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[US/US]; Apt. A204, 129 118th Avenue S.E., Bellevue,
WA 98005 (US).

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(74) **Agents:** DONOHUE, Michael, J. et al.; Seed Intellectual Property Law Group PLLC, Suite 6300, 701 Fifth Avenue, Seattle, WA 98104-7092 (US).

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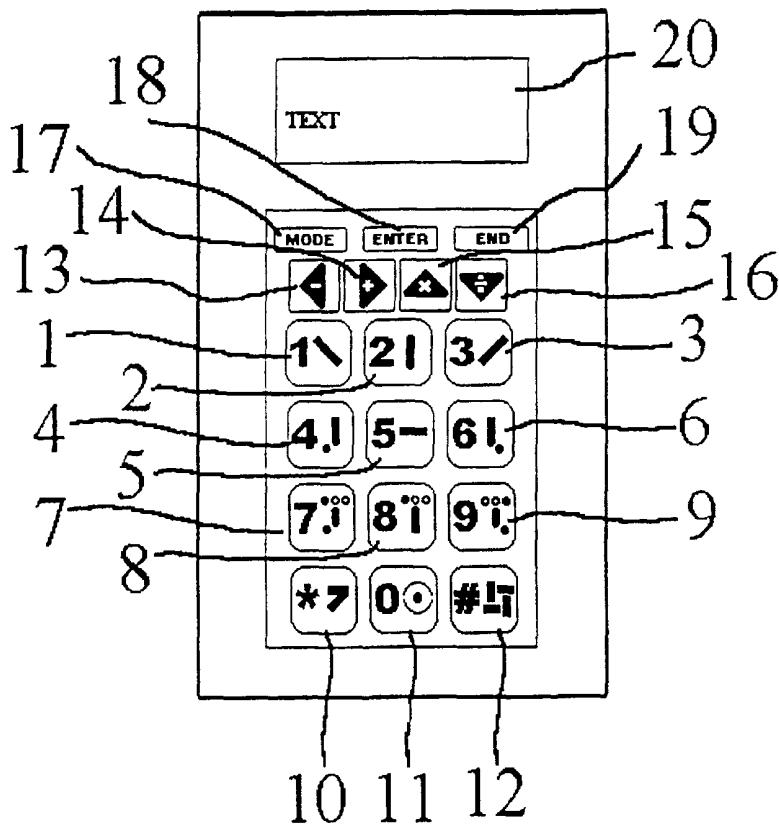
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(54) Title: METHOD AND APPARATUS FOR INPUT OF ALPHANUMERIC TEXT DATA FROM TWELVE KEY KEYBOARDS

(57) Abstract: A method and apparatus for assigning a relatively large character set to a small keyboard. The apparatus includes a keyboard having a plurality of keys in a rectangular array. Each key is assigned to a stroke similar to handwriting strokes. A virtual keyboard is described with two alternate configurations. Combinations of keystrokes are used to resolve the characters with the order of keystrokes determined by analogy to scanning the character under the method.



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METHOD AND APPARATUS FOR INPUT OF ALPHANUMERIC
TEXT DATA FROM TWELVE KEY KEYBOARDS

TECHNICAL FIELD

This invention pertains to the manual input of data. In particular this 5 invention pertains to the manual input of alphanumeric text data from a keyboard. With still greater particularity the invention pertains to the manual input of text from a character set of over twelve characters from a twelve key keyboard with minimal assignment of multiple functions to each key.

BACKGROUND OF THE INVENTION

10 Keyboards are used for the manual input of data to a wide variety of devices. Well-known devices with keyboard inputs include typewriters, computers, calculators, telephones, Personal Digital Assistants, television remote controls, cable set-top receivers, satellite receivers, VCRs, GPS receivers, kitchen appliances, information appliances and games. The data inputted by keyboards include numbers, 15 text, and instructions.

Keyboards fall into two broad classifications. The first classification descended from early typewriters is a substantially rectangular array including a large number of keys. This first type of keyboard assigns an individual key to each character in the alphabet and includes additional keys for numbers and often instructions. The 20 second classification descended from early touch-tone telephones includes a smaller number of keys. This second class has commonly twelve keys arranged in four tiers of three key rows. Both types of keyboards may be used to enter alphanumeric data such as text, numbers, and instructions. By necessity the second class of keyboard assigns multiple characters to each key.

25 The first typewriters patented in 1868 arranged the keys in alphabetic order. The mechanical nature of these early typewriters caused many common letter combinations to jam. This jamming problem led to the development of the now standard QWERTY keyboard. There have been many alternatives to the QWERTY

keyboard proposed, but none have found widespread adoption. This is primarily because of the necessity of retraining operators who with experience are able to touch type.

The second broad classification of keyboards sometimes called data-entry keyboards derive from the first touch-tone telephone keyboard developed by Bell Labs in the 1960's. Such keyboards include a array of twelve keys arranged in four tiers of three keys each. A single digit is assigned to each key. This type of keyboards is very efficient for the entry of numerical data. When such keyboards are used for entry of alphanumeric data such as names, text, and addresses problems arise. Twelve keys are more than is necessary for numerical data, however, other schemes must be used with character sets of twelve or more members. All such systems require the assignment of multiple characters to each key.

The earliest system for imputing alphanumeric data was the now standard telephone touch pad. In this scheme the 2 key is also A, B, and C. 3 is also D, E, and F and so on. The letters Q and Z were not included in then standard touch pad. A shift key (usually * or #) is needed to select the proper letter as most keys have three letters and a number. The touch pad allows the input of alphanumeric data, but is slow and difficult to use. This is because the human mind does not order data in this manner. The result is that the user of such a system must often resort to reciting the alphabet each time they wish to input a letter. Mistakes are frequent and most users loathe the process. The method is unfamiliar to those trained to touch type both due to the different location of the keys and the lack of one-to-one correspondence between keys and symbols.

An alternative to the telephone touch pad method is the multiple pressing of a single key. This method is frequently used in consumer electronic devices such as VCR's, TV's, cellular phones, fax machines, and telephone answering machines. A single key (often an arrow) is pressed once for A, twice for B, and so on. Frequently, the selected letter is highlighted as one scrolls through the alphabet. Usually this system is only used for short text such as a first name or station call letters. Most users become quickly discouraged if more than a few letters are needed.

A third solution has been to try and link the thinking process with the input of data. In such systems each key is pressed once and a look-up table or dictionary is used to determine what word the user is trying to convey. In such systems each key represents more than one letter and the software attempts to resolve the inherent ambiguity. In more advanced systems artificial intelligence allows customization to a particular user. A system of this sort as described in U.S. Patent No. 5,953,541 to Martin et al. Martin and similar systems have not met with wide scale adoption due to the highly ambiguous nature of a key input equivalent to three or more letters. The mix-matching of letters and words generated by the system may be enough to force users into temporary dyslexia.

