performed by one or
5 more systems connected by a network without departing from this invention.

Computer system 100 includes computer housing 105 which encloses a processing unit and related circuitry described with regards to Figure 2. Display 110 is connected to the circuitry in computer housing 105 and displays images generated
10 by the processing unit. Keyboard 115 is a conventional QWERTY keyboard connected to the circuitry inside housing 105 to allow a user to input alphanumeric data and other commands for the operation of computer system 100. In accordance with embodiments of this invention, keyboard 115 may have a customized layout as described in regards to Figure 3. Pointer device 120 is a mouse, trackball or other
15 device that is connected to the circuitry in computer housing 105 to allow a user to move a pointer across images displayed by display 110 and select features on the images. One skilled in the art will recognize that in addition to the components described, computer system 100 may include any number of connected peripheral devices without departing from this invention.

Processes provided by instructions stored by a media that are executed by a processing system to perform this invention. The instructions may be stored as firmware, hardware, or software. Figure 2 illustrates processing system 200 of computer system 100 inside computer housing 105 that executes the instructions to
25 perform the processes for providing a method and/or system in accordance with this invention. One skilled in the art will recognize that the exact configuration of each processing system may be different and the exact configuration of the executed processes in accordance with this invention may vary and Figure 1 is given by way of example only.

Processing system 200 includes Central Processing Unit (CPU) 205. CPU 205 is a processor, microprocessor, or any combination of processors and microprocessors that execute instructions to perform the processes in accordance with the present invention. CPU 205 connects to memory bus 210 and Input/ Output

(I/O) bus 215. Memory bus 210 connects CPU 205 to memories 220 and 225 to transmit data and instructions between the memories and CPU 205. I/O bus 215 connects CPU 205 to peripheral devices to transmit data between CPU 205 and the peripheral devices. One skilled in the art will recognize that I/O bus 215 and memory
5 bus 210 may be combined into one bus or subdivided into many other busses and the exact configuration is left to those skilled in the art.

A non-volatile memory 220, such as a Read Only Memory (ROM), is connected to memory bus 210. Non-volatile memory 220 stores instructions and
10 data needed to operate various sub-systems of processing system 200 and to boot the system at start-up. One skilled in the art will recognize that any number of types of memory may be used to perform this function.

A volatile memory 225, such as Random Access Memory (RAM), is also
15 connected to memory bus 210. Volatile memory 225 stores the instructions and data needed by CPU 205 to perform software instructions for processes such as the processes required for providing a system in accordance with this invention. One skilled in the art will recognize that any number of types of memory may be used as volatile memory and the exact type used is left as a design choice to those skilled in
20 the art.

I/O device 230, keyboard 235, display 240, memory 245, network device 250 and any number of other peripheral devices connect to I/O bus 215 to exchange data with CPU 205 for use in applications being executed by CPU 205. I/O device 230 is
25 any device that transmits and/or receives data from CPU 205. Keyboard 235 is a specific type of I/O that receives user input and transmits the input to CPU 205. In accordance with this embodiment, keyboard 235 includes keyboard 115 shown in Figure 1. Display 240 receives display data from CPU 205 and display images on a screen for a user to see. In accordance with this embodiment, display 240 include
30 display 110 shown in Figure 1. Memory 245 is a device that transmits and receives data to and from CPU 205 for storing data to a media. Network device 250 connects CPU 205 to a network for transmission of data to and from other processing systems.

In some particular embodiments of this invention, keyboard 115 is replaced by keyboard 300. Keyboard 300 includes keys 320 that display characters of strokes used to generate Blissymbols in accordance with an embodiment of this invention. Keyboard 300 transmits the same signals as a conventional keyboard 115 to represent a particular key being pressed by a user and processing system 100 recognizes the transmission as if it was a conventional alphanumeric character. In accordance with these embodiments, the strokes are assigned particular keys on a QWERTY keyboard based upon the frequency of use. Thus, the most proper strokes are assigned to the most commonly used QWERTY keys in a corresponding manner. Two strokes may be assigned to a single alphanumeric key. In another embodiment, the keyboard is divided into three regions 330-332 and groups of similar strokes are assigned to each region 330-332. For example, strokes having vertical and/or horizontal components are assigned to keys 320 in region 330; strokes having diagonal components are assigned to keys 320 in region 331; and strokes having arched components are assigned to keys 320 in region 332. In both described embodiments, two strokes may be assigned to a single alphanumeric key 320. The second stroke may be indicated by depressing a shift key and the desired key. One skilled in the art will recognize that other methods may be used to assign the strokes to a particular key on the keyboard without departing from this invention.