The above difficulties have led to the development of touch screens and pen computing. In such systems letters are written by hand with a stylus onto a digitizing pad. Software converts the resulting bitmap data into text. Such software commonly called gesture recognition software is in an ongoing state of development. This type of system is frequently used in Personal Digital Assistant (PDA) or palm computers. The difficulty is that the recognition software requires substantial memory resources and is prone to error.

Each of the above systems was designed with the Latin alphabet in mind with English as the language in of choice. In the majority of the world, however, English is at best a second language. The problems are multiplied if Arabic or Hebrew is attempted to be inputted with any of these keyboards. When Chinese, Korean, or Japanese is tried the problems become near insurmountable. There is a long-standing need for a truly international twelve key keyboard.

Each of the above twelve key keyboards has the additional problem of having an extremely steep learning curve. Due to their unfamiliar nature and individual differences these keyboards are hard to learn and even harder to improve ones skills at. The many VCR's that still flash 12:00, evidence this problem.

SUMMARY OF THE INVENTION

The Invention provides a method for input of alphanumeric data from a twelve plus character set using a twelve key keyboard with unambiguous mapping. The method is equally usable in languages other than English, which use alphabets other than Latin. The apparatus described is usable with such diverse devices as computers, desk phones, cellular and wireless telephones, label writers, hand-held PDAs, television remote controls, cable set-top receivers, satellite receivers, VCRs, Geo-Positioning Systems (GPS) receivers, keypad terminals, kitchen appliances, information appliances, and games consoles. The method is flexible, easy to learn initially and as a skill.

10 The method resolves the characters in the many languages used into eleven basic strokes. Combinations of these basic strokes are used to reconstruct the characters of the different alphabets. Choice of order and keystroke is based on a logical method similar to that used to hand write the characters. The interface is similar to the handwriting users learned as children. Initial use is highly intuitive. Continued use and experience rapidly 15 increase speed and accuracy. With the application of shorthand like methods even greater speeds are possible as the method and apparatus has the capability of character-level, word-level and even phrase-level recognition.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a front plan view of a first embodiment of the keyboard of the
20 invention.

Figure 2 is a diagram of a first method of scanning.

Figure 3 is a diagram of a second method of scanning.

Figure 4 is a diagram of a third method of scanning.

Figure 5 is a diagram of a fourth method of scanning.

25 Figure 6 is a diagram of the first 35 characters of the Thai characters.

Figure 7 is a diagram of the next 33 characters of the Thai characters.

Figure 8 is a diagram of the 40 characters of the phonetic Chinese characters called Zhuyin or Bopomofo.

Figure 9 is a diagram of the 40 characters of the phonetic Korean characters called Hangul.

Figure 10 is a diagram of the first 42 characters of the phonetic Japanese called Katakana.

5 Figure 11 is a diagram of the next 38 characters of the phonetic Japanese called Katakana.

Figure 12 is a diagram of the first 42 radicals of Chinese, Japanese, Korean, Vietnamese (CJKV) Unified Ideographs.

10 Figure 13 is a diagram of the second 42 radicals of CJKV Unified Ideographs.

Figure 14 is a diagram of the third 42 radicals of CJKV Unified Ideographs.

Figure 15 is a diagram of the fourth 42 radicals of CJKV Unified Ideographs.

15 Figure 16 is a diagram of the fifth 42 radicals of CJKV Unified Ideographs.

Figure 17 is a diagram of the last 4 radicals of CJKV Unified Ideographs and the first 30 CJKV Simplified and Supplemental Ideographs.

20 Figure 18 is a diagram of second 42 CJKV Simplified and Supplemental Ideographs.

Figure 19 is a diagram of third 36 CJKV Simplified and Supplemental Ideographs.

Figure 20 is a diagram of the first 42 characters of the phonetic Japanese called Hiragana.

25 Figure 21 is a diagram of the next 35 characters of the phonetic Japanese called Hiragana.

Figure 22 is a diagram of the first 35 characters of the Arabic Alphabet.

Figure 23 is a diagram of the next 13 characters of the Arabic Alphabet.

Figure 24 is a diagram of 41 characters of the Hebrew Alphabet.

Figure 25 is a diagram of the first 35 characters of the Devanagari Alphabet.

Figure 26 is a diagram of the next 28 characters of the Devanagari Alphabet.

5 Figure 27 is a diagram of a second embodiment of the input device of the invention.

Figure 28 is a diagram of a third embodiment of the input device of the invention.

10 Figure 29 is a functional block diagram of an embodiment of a computer system of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 is a front plan view of a first embodiment of the keyboard of the invention. The keyboard has twelve keys, 1-12 arranged in three columns of four keys. The symbols on keys 1-12 are shown as their symbol appears on a standard 5x7 matrix. In 15 addition to these symbols a keyboard may also need arrow keys 13 (\leftarrow), 14 (\rightarrow), 15 (\uparrow), and 16 (\downarrow) which double as also representing math symbols x, /, -, and + respectively. The arrow keys/math symbols may be moved around for different applications. For example in a game pad the math symbols are absent and arrow keys 13-16 are arranged in the familiar diamond.

20 The first column includes keys 1, 4, 7 and 10. This column groups the keys having the graphical characteristics of facing left handwriting characters. The middle column includes keys 2, 5, 8 and 11. The middle row groups the keys having the graphical characteristics of being horizontal, vertical, a combination downward, and circular elements of handwriting. The last column using keys 3, 6, 9, and 12 groups the keys 25 having the graphical characteristics of facing right hand writing characters. This logical grouping aids the users to recall and navigate through the use of the system until use becomes intuitive.

The first row includes the strokes oblique-left 1, vertical 2 and oblique-right 3. These are the simplest elements of writing consisting of a single, usually

downward stroke. Vertical 2 is a simple vertical line segment(|). Oblique strokes are diagonal and not vertical nor horizontal but, rather like a computer backslash (\) and front slash (/). These strokes are among the simplest strokes common to all handwriting systems.

5 The second row includes down-left 4, horizontal 5, and down-right 6 strokes. Down-left 4 is a downward stroke ending to the left similar to the Latin J. Down-right 6 is a downward stroke ending to the right. Horizontal 5 is somewhat similar to a dash (-) on a keyboard. The down-left and -right strokes in the second row are slightly more complex than those in the first row but are still single strokes common to all
10 handwriting systems.

 The third row includes added complexity as combination strokes. Combination strokes as the name implies include a combination of stroke segments. The strokes in the third row are combo-left 7, a left facing curve (⤒), combo-down 8 (⤓), somewhat similar to an inverted Latin J, and combo-right 9, a right facing curve (⤔).
15 Following the internal logic of the preceding rows they are compound strokes ending to the left, down and to the right, respectively. The combination strokes are also the first strokes described on this keyboard that include a degree of graphical flexibility built into them. This flexibility is indicated by alternate origins of direction. For example combo-left 7 includes an alternative origin 7' indicating that the first stroke can begin either from
20 the left or the right. Similarly combo-down 8 includes an alternative origin 8' which indicates that its first stroke can begin on either side (⤓ or ⤑). Finally, combo-right also includes an alternative origin 9' which indicates it too may start with either a left or right horizontal stroke.

 The fourth row includes the strokes zig 10, circ 11 and the symbol opp-side
25 12. Zig is the only angled stroke segment in this system. Zig 10 short for zigzag, is an acute angled stroke segment similar to the top stroke of a Latin Z. Circ 11 short for circular is a multipurpose stroke-segment. Circ 11 not only depicts circular characters such as the Latin O but also the dots in i and j as well as umlauts and punctuation marks. In addition, because of the alternate starts and stops, Circ 11 also represents semi circular
30 line segments such as upward and downward facing bowls or domes (⤕ or ⤖) and loops.

Such domes, loops, and bowls are commonly found in cursive scripts. Finally, opp-side 12 (short for the function opposite side) is a special key indicating how strokes are ordered and joined and is not a segment key.

A number of function keys are used to operate the keyboard. Arrow keys
5 13, 14, 15, and 16 comprise the first set of function keys. Keys 13, 14, 15, and 16 are arranged in a line in Figure 1 but may be arranged in a diamond as on a game-pad or TV remote control. Intersecting is entered with the left arrow key 13 (\leftarrow) is also the subtraction symbol in the Figure 1 embodiment. The right arrow key 14 (\rightarrow) also the symbol for addition toggles the keyboard to the detached state. The up key 15 (\uparrow) moves
10 the cursor on the screen 20 and functions as a multiplication symbol (x). Finally, the down key 16 (\downarrow) moves the cursor on screen 20 and functions as the division symbol (÷).

The last set of function keys 17, 18 and 19 are shown on the top row in Figure 1. The mode key 17 allows toggling between different states such as numeric, alphabetic, and language. The enter key 18 indicates the end of a character. The end key
15 19 indicates the end of a sequence. In cooperation with all of the keys is a screen which displays alternatives available to the user.

Figures 2-5 are diagrams of the scanning method of the invention used to map characters onto the keyboard of Figure 1. The method is an adaptation of raster scanning as used in computer optical scanners. By a happy coincidence this method is
20 similar to handwriting systems used in many languages. By virtue of this fact the system is more intuitive to an operator than conventional keyboards.

In Figure 2 the first possible method of raster scanning is illustrated. In the Figure 2 method, the method first scans the uppermost line 23 of pixels from the left 21 to the right 22. The second line is then scanned from left 26 to right 27. The process is
25 continued until the end point is reached at the lower right corner 28. As an example, consider the Latin uppercase R. The scan first encounters the curved upper portion (\supset) indicated on the Figure 1 keyboard as key 7. Next the straight left side (|) is hit shown on the Figure 1 keyboard as key 2. Finally, the oblique left stroke (\) finishes the letter indicated by key 1 on the Figure 1 keyboard. The proper key sequence for a top scan R is
30 therefore 7, 2, 1.

In Figure 3 the second possible method of raster scanning is illustrated. In the Figure 3 method, the method first scans the lowest line 33 of pixels from the left 31 to the right 32. The second line is then scanned from left 36 to right 37. The process is continued until the end point is reached at the upper right corner 38. A bottom beginning scan on the Latin R shows the following keystrokes are indicated. The scan first encounters straight left side (|) this is indicated on the Figure 1 keyboard as key 2. Next the oblique left stroke (\) of the letter is scanned as indicated by key 1 on the Figure 1 keyboard. Finally, the curved upper portion (>) is hit shown on the Figure 1 keyboard as key 7. The proper key sequence for a bottom scan R is therefore 2, 1, 7.

In Figure 4 the third possible method of raster scanning is illustrated. In the Figure 4 method, the first scan is the left line 43 of pixels from the top 41 to the bottom 42. The second line is then scanned from top 46 to bottom 47. The process is continued until the end point is reached at the bottom right corner 48. A top beginning scan of the Latin uppercase R indicates the following keystrokes on the Figure 1 keyboard. The scan first encounters the straight left side (|) shown on the Figure 1 keyboard as key 2. Next the curved upper portion (>) indicated on the Figure 1 keyboard as key 7 is hit. Finally, the oblique left stroke (\) finishes the letter indicated by key 1 on the Figure 1 keyboard. The proper key sequence for a left scan R is therefore 2, 7, 1.

In Figure 5 the fourth possible method of raster scanning is illustrated. In the Figure 5 method, the method first scans the right line 53 of pixels from the bottom 51 to the top 52. The second line is then scanned from bottom 56 to top 57. The process is continued until the end point is reached at the top left corner 58. A Latin uppercase R scanned from the right indicates the following keystrokes on the Figure 1 keyboard. The scan first encounters the oblique left stroke (\) indicated on the Figure 1 keyboard as key 1. Next the curved upper stroke (>) is hit shown on the Figure 1 keyboard as key 7. Straight left side (|) finishes the letter R indicated by key 2 on the Figure 1 keyboard. The proper key sequence for a right scan R is therefore 1, 7, 2.

The systems of Figures 2-5 may be easily organized on the basis of opposite sides. Thus the system of Figure 3 is the opposite side of Figure 2 and the system of Figure 4 is the opposite side of Figure 5. Alternatively the systems of Figures 2-5 may

also be organized into groups with common start points and end points such as Figures 2 and 4. The alternate is the systems with opposite start end points such as Figures 3 and 5.

The following charts describe the keystrokes on the Figure 1 keyboard for various alphabets, scripts and characters. The numbers in the chart correspond to Figure 1 reference numbers for keystrokes. In each chart, the column labeled top is for the Figure 2 scanning method. The column labeled left is for the Figure 4 scanning method. The column labeled bottom is for the Figure 3 scanning method. And the column labeled right is for the Figure 5 scanning method.

Table 1 summarizes the Figure 1 keystrokes for uppercase English alphabet.

Table 1: English uppercase alphabet

	Top	Left	Bottom	Right
A	3, 1, 5	3, 5, 1	3, 1, 5	1, 5, 3
B	7, 2, 7	2, 7, 7	7, 2, 7	7, 7, 2
C	9	9	9	9
D	7, 2	2, 7	7, 2	7, 2
E	5, 2, 5, 5	2, 5, 5, 5	5, 2, 5, 5	5, 5, 15, 5, 15, 2
F	5, 2, 5	2, 5, 5	2, 5, 5	5, 5, 15, 2
G	9, 8	9, 8	9, 8	8, 9
H	2, 2, 14, 5	2, 5, 2	2, 2, 14, 5	2, 5, 2
I	2	2	2	2
J	4	4	4	4
K	2, 3, 1	2, 3, 1	2, 1, 14, 3	1, 3, 2
L	2, 5	2, 5	5, 2	5, 2
M	2, 3, 14, 1, 2	2, 1, 3, 2	2, 3, 14, 1, 2	2, 3, 1, 2
N	2, 2, 14, 1	2, 1, 2	2, 2, 14, 1	2, 1, 2
O	11	11	11	11
P	7, 2	2, 7	2, 7	7, 2
Q	11, 1, 13	11, 1, 13	11, 1, 13	1, 11, 13
R	7, 2, 1	2, 7, 1	2, 1, 14, 7	1, 7, 2
S	9, 7	9, 7	7, 9	7, 9
T	5, 2	5, 2	2, 5	5, 2
U	6, 4	6, 4	6, 4	4, 6
V	1, 3	1, 3	1, 3	3, 1
W	1, 1, 14, 3, 3	1, 3, 1, 3	1, 1, 14, 3, 3	3, 1, 3, 1
X	1, 3, 13	1, 3, 13	3, 1, 13	1, 3, 13
Y	1, 3, 2	1, 2, 3	2, 1, 3	3, 2, 1
Z	10, 5	10, 5	5, 10	5, 10

Table 2 summarizes the Figure 1 keystrokes for lowercase English alphabet.