In accordance with the described embodiments, the strokes are determined from analysis of Blissymbols and finding the most common components in generating the characters. The strokes are chosen such that most Blissymbols may be generated in less than five strokes. Table 1 below provides a list of strokes in accordance to this invention.

Index No.	Vertical/Horizontal Stroke	Stroke Identifier/Name	Description of stroke
1	#	VH1	Hash sign
2	!	VH2	Exclamation
3	↑	VH3	Up arrow
4	↓	VH4	Down arrow
5	←	VH5	Left arrow

5	←	VH5	Left arrow
6	→	VH6	Right arrow
7	⊥	VH7	Short I-beam
8	I	VH8	I-beam
9	/	VH9	Slash
10	\	VH10	Backslash
11	+	VH11	Plus sign
12	×	VH12	Cross
13	—	VH13	Dash
14	--	VH14	Double dash
15	└	VH15	Bottom-left Right angle
16	┐	VH16	Top-left Right angle
17	└	VH17	Bottom-right Right angle
18	┐	VH18	Top-right Right angle
19	T	VH19	Tee
20	┌	VH20	Up tack
21		VH21	Vertical bar
22		VH22	Double vertical bar
23	┐	VH23	Right semi-square
24	┌	VH24	Left semi-square
25	└	VH25	Bottom semi-square
26	┐	VH26	Top semi-square
27	◻	VH27	Small square
28	◻	VH28	Square
	Diagonal Stroke	Stroke Identifier/Name	Description of stroke
29	⚡	DG1	Lightning sign
30	⌋	DG2	Right angle bracket
31	⌈	DG3	Left angle bracket
32	⌋	DG4	Top-right caret
33	⌋	DG5	Bottom-right caret
34	⌈	DG6	Top-left caret
35	⌈	DG7	Bottom-left caret
36	▽	DG8	Small inverted triangle
37	△	DG9	Small triangle

38	^	DG10	Caret sign
39	^	DG11	Large caret sign
40	^	DG12	Wide-angled caret sign
41	^^	DG13	Double caret sign
42	<	DG14	Left pointing triangle
43	>	DG15	Right pointing triangle
44	v	DG16	Inverted caret sign
45	V	DG17	Large inverted caret sign
46	v	DG18	Inverted wide-angled caret sign
47	WV	DG19	Inverted double caret sign
48	>	DG20	Right inequality sign
49	<	DG21	Left inequality sign
	Arched Stroke	Stroke Identifier/Name	Description of stroke
50	”	AC1	Quotation mark
51	\$	AC2	Dollar sign
52	?	AC3	Question mark
53	)	AC4	crescent
54	~	AC5	Wings
55	~	AC6	Top double brackets
56	“(	AC7	Left double brackets
57	)	AC8	Bottom round bracket
58	(	AC9	Top round bracket
59	o	AC10	Small circle
60	○	AC11	Circle
61	)	AC12	Right round bracket
62	(	AC13	Left round bracket
63	⌋	AC14	Bottom-left arch
64	⌈	AC15	Top-left arch
65	⌋	AC16	Bottom-right arch
66	⌈	AC17	Top-right arch
67	◌	AC18	Horizontal lens
68	◌	AC19	Vertical lens
69	◌	AC20	Circle with dot
70	⊗	AC21	Circle with cross
71	♥	AC22	Heart

72	?	AC23	Half-heart
73	.	AC24	Dot
74	○	AC25	Oblong
75	..	AC26	Double dots
76	∴	AC27	Triple dots
77	oo	AC28	Small double-circles
78	8	AC29	Small vertical double-circles
79	⊖	AC30	Small horizontal oblong
80	⊗	AC31	Small vertical oblong
81	~	AC32	Tilde
82	¿	AC33	Vertical tilde

Table 1

In order to provide a display of symbols used to represent words of a language based upon an input in accordance with embodiments of this invention, a database must be maintained that associates a symbol with a string. Figure 4 illustrates database 400 storing each supported Blissymbol and a string identifying the particular Blissymbol. The strings are assigned to each particular Blissymbol by using the alphanumeric keys representing the strokes used to generate the particular symbol. To assure that the same string is used to generate a particular Blissymbol, ordering rules for assembling the strokes into the symbol are applied. In the shown embodiment, the ordering rules are in the following order: 1) outermost strokes of a symbol are input first working inwards; 2) leftmost strokes of a symbol are input first working towards the right of the symbol; and 3) top most strokes of the symbol are input first working downward.