Table 2: English lowercase alphabet

	Top	Left	Bottom	Right
a	8, 9	8, 9	9, 8	8, 9
b	2, 7	2, 7	7, 2	7, 2
c	9	9	9	9
d	2, 9	9, 2	9, 2	2, 9
e	9, 5	9, 5	9, 5	5, 9
f	8, 5, 13	5, 8, 13	8, 5, 16	5, 8, 16
g	9, 4	9, 4	4, 9	4, 9
h	2, 8	2, 8	2, 8	8, 2
i	11, 2, 15	11, 2, 15	2, 11, 15	2, 11, 15
j	11, 4, 15	11, 4, 15	4, 11, 15	4, 11, 15
k	2, 3, 1	2, 3, 1	2, 1, 3	1, 3, 2
l	2	2	2	2
m	2, 8, 14, 8	2, 8, 8	2, 8, 14, 8	8, 8, 2
n	2, 8	2, 8	2, 8	8, 2
o	11	11	11	11
p	7, 2	2, 7	2, 7	7, 2
q	9, 2	9, 2	2, 9	2, 9
r	2, 3	2, 3	2, 3	3, 2
s	9, 7	9, 7	7, 9	7, 9
t	6, 5, 13	5, 6, 13	6, 5, 16	6, 5, 16
u	6, 2	6, 2	6, 2	2, 6
v	1, 3	1, 3	1, 3	3, 1
w	1, 1, 14, 3, 3	1, 3, 1, 3	1, 1, 14, 3, 3	3, 1, 3, 1
x	1, 3, 13	1, 3, 13	3, 1, 16	1, 3, 16
y	1, 3	1, 3	3, 1	3, 1
z	10, 5	10, 5	5, 10	5, 10

Using the same principles as above one can also resolve the keystrokes for European languages. These keystrokes are summarized in Table 3 for uppercase letters and Table 4 for lowercase letters.

Table 3: European uppercase alphabet

	Top	Left	Bottom	Right
A	3, 3, 16, 1, 5	3, 3, 16, 5, 1	3, 1, 5, 3, 15	1, 3, 15, 5, 3
Â	3, 1, 3, 16, 1, 5	3, 3, 16, 5, 1, 1	3, 1, 5, 3, 15, 1	1, 1, 15, 5, 3, 3
	3, 1, 5, 9, 16	3, 9, 16, 5, 1	9, 3, 15, 1, 5	9, 1, 15, 5, 3
Æ	3, 5, 2, 5, 5, 5	3, 5, 2, 5, 5, 5	3, 5, 14, 2, 5, 5, 5	5, 5, 15, 5, 15, 2, 5, 3
À	1, 3, 16, 1, 5	1, 3, 16, 5, 1	3, 1, 5, 1, 15	1, 1, 15, 5, 3
	1, 3, 3, 16, 1, 5	1, 3, 16, 5, 3, 1	3, 1, 5, 1, 15, 3	1, 3, 15, 5, 1, 3
	5, 3, 16, 1, 5	5, 3, 16, 5, 1	3, 1, 5, 5, 15	1, 5, 15, 5, 3
Ã	11, 11, 14, 3, 16, 1, 5	11, 3, 16, 5, 11, 14, 1	3, 1, 5, 11, 15, 11, 14	1, 11, 15, 5, 3, 11, 15
À	11, 3, 16, 1, 5	11, 3, 16, 5, 1	3, 1, 5, 11, 15	1, 11, 15, 5, 1
Ã	11, 11, 3, 16, 1, 5	11, 3, 16, 5, 11, 1	3, 1, 5, 11, 15, 11	1, 11, 15, 5, 3, 11
	3, 9, 16	3, 9, 16,	9, 3, 15	9, 3, 15

Ç	1, 3, 9, 16 9, 7, 16 1, 3, 7, 16, 2 7, 2, 5, 13	1, 9, 16, 3 9, 7, 16, 1, 2, 16, 7, 3 5, 2, 13, 7	9, 1, 15, 3 7, 9, 15 7, 2, 1, 15, 3 7, 2, 5, 16	9, 3, 15, 1 7, 9, 15 7, 3, 15, 1, 2 7, 5, 13, 2, 16
È	3, 5, 16, 2, 5, 5	3, 2, 16, 5, 5, 5	5, 2, 5, 5, 3, 15	5, 3, 15, 5, 15, 5, 15, 2
Ê	3, 1, 5, 16, 2, 5, 5	3, 2, 16, 5, 5, 5, 1	5, 2, 5, 5, 3, 15, 1	5, 1, 15, 5, 15, 5, 15, 1, 2
È	1, 5, 16, 2, 5, 5	1, 2, 16, 5, 5, 5	5, 2, 5, 5, 1, 15	5, 1, 15, 5, 15, 5, 15, 2
	1, 3, 5, 16, 2, 5, 5	1, 2, 16, 5, 5, 5, 3	5, 2, 5, 5, 1, 15, 3	5, 3, 15, 5, 15, 5, 15, 1, 2
	5, 5, 16, 2, 5, 5	5, 2, 16, 5, 5, 5	5, 2, 5, 5, 5, 15	5, 5, 15, 5, 15, 5, 15, 2
	5, 2, 5, 5, 9, 16	2, 9, 16, 5, 5, 5	9, 5, 15, 2, 5, 5	9, 5, 15, 5, 15, 5, 15, 2
Ë	11, 11, 14, 5, 16, 2, 5, 5	11, 2, 16, 5, 5, 5, 14, 11	5, 2, 5, 5, 11, 15, 11	5, 11, 15, 5, 15, 5, 15, 11, 15, 2
	11, 5, 16, 2, 5, 5	11, 2, 16, 5, 5, 5	5, 2, 5, 5, 11, 15	5, 11, 15, 5, 15, 5, 15, 2
	1, 3, 9, 16, 8 9, 8, 7, 16	1, 9, 16, 3, 8 9, 7, 16, 8	9, 8, 1, 15, 3 7, 9, 15, 8	8, 3, 15, 9, 1 7, 8, 15, 9
Í	3, 2, 16	3, 2, 16	2, 3, 15	2, 3, 15
Í	3, 1, 2, 16	3, 2, 16, 1	2, 3, 15, 1	2, 1, 15, 3
	2, 9, 16	2, 9, 16	9, 2, 15	9, 2, 15
Í	1, 2, 16	1, 2, 16	2, 1, 15	2, 1, 15
	5, 2, 16	5, 2, 16	2, 5, 15	2, 5, 15
Í	11, 11, 14, 2, 16	11, 2, 16, 11, 14	2, 11, 15, 11, 14	2, 11, 15, 11, 14
	11, 2, 16	11, 2, 16	2, 11, 15	2, 11, 15
	2, 3, 1, 7, 16	2, 7, 16, 3, 1	7, 2, 15, 1, 14, 3	7, 1, 15, 3, 2
	3, 2, 16, 5	3, 2, 16, 5	5, 2, 3, 15	5, 3, 15, 2
	2, 3, 13, 5	3, 2, 13, 5	5, 2, 3, 16	5, 3, 15, 2, 16
	2, 7, 14, 5	2, 5, 7, 14	5, 2, 7, 15	5, 7, 15, 2
	2, 5, 7, 16	2, 7, 16, 5	7, 5, 15, 2	7, 5, 15, 2
	3, 2, 16, 2, 14, 1	3, 2, 16, 1, 2	2, 2, 14, 1, 3, 15	2, 3, 15, 1, 2
Ñ	11, 11, 2, 16, 2, 14, 1	11, 2, 16, 1, 11, 2	2, 2, 14, 1, 11, 15, 11	2, 11, 15, 1, 11, 2
	3, 3, 14, 11, 16	3, 11, 16, 3, 14	11, 3, 15, 3, 14	11, 3, 15, 3, 14
Ó	3, 11, 16	3, 11, 16	11, 3, 15	11, 3, 15
Ô	3, 1, 11, 16	3, 11, 16, 1	11, 3, 15, 1	11, 1, 15, 3
Ò	1, 11, 16	1, 11, 16	11, 1, 15	11, 1, 15
	5, 11, 16	5, 11, 16	11, 5, 15	11, 5, 15
Ø	11, 3, 13	11, 3, 13	3, 11, 16	11, 3, 16
Œ	11, 5, 14, 2, 5, 5,	11, 2, 5, 5, 5	11, 5, 14, 2, 5, 5	5, 5, 15, 5, 15, 2, 11
Ö	11, 11, 14, 11, 16	11, 11, 16, 11, 14	11, 11, 15, 11, 14	11, 11, 15, 11, 14
Õ	11, 11, 11, 16	11, 11, 16, 11	11, 11, 15, 11	11, 11, 15, 11
	3, 7, 16, 2, 1	3, 2, 16, 7, 1	2, 1, 14, 7, 3, 15	1, 3, 15, 7, 2
	1, 3, 7, 16, 2, 1	1, 2, 16, 7, 3, 1	2, 1, 14, 7, 1, 15, 3	1, 3, 15, 7, 1, 2
	7, 2, 1, 7, 16	2, 7, 16, 7, 1	7, 2, 15, 1, 14, 7	7, 1, 15, 7, 2
	3, 9, 16, 7	3, 9, 16, 7	7, 9, 3, 15	7, 3, 15, 9
Š	1, 3, 9, 16, 7	1, 9, 16, 7, 3	7, 9, 1, 15, 3	7, 3, 15, 9, 1
	9, 7, 7, 16	9, 7, 16, 7	7, 7, 15, 9	7, 7, 15, 9
	1, 3, 5, 16, 2	1, 5, 16, 2, 3	2, 5, 1, 15, 3	5, 3, 15, 2, 1
	5, 2, 7, 16	5, 7, 16, 2	7, 2, 15, 5	7, 5, 15, 2
	3, 3, 14, 6, 16, 4	3, 6, 16, 3, 4, 14	6, 4, 3, 15, 3, 14	4, 3, 15, 6, 3, 15
Ú	3, 6, 16, 4	3, 6, 16, 4	6, 4, 3, 15	4, 3, 15, 6
Û	3, 1, 6, 16, 4	3, 6, 16, 1, 4	6, 4, 3, 15, 1	4, 1, 15, 6, 3

Ù	6, 4, 9, 16 1, 6, 16, 4 5, 6, 16, 4	6, 9, 16, 4 1, 6, 16, 4 5, 6, 16, 4	9, 6, 15, 4 6, 4, 1, 15 6, 4, 5, 15	9, 4, 15, 6 4, 1, 15, 6 4, 5, 15, 6
Ü	11, 11, 14, 6, 16, 4 11, 6, 16, 4	11, 6, 16, 11, 14, 4 11, 6, 16, 4	6, 4, 11, 15, 11, 14 6, 4, 11, 15	4, 11, 15, 6, 11, 15 4, 11, 15, 6
Ý	3, 1, 16, 3, 2	3, 1, 16, 2, 3	2, 1, 3, 3, 15	2, 3, 15, 3, 1
Ŷ	11, 11, 14, 1, 16, 3, 2	11, 1, 16, 2, 11, 14, 3	2, 1, 3, 11, 15, 11, 14	2, 11, 15, 3, 1, 11, 15
	3, 10, 16, 5, 1, 3, 10, 16, 5 11, 10, 16, 5	3, 10, 16, 5 1, 10, 16, 5, 3 11, 10, 16, 5	5, 10, 3, 15 5, 10, 1, 15, 3 5, 10, 11, 15	5, 3, 15, 10 5, 3, 15, 10, 1 5, 11, 15, 10
þ	2, 7	2, 7	2, 7	7, 2
Þ	7, 2, 7	2, 7, 7	2, 7, 14, 7	7, 7, 2