Figures 6-8 illustrate a Blissymbol generated in accordance with the first ordering rule that requires the outermost strokes of a symbol are input first working inwards. In figure 6, the strokes for generating the Blissymbol for the word 'life' is shown. Namely, 'circle' stroke 601 and 'vertical bar' stroke 602 are shown. In accordance with the ordering rules, 'circle' stroke 601 is used first as shown in Figure 7. 'vertical bar' stroke 602 is then added to the left of 'circle' stroke 601 to complete 'life' Blissymbol 603 shown in Figure 8.

Figures 9-11 illustrate a Blissymbol generated in accordance with the second ordering rule that requires the leftmost stroke of a symbol is input first working towards the right of the symbol. In figure 9, the strokes for generating the Blissymbol for the word 'not' is shown. Namely, 'dash' stroke 901 and 'exclamation point' stroke 902 are shown. In accordance with the ordering rules, 'dash' stroke 901 is used first as shown in Figure 10. 'Exclamation point' stroke 902 is then added to the right of 'dash' stroke 901 to complete 'not' Blissymbol 903 shown in Figure 11.

An example of the third rule is provided in Figures 12-14. Figures 12-14 show the generation of the Blissymbol for a house. In figure 12, 'wide-angled caret sign' stroke 1201 and 'Bottom semi-square' stroke 1202 used to generate the symbol for a house are shown. In Figure 13, the first character used to generate the house Blissymbol is shown in accordance with the third ordering rule. In this case, the character is generated by starting from the top and 'wide-angled caret sign' 1201 is shown. Figure 14 illustrates the completed house Blissymbol 1203 with 'Bottom semi-square' stroke 1202 added to 'wide-angled caret sign' 1201.

Furthermore, the strings are limited to a length of 5 characters. Thus, strings of symbols requiring five or more strokes are represented by a string including four characters representing the first four strokes and a fifth character representing the last stroke needed to generate the character. One skilled in the art will recognize that the same convention may be used for strings of any length, N, where the first N-1 characters are the first N-1 alphanumeric character representing the first N-1 strokes of the symbol and the Nth character is the last character representing the last stroke needed to generate the symbol.

Database 400 is a database used to maintain the records of each supported symbol. In the shown embodiment, database 400 includes a record 401 for each symbol supported. Each record 401 includes identifier field 405 that has a complete string length representing the symbol, uni-code field 410, string identifier field 415, string length of 1 field 420, string length of 2 field 425, string length of 3 field 430, string length of 4 field 440, and suggestion field 445. Identifier field 405 includes the word the symbol represents. Uni-code field 410 includes a base 16 identifier of the string representing the symbol which may also be a pointer to a file storing an

Unicode character of the symbol. One skilled in the art will understand that Unicode is a computing industry standard with a defined architecture and encoding scheme for the consistent encoding, representation and handling of characters. String identifier field 415 includes the string of alphanumeric characters that represent the symbol. String length of 1 field 420 includes the first character of the alphanumeric string that represents the symbol. String length of 2 field 425 stores the first two characters of the alphanumeric string that represents the symbol. String length of 3 field 430 stores the first three characters of the alphanumeric string that represents the symbol. String length of 4 field 440 stores the first four characters of the alphanumeric string that represents the symbol. One skilled in the art will recognise that any N number of string length fields may be added depending on the maximum number, N, of characters in the strings supported by the system. Suggestion field 445 stores identifiers used in the character selection process as described below. One skilled in the art will recognize that additional field may be included without departing from this invention.

Figure 5 illustrates a flow diagram of a process for displaying a symbol representing a word in a language in accordance with an embodiment of this invention that displays Blissymbols. Process 500 begins in step 505 by receiving an input of a string of alphanumeric characters. In accordance with embodiments of this invention, the input string of alphanumeric characters represents the strokes used to generate a desired Blissymbol in accordance with ordering rules for generation of the Blissymbols. In some embodiments, the ordering rules are in the following priority: 1) outermost strokes of a symbol are input first working inwards; 2) leftmost strokes of a symbol are input first working towards the right of the symbol; and 3) top most strokes of the symbol are input first working downwards. Furthermore, the strings are limited to a length of 5 characters. Thus, strings of symbols requiring five or more strokes are in a string including four characters representing the first four strokes and a fifth character representing the last stroke needed to generate the character.