Table 4: European lowercase alphabet

	Top	Left	Bottom	Right
á	3, 8, 16, 9	3, 8, 16, 9	9, 8, 3, 15	8, 3, 15, 9
â	3, 1, 8, 16, 9	3, 8, 16, 9, 1	9, 8, 3, 15, 1	8, 1, 15, 9, 3
à	1, 8, 16, 9 1, 3, 8, 16, 9	1, 8, 16, 9 1, 8, 16, 9, 3	9, 8, 1, 15 9, 8, 1, 15, 3	8, 1, 15, 9 8, 3, 15, 9, 1
	5, 8, 16, 9 8, 9, 9, 16	5, 8, 16, 9 8, 9, 16, 9	9, 8, 5, 15 9, 9, 15, 8	8, 5, 15, 9 9, 8, 15, 9
æ	8, 9, 9, 5	8, 9, 9, 5	9, 9, 14, 8, 5	5, 9, 8, 9
ää	11, 11, 14, 8, 16, 9	11, 8, 16, 9, 11, 14	9, 8, 11, 15, 11, 14	8, 11, 15, 9, 11, 15
å	11, 8, 16, 9	11, 8, 16, 9	9, 8, 11, 15	8, 11, 15, 9
ã	11, 11, 8, 16, 9 3, 9, 16	11, 8, 16, 9, 11 3, 9, 16	9, 8, 11, 15, 11 9, 3, 15	8, 11, 15, 9, 11 9, 3, 15
	1, 3, 9, 16	1, 9, 16, 3	9, 1, 15, 3	9, 3, 15, 1
ç	9, 7, 16 2, 5, 13, 9	9, 7, 16 5, 9, 16, 2, 13	7, 9, 15 9, 2, 5, 16	7, 9, 15 5, 2, 16, 9
	2, 7, 14, 9	9, 2, 7, 14	9, 7, 14, 2	7, 2, 13, 9
é	3, 9, 16, 5	3, 9, 16, 5	9, 5, 3, 15	5, 3, 15, 9
ê	3, 1, 9, 16, 5	3, 9, 16, 5, 1	9, 5, 3, 15, 1	5, 1, 15, 9, 1
è	1, 9, 16, 5 1, 3, 9, 16, 5	1, 9, 16, 5 1, 9, 16, 5, 3	9, 5, 1, 15 9, 5, 1, 15, 3	5, 1, 15, 9 5, 3, 15, 9, 1
	5, 9, 16, 5 9, 5, 9, 16	5, 9, 16, 5 9, 9, 16, 5	9, 5, 5, 15 9, 9, 5, 15	5, 5, 15, 9 9, 5, 15, 9
ë	11, 11, 14, 9, 16, 5 11, 9, 16, 5	11, 9, 16, 5, 11, 14 11, 9, 16, 5	9, 5, 11, 15, 11, 14 9, 5, 11, 15	5, 11, 15, 9, 11, 15 5, 11, 15, 9
	1, 3, 9, 16, 4 9, 9, 16, 4	1, 9, 16, 4, 3 9, 9, 16, 4	4, 9, 1, 15, 3 4, 9, 9, 15	4, 3, 15, 9, 1 4, 9, 15, 9
í	3, 2, 16	3, 2, 16	2, 3, 15	2, 3, 15
î	3, 1, 2, 16 2	3, 2, 16, 1 2	2, 3, 15, 1 2	2, 1, 15, 3 2
	1, 2, 16 5, 2, 16	1, 2, 16 5, 2, 16	2, 1, 15 2, 5, 15	2, 1, 15 2, 5, 15
í	11, 11, 14, 2, 16 11, 2, 16, 7, 16 2, 3, 1, 7, 16 3, 2, 16 2, 3, 13 2, 7, 14 2, 7, 16 3, 2, 16, 8	11, 2, 16, 11, 14 11, 2, 16, 7, 16 2, 7, 16, 3, 1 3, 2, 16 3, 2, 13 2, 7, 14 2, 7, 16 3, 2, 16, 8	2, 11, 15, 11, 14 9, 2, 15, 11, 15 7, 2, 15, 1, 14, 3 2, 3, 15 2, 3, 16 2, 7, 14 7, 2, 15 2, 8, 3, 15	2, 11, 15, 11, 14 9, 2, 15, 11, 15 7, 1, 15, 3, 2 2, 3, 15 3, 2, 16 7, 2, 13 7, 2, 15 8, 3, 15, 2

ñ	11, 11, 2, 16, 8 3, 3, 14, 11, 16	11, 2, 16, 8, 11 3, 11, 16, 3, 14	2, 8, 11, 15, 11 11, 3, 15, 3, 14	8, 11, 15, 11, 2 11, 3, 15, 3, 14
ó	3, 11, 16	3, 11, 16	11, 3, 15	11, 3, 15
ô	3, 1, 11, 16 5, 11, 16	3, 11, 16, 1 5, 11, 16	11, 3, 15, 1 11, 5, 15	11, 1, 15, 3 11, 5, 15
ø	11, 3, 13	11, 3, 13	3, 11, 16	11, 3, 16
ö	11, 11, 14, 11, 16	11, 11, 16, 11, 14	11, 11, 15, 11, 14	11, 11, 15, 11, 14
œ	11, 9, 5	11, 9, 5	11, 9, 5	5, 9, 11
ö	11, 11, 11, 16 3, 2, 16, 3 2, 3, 7 1, 3, 2, 16, 3 3, 9, 16, 7	11, 11, 16, 11 3, 2, 16, 3 2, 7, 16, 3 1, 2, 16, 3, 3 3, 9, 16, 7	11, 11, 15, 11 2, 3, 3, 15 7, 2, 15, 3 2, 3, 1, 15, 3 7, 9, 3, 15	11, 11, 15, 11 3, 3, 15, 2 7, 3, 15, 2 3, 3, 15, 2, 1 7, 3, 15, 9
š	1, 3, 9, 16, 7 9, 7, 7, 16 6, 5, 13, 7 6, 7, 14, 5, 13 3, 3, 14, 6, 16, 2	1, 9, 16, 7, 3 9, 7, 16, 7 5, 7, 16, 6, 13 5, 6, 13, 7, 14 3, 6, 16, 3, 14, 2	7, 9, 1, 15, 3 7, 7, 15, 9 7, 6, 15, 5, 16 6, 7, 15, 5, 16 6, 2, 3, 15, 3, 14	7, 3, 15, 9, 1 7, 7, 15, 9 7, 6, 15, 5, 16 7, 6, 13, 5, 16 2, 3, 15, 6, 3, 15
ú	3, 6, 16, 2	3, 6, 16, 2	6, 2, 3, 15	2, 3, 15, 6
û	3, 1, 6, 16, 2 6, 2, 9, 16	3, 6, 16, 1, 2 6, 9, 16, 2	6, 2, 3, 15, 1 9, 6, 15, 2	2, 1, 15, 6, 3 9, 2, 15, 6
ù	1, 6, 16, 2 5, 6, 16, 2	1, 6, 16, 2 5, 6, 16, 2	6, 2, 1, 15 6, 2, 5, 15	2, 1, 15, 6 2, 5, 15, 6
ü	11, 11, 14, 6, 16, 2 11, 6, 16, 2	11, 6, 16, 11, 14, 2 11, 6, 16, 2	6, 2, 11, 15, 11, 14 6, 2, 11, 15	2, 11, 15, 6, 11, 15 2, 11, 15, 6
ý	3, 1, 16, 3	3, 1, 16, 3	3, 1, 3, 15	3, 3, 15, 1
ÿ	11, 11, 14, 1, 16, 3 3, 10, 16, 5 1, 3, 10, 16, 5 11, 10, 16, 5	11, 1, 16, 3, 11, 14 3, 10, 16, 5 1, 10, 16, 5, 3 11, 10, 16, 5	3, 1, 11, 15, 11, 14 5, 10, 3, 15 5, 10, 1, 15, 3 5, 10, 11, 15	3, 11, 15, 1, 11, 15 5, 3, 15, 10 5, 3, 15, 10, 1 5, 11, 15, 10
þ	2, 7	2, 7	2, 7	7, 2
ð	7, 3, 13, 9	3, 9, 16, 7, 13	7, 9, 3, 16	7, 3, 16, 9

Table 5 resolves the Cyrillic alphabet into the keystrokes for the Figure 1 keyboard.

Table 5: Cyrillic uppercase alphabet

Top	Left	Bottom	Right
3, 1, 5	3, 5, 1	3, 1, 5	1, 5, 3
5, 2, 7	5, 2, 7	7, 2, 5	7, 5, 15, 2
7, 2, 7	2, 7, 7	7, 2, 7	7, 7, 2
5, 2	2, 5	2, 5	5, 2
8, 4, 8, 2	4, 2, 8, 8	2, 8, 4, 8	8, 8, 2, 4
5, 2, 5, 5	2, 5, 5, 5	5, 2, 5, 5	5, 5, 15, 5, 15, 2, 15
11, 11, 14, 5, 16, 2, 5, 5	11, 2, 5, 5, 5, 11, 16, 14	5, 2, 5, 5, 11, 15, 11, 14	5, 11, 15, 5, 15, 5, 15,
1, 2, 3, 3, 1 7, 7	1, 3, 2, 3, 1 7, 7	3, 2, 1, 1, 3 7, 7	1, 3, 2, 3, 1 7, 7
2, 2, 14, 3 1, 3, 2, 16, 2, 14, 3 2, 3, 1 8, 4	2, 3, 2 1, 2, 3, 3, 2, 16 2, 3, 1 4, 8	2, 3, 14, 2 2, 3, 14, 2, 1, 15, 3 2, 1, 14, 3 4, 8	2, 3, 2 2, 3, 15, 3, 1, 2 1, 3, 2 8, 4

2, 3, 14, 1, 2	2, 1, 3, 2	2, 3, 14, 1, 2	2, 3, 1, 2
2, 2, 14, 5	2, 5, 2	2, 2, 14, 5	2, 5, 2
11	11	11	11
8, 2	8, 2	2, 8	8, 2
7, 2	2, 7	2, 7	7, 2
9	9	9	9
5, 2	5, 2	2, 5	5, 2
1, 3	1, 3	3, 1	3, 1
2, 11, 13	11, 2, 13	2, 11, 16	11, 2, 16
1, 3, 13	1, 3, 13	3, 1, 16	1, 3, 16
2, 2, 14, 8	2, 8, 2	8, 2, 2	8, 2, 2
6, 2	6, 2	2, 6	2, 6
2, 2, 14, 2, 14, 5	2, 5, 2, 2	5, 2, 2, 2	5, 2, 2, 2
2, 2, 14, 2, 14, 8	2, 8, 2, 2	8, 2, 2, 2	8, 2, 2, 2
8, 7	8, 7	7, 8	7, 8
2, 2, 14, 7	2, 7, 2, 14	7, 2, 14, 2	2, 7, 13, 2
2, 7	2, 7	7, 2	7, 2
7, 5	7, 5	7, 5	7, 5
2, 11, 14, 5	2, 5, 11	2, 11, 14, 5	11, 5, 2, 13
9, 2, 3	9, 3, 2	3, 2, 14, 9	2, 9, 3
1, 3, 1, 16, 3	1, 1, 3, 3, 16	3, 1, 1, 15, 3	3, 3, 15, 1, 1
8, 4, 7	4, 8, 7	4, 7, 14, 8	7, 8, 4
2, 2, 14, 7, 13	2, 7, 2	2, 7, 14, 2, 16	7, 2, 7, 16
3, 2, 16, 3, 1	3, 2, 3, 1, 16	2, 1, 14, 3, 3, 15	1, 3, 15, 3, 2
5, 2, 7	5, 2, 7	2, 7, 5	7, 5, 15, 2
2, 2, 14, 5, 2, 16	2, 2, 5, 2, 16	2, 2, 15, 5, 2	2, 2, 15, 5, 2
5, 2, 8	5, 2, 8	2, 8, 5	8, 5, 15, 2
3, 5, 16, 2	3, 2, 5, 16	2, 5, 3, 15	5, 3, 15, 2
2, 5, 16, 2	2, 2, 5	2, 5, 2, 15	5, 2, 15, 2
9, 5	9, 5	9, 5	9, 5
4	4	4	4
11, 11, 14, 2, 16	11, 2, 11, 16, 14	2, 11, 15, 11, 14	2, 11, 15, 11, 14
9, 7	9, 7	7, 9	7, 9

Table 6 resolves the lowercase Cyrillic (Slavic) alphabet into the keystrokes for the Figure 1 keyboard.

Table 6: Cyrillic lowercase alphabet

Top	Left	Bottom	Right
8, 9	8, 9	9, 8	8, 9
9, 7	9, 7	9, 7	7, 9
7, 2, 7	2, 7, 7	7, 2, 7	7, 7, 2
5, 2	2, 5	2, 5	5, 2
8, 4, 8, 2	4, 2, 8, 8	2, 8, 4, 8	8, 8, 2, 4
9, 5	9, 5	9, 5	5, 9
11, 11, 14, 9, 16, 5	11, 9, 5, 11, 16, 14	9, 5, 11, 11, 15, 14	5, 11, 9, 11, 15, 15
1, 2, 3, 3, 1	1, 3, 2, 3, 1	3, 2, 1, 1, 3	1, 3, 2, 3, 1
7, 7	7, 7	7, 7	7, 7
2, 2, 14, 3	2, 3, 2	2, 3, 2, 14	2, 3, 2
1, 3, 2, 16, 2, 14, 3	1, 2, 3, 3, 2, 16	2, 3, 2, 1, 3, 14, 15	2, 3, 3, 1, 2, 15
2, 3, 1	2, 3, 1	2, 1, 3, 14	1, 3, 2
8, 4	4, 8	4, 8	8, 4
2, 3, 14, 1, 2	2, 1, 3, 2	2, 3, 1, 2, 14	2, 3, 1, 2

2, 2, 14, 5	2, 5, 2	2, 2, 5, 14	2, 5, 2
11	11	11	11
8, 2	8, 2	2, 8	8, 2
7, 2	2, 7	2, 7	7, 2
9	9	9	9
5, 2	5, 2	2, 5	5, 2
1, 3	1, 3	3, 1	3, 1
2, 9, 7	9, 2, 7	2, 9, 7	7, 2, 9
1, 3, 13	1, 3, 13	3, 1, 16	1, 3, 16
2, 2, 14, 8	2, 8, 2	8, 2, 2	8, 2, 2
6, 2	6, 2	2, 6	2, 6
2, 2, 14, 2, 14, 5	2, 5, 2, 2	5, 2, 2, 2	5, 2, 2, 2
2, 2, 14, 2, 14, 8	2, 8, 2, 2	8, 2, 2, 2	8, 2, 2, 2
8, 7	8, 7	7, 8	7, 8
2, 2, 14, 7	2, 7, 2, 14	7, 2, 2, 14	2, 7, 2, 13
2, 7	2, 7	7, 2	7, 2
7, 5	7, 5	7, 5	7, 5
2, 11, 14, 5	2, 5, 11	2, 11, 5, 14	11, 5, 2, 13
9, 2, 3	9, 3, 2	3, 2, 9, 14	2, 9, 3
1, 3, 1, 16, 3	1, 1, 3, 3, 16	3, 1, 1, 3, 15	3, 3, 1, 1, 15
8, 4, 7	4, 8, 7	4, 7, 8, 14	7, 8, 4
2, 2, 14, 7, 13	2, 7, 2	2, 7, 2, 14, 16	7, 2, 7, 16
3, 2, 16, 3, 1	3, 2, 3, 1, 16	2, 1, 3, 3, 14, 15	1, 3, 3, 2, 15
2, 5, 13, 7	5, 2, 7, 13	2, 7, 5, 16	7, 5, 2, 15, 16
2, 2, 14, 5, 2, 16	2, 2, 5, 2, 16	2, 2, 5, 2, 15	2, 2, 5, 2, 15
2, 5, 13, 8	5, 2, 8, 13	2, 8, 5, 16	8, 5, 2, 15, 16
3, 5, 16, 2	3, 2, 5, 16	2, 5, 3, 15	5, 3, 2, 15
2, 5, 16, 2	2, 2, 5	2, 5, 2, 15	5, 2, 2, 15
9, 5	9, 5	9, 5	9, 5
11, 4, 16	11, 4, 16	4, 11, 15	4, 11, 15
11, 11, 14, 2, 16	11, 2, 11, 16, 14	2, 11, 11, 15, 14	2, 11, 11, 15, 14
9, 7	9, 7	7, 9	7, 9