In some embodiments, the length of the input string is then determined in step 510. The length of the string will then be used to determine the field in the database/record to use to return possible matches in some embodiments of the invention. For example, if the strings contain four characters, string length of 4 field

440 is used. In step 515, the process then read the last character of the string. The process then determines whether the read last character is a wild card to indicate that the user wants to select a desired Blissymbol from all Blissymbols that include the input string in an associated string this includes all Blissymbols associated with
5 a string having N or greater number of characters in step 520. In the described embodiment, the wild card is the letter 'z'. However, other keys may be used without departing from this invention. If the last character is a wild card, the last character is removed from the string and the length of the string is reduced by one in step 525.

10 In step 530, the process determines which field in the records stored in database 400 to search. If the string contains a wild card, the field storing the corresponding length of characters of the string is search. For example, the process receives a string of four characters including a wild card as a fourth character. The string length of 3 field is searched for a match to the first three characters of the
15 string. In this embodiment, if there is no wild card, identifier field storing the complete string associated with each Blissymbol is searched (i.e. String identifier field 415). In step 535, the appropriate field of all the records are searched. In the described embodiment, the suggestion field of each record including the matching string in the appropriate field is then marked. In the described embodiment, this is
20 performed by placing a '1' in the suggestion field. However, any type of marking may be done without departing from this invention.

The process determines if there is more than one match to the input string in step 540. This may be performed by reading the suggestion field in all of the records
25 to determine each record that has been marked. However, other methods may be used without departing from this invention. In step 545, all of the symbols of the records that matched the input string are displayed. One skilled in the art will recognize that more than one match may occur when a wild card is used or when the input string includes a maximum amount of characters thus more than one symbol
30 may be associated with the same string. In other words, Blissymbols requiring more than a predetermined number, N, of strokes may share a common N-1 first strokes and a common last stroke causing the string to match more than one Blissymbol. An input of a selection of one of the displayed symbols is received in step 550. The selection may be made using a pointing device or input keys on the keyboard.

Process 500 then ends by displaying the selected symbol in step 555. One skilled in the art will recognize that step 555 may include adding the symbol to an appropriate file such as a word processing document or interactive screen of a particular application.

5

The above is a description of a process for displaying a symbol representing a word in a language such as Blissymbols. It is anticipated that those skilled in the art can and will design alternative embodiments of the invention as set forth in the following claims.

What is claimed is:

1. A product for providing a symbol representing a word in a Blissymbols language comprising:

5 instructions for directing a processing unit to:

receive an input string of alphanumeric characters,

compare said input string to a plurality of records in a database wherein each of said plurality of records includes a field identifying a particular symbol and a field identifying a string associated with said particular symbol,

10 determine a matching symbol associated with said input string from said plurality of records, and

display said matching symbol; and

a media readable by said processing unit that stores said instructions.

15 2. The product of claim 1 wherein said instructions to determine said matching symbol comprise:

instructions for directing said processing unit to:

determine each of said plurality of records that include said input string,

20 display a plurality of symbols wherein each of said plurality of symbols is associated with one of said plurality of records that includes a string matches said input string,

receive an input selecting said matching symbol from said plurality of symbols.

25 3. The product of claim 2 wherein each of said plurality of records includes a plurality of fields and wherein each of said plurality of fields stores a predetermined length of said string associated with said particular symbol, said instructions further comprising:

instructions for directing said processing unit to:

30 determine a length of said string wherein said string is compared to one of said plurality of fields with said predetermined length of said string that equals said length of said input string.

4. The product of claim 3 wherein said instructions further comprise:

instructions for directing said processing unit to:
 read a last character from said input string,
 determine whether said last character of said input string matches a
wild card character,
5 subtract one from said length of said string in response to said
character matching said wild card character, and
 remove said last character from said input string in response to said
character matching said wild card character.

10

5. The product of claim 1 wherein a plurality of strokes are used to derive
each of said plurality of Blissymbols wherein each stroke is associated with a
particular alphanumeric character, each particular Blissymbol is associated with a
string of alphanumeric characters representing a set of said plurality of strokes that
15 derive said particular Blissymbol, and each record in said database includes a
representation of a particular Blissymbol and said string representing said set of
strokes associated with said particular Blissymbol.

6. The product of claim 5 wherein each alphanumeric character is
20 associated with one of said plurality of strokes based upon a frequency of use of said
one of said plurality of strokes in generating Blissymbols and a position of each said
alphanumeric character on a QWERTY keyboard.

7. The product of claim 5 wherein a plurality of rules for ordering said
25 strokes for deriving a Blissymbols is used to determine said set of said plurality of
strokes that derive a particular Blissymbol.

8. The product of claim 7 wherein said input of said string by said user is
generated in accordance with a plurality of rules.

30

9. The product of claim 8 wherein said plurality of rules include starting
from the outer most strokes for deriving said particular symbol and moving inward,
starting from a left side of said particular symbol and moving right, and starting at a
top of said particular symbol and moving downward.

10. The product of claim 7 wherein said set of said plurality of strokes for each said particular symbol is restricted to no more than a predetermined number, N, of strokes.

5

11. The product of claim 10 wherein said set of said plurality of strokes for a particular symbol that requires greater than said predetermined number of strokes includes each of said plurality of strokes needed in accordance with said plurality of rules until a N-1 stroke is reached and a last stroke needed to generate said particular symbol as the Nth stroke.

10

12. The product of claim 11 wherein said database includes a plurality of records and each of said plurality of records corresponds to a particular Blissymbol and includes field storing a descriptor of said particular symbol, an Unicode of an Unicode character representing the symbol, and a plurality of string fields wherein each of said plurality of string field stores a predetermined length of said string beginning with a first character of said string.

15

13. A method for providing a symbol representing a word in a Blissymbols language on a display of a processing system comprising:

20

receiving an input string of alphanumeric characters;

comparing said input string to a plurality of records in a database wherein each of said plurality of records includes a field identifying a particular symbol and a field identifying a string associated with said particular symbol;

25

determining a matching symbol associated with said input string from said plurality of records; and

displaying said matching symbol.

14. The method of claim 13 wherein said step of determining said matching symbol comprises:

30

determining each of said plurality of records that include said input string;

displaying a plurality of symbols wherein each of said plurality of symbols is associated with one of said plurality of records that includes a string matches said input string; and

receiving an input selecting said matching symbol from said plurality of symbols.

15. The method of claim 14 wherein each of said plurality of records in said database includes a plurality of fields and wherein each of said plurality of fields stores a predetermined length of said string associated with said particular symbol, said method further comprising:

determining a length of said string wherein said string is compared to one of said plurality of fields with said predetermined length of said string that equals said length of said input string.

16. The method of claim 15 further comprising:

reading a last character from said input string;

determining whether said last character of said input string matches a wild card character;

subtracting one from said length of said string in response to said character matching said wild card character; and

removing said last character from said input string in response to said character matching said wild card character.

17. The method of claim 13 wherein a plurality of strokes are used to derive each of said plurality of Blissymbols wherein each stroke is associated with a particular alphanumeric character, each particular Blissymbol is associated with a string of alphanumeric characters representing a set of said plurality of strokes that derive said particular Blissymbol, and each record in said database includes a representation of a particular Blissymbol and said string representing said set of strokes associated with said particular Blissymbol.

18. The method of claim 17 wherein each alphanumeric character is associated with one of said plurality of strokes based upon a frequency of use of said

one of said plurality of strokes in generating Blissymbols and a position of each said alphanumeric character on a QWERTY keyboard.

19. The method of claim 17 wherein a plurality of rules for ordering said
5 strokes for deriving a Blissymbols is used to determine said set of said plurality of strokes that derive a particular Blissymbol.

20. The method of claim 19 wherein said input of said string by said user is
generated in accordance with a plurality of rules.

10

21. The method of claim 20 wherein said plurality of rules include starting
from the outer most strokes for deriving said particular symbol and moving inward,
starting from a left side of said particular symbol and moving right, and starting at a
top of said particular symbol and moving downward.

15

22. The method of claim 19 wherein said set of said plurality of strokes for
each said particular symbol is restricted to no more than a predetermined number, N,
of strokes.

23. The method of claim 22 wherein said set of said plurality of strokes for
a particular symbol that requires greater than said predetermined number of strokes
includes each of said plurality of strokes needed in accordance with said plurality of
rules until a N-1 stroke is reached and a last stroke needed to generate said
particular symbol as the Nth stroke.

25

24. The method of claim 23 wherein said database includes a plurality of
records and each of said plurality of records corresponds to a particular Blissymbol
and includes field storing a descriptor of said particular symbol, an Unicode of an
Unicode character representing the symbol and a plurality of string fields wherein
30 each of said plurality of string field stores a predetermined length of said string
beginning with a first character of said string.

25. A system for providing a symbol representing a word in a Blissymbols
language on a display of a processing system comprising:

circuitry configured to receive an input string of alphanumeric characters;

circuitry configured to compare said input string to a plurality of records in a database wherein each of said plurality of records includes a field identifying a particular symbol and a field identifying a string associated with said particular symbol;

circuitry configured to determine a matching symbol associated with said input string from said plurality of records; and

circuitry configured to display said matching symbol.

26. The system of claim 25 wherein said circuitry configured to determine said matching symbol comprises:

circuitry configured to determine each of said plurality of records that include said input string;

circuitry configured to display a plurality of symbols wherein each of said plurality of symbols is associated with one of said plurality of records that includes a string matches said input string; and

circuitry configured to receive an input selecting said matching symbol from said plurality of symbols.

27. The system of claim 25 wherein each of said plurality of records in said database includes a plurality of fields and wherein each of said plurality of fields stores a predetermined length of said string associated with said particular symbol, said system further comprising:

circuitry configured to determine a length of said string wherein said string is compared to one of said plurality of fields with said predetermined length of said string that equals said length of said input string.

28. The system of claim 27 further comprising:

circuitry configured to read a last character from said input string;

circuitry configured to determine whether said last character of said input string matches a wild card character;

circuitry configured to subtract one from said length of said string in response to said character matching said wild card character; and

circuitry configured to remove said last character from said input string in response to said character matching said wild card character.

5 29. The system of claim 25 wherein a plurality of strokes are used to derive each of said plurality of Blissymbols wherein each stroke is associated with a particular alphanumeric character, each particular Blissymbol is associated with a string of alphanumeric characters representing a set of said plurality of strokes that derive said particular Blissymbol, and each record in said database includes a
10 representation of a particular Blissymbol and said string representing said set of strokes associated with said particular Blissymbol.

 30. The system of claim 29 wherein each alphanumeric character is associated with one of said plurality of strokes based upon a frequency of use of said
15 one of said plurality of strokes in generating Blissymbols and a position of each said alphanumeric character on a QWERTY keyboard.

 31. The system of claim 29 wherein a plurality of rules for ordering said strokes for deriving a Blissymbols is used to determine said set of said plurality of
20 strokes that derive a particular Blissymbol.

 32. The system of claim 31 wherein said input of said string by said user is generated in accordance with a plurality of rules.

25 33. The system of claim 31 wherein said plurality of rules include starting from the outer most strokes for deriving said particular symbol and moving inward, starting from a left side of said particular symbol and moving right, and starting at a top of said particular symbol and moving downward.

30 34. The system of claim 31 wherein said set of said plurality of strokes for each said particular symbol is restricted to no more than a predetermined number, N, of strokes.

35. The system of claim 34 wherein said set of said plurality of strokes for a particular symbol that requires greater than said predetermined number of strokes includes each of said plurality of strokes needed in accordance with said plurality of rules until a N-1 stroke is reached and a last stroke needed to generate said particular symbol as the Nth stroke.

36. The system of claim 35 wherein said database includes a plurality of records and each of said plurality of records corresponds to a particular Blissymbol and includes field storing a descriptor of said particular symbol, an Unicode of an Unicode character representing the symbol and a plurality of string fields wherein each of said plurality of string field stores a predetermined length of said string beginning with a first character of said string.

37. A method for generating a Blissymbol using a plurality of strokes from a set of predefined strokes wherein each stroke in said set of predefined strokes is determined to be a component commonly used in a composition in each of a plurality of Blissymbols, said method comprising:

inserting each remaining outermost one of said plurality of strokes prior to remaining inner ones of said plurality of strokes of said Blissymbol;

inserting each leftmost one of said plurality of strokes prior to remaining right ones of said plurality of strokes of Blissymbol; and

inserting each remaining topmost one of said plurality of strokes prior to remaining lower ones of said plurality of strokes of said Blissymbol.

38. The method of claim 37 wherein said set of strokes is divided into three types of strokes.

39. The method of claim 38 wherein said three types of strokes include a group of said plurality of strokes including each stroke that includes a vertical component.

40. The method of claim 38 wherein said three types of strokes include a group of said plurality of strokes including each stroke that includes a horizontal component.

41. The method of claim 38 wherein said three types of strokes include a group of said plurality of strokes including each stroke that includes a diagonal component.

5 42. The method of claim 38 wherein said three types of strokes include a group of said plurality of strokes including each stroke that includes an arched component.