Table 7 resolves the characters of the uppercase Greek alphabet into the keystrokes appropriate for the Figure 1 keyboard.

Table 7: Greek uppercase alphabet

Top	Left	Bottom	Right
3, 1, 5	3, 5, 1	3, 1, 5	1, 5, 3
7, 2, 7	2, 7, 7	7, 2, 7	7, 7, 2
5, 2	2, 5	2, 5	5, 2
3, 1, 5	3, 5, 1	5, 3, 1	5, 1, 3
5, 2, 5, 5	2, 5, 5, 5	5, 2, 5, 5	5, 5, 15, 5, 15, 2
10, 5	10, 5	5, 10	5, 10
2, 2, 14, 5	2, 5, 2	2, 2, 14, 5	2, 5, 2
11, 5, 16	11, 5, 14	11, 5, 13	11, 5, 13
2	2	2	2
2, 3, 1	2, 3, 1	2, 1, 14, 3	1, 3, 2
3, 1	3, 1	3, 1	1, 3
2, 3, 14, 1, 2	2, 1, 3, 2	2, 3, 14, 1, 2	2, 3, 1, 2
2, 2, 14, 1	2, 1, 2	2, 2, 14, 1	2, 1, 2
5, 5, 16, 5, 16	5, 5, 16, 5, 16	5, 5, 15, 5, 15	5, 5, 15, 5, 15
11	11	11	11

8, 2	2, 8	2, 8	8, 2
7, 2	2, 7	2, 7	7, 2
5, 1, 3, 5	5, 3, 1, 5	5, 3, 1, 5	5, 1, 15, 3, 5
5, 2	5, 2	2, 5	5, 2
1, 3, 2	1, 2, 3	2, 1, 3	3, 2, 1
2, 11, 13	11, 2, 13	2, 11, 16	11, 2, 16
1, 3, 13	1, 3, 13	3, 1, 16	1, 3, 16
6, 2, 13, 4	6, 2, 13, 4	2, 6, 16, 4	4, 2, 16, 6
11, 5, 5	11, 5, 5	5, 5, 14, 11	5, 11, 5
2, 3, 16, 1, 5	2, 3, 16, 5, 1	3, 1, 5, 2, 15	1, 2, 15, 5, 3
2, 5, 16, 2, 5, 5	2, 2, 16, 5, 5, 5	5, 2, 5, 5, 2, 15	5, 2, 15, 5, 15, 5, 15, 2
2, 2, 16, 2, 5	2, 2, 16, 5, 2	2, 2, 14, 5, 2, 15	2, 2, 15, 5, 2
2, 1, 16	2, 1, 16	2, 2, 15	2, 2, 15
2, 11, 16	2, 11, 16	11, 2, 15	11, 2, 15
2, 1, 16, 3, 2	2, 1, 16, 2, 3	2, 1, 3, 2, 15	3, 2, 15, 2, 1
2, 11, 16, 5, 5	2, 11, 16, 5, 5	5, 5, 14, 11, 2, 15	5, 2, 15, 11, 5
11, 11, 14, 2, 16	11, 2, 16, 11, 14	2, 11, 15, 11, 14	2, 11, 15, 11, 14
11, 11, 14, 1, 16, 3, 2	11, 1, 16, 2, 11, 14, 3	2, 1, 3, 11, 15, 11, 14	2, 11, 15, 3, 1, 11, 15

Table 8 resolves the characters of the lowercase Greek alphabet into the keystrokes appropriate for the Figure 1 keyboard.

Table 8: Greek lowercase alphabet

Top	Left	Bottom	Right
9, 2	9, 2	9, 2	2, 9
7, 2, 7	2, 7, 7	2, 7, 14, 7	7, 7, 2
1, 3, 2	1, 2, 3	2, 1, 3	3, 2, 1
9, 11	9, 11	11, 9	11, 9
9, 9	9, 9	9, 9	9, 9
9, 7	9, 7	7, 9	7, 9
2, 8	2, 8	2, 8	8, 2
11, 5	11, 5	11, 5	11, 5
2	2	2, 2	2
2, 3, 1	2, 3, 1	2, 1, 14, 3	1, 3, 2
1, 3	1, 3	3, 1	1, 3
2, 2, 11	2, 11, 2	2, 2, 14, 11	2, 11, 2
1, 3	1, 3	1, 3	3, 1
9, 9, 7	9, 9, 7	7, 9, 9	7, 9, 9
11	11	11	11
5, 2, 2	5, 2, 2	2, 2, 14, 5	5, 2, 2
7, 2	2, 7	2, 7	7, 2
9, 7	9, 7	11, 5	7, 9
9, 7	9, 7	7, 9	7, 9
5, 2	5, 2	2, 5	5, 2
6, 4	6, 4	6, 4	4, 6
9, 7, 2, 13	9, 2, 13, 7	2, 7, 16, 9	7, 2, 16, 9
1, 3, 13	1, 3, 13	3, 1, 16	1, 3, 16
6, 2, 13, 4	6, 2, 13, 4	2, 6, 16, 4	4, 2, 16, 6
9, 2, 7	9, 2, 7	9, 7, 2	7, 2, 9
2, 8, 16, 9	2, 8, 16, 9	9, 2, 2, 15	2, 2, 15, 9
2, 9, 16, 9	2, 9, 16, 9	9, 9, 2, 15	9, 2, 15, 9
2, 2, 16, 8	2, 2, 16, 8	2, 8, 2, 15	8, 2, 15, 2
2, 2, 16	2, 2, 16	2, 2, 15	2, 2, 15

2, 11, 16	2, 11, 16	11, 2, 15	11, 2, 15
2, 6, 16, 4	2, 6, 16, 4	4, 6, 2, 15	4, 2, 15, 6
2, 9, 16, 2, 7	2, 9, 16, 2, 7	9, 7, 2, 2, 15	7, 2, 15, 2, 9
11, 2, 14, 11, 14, 2, 16	11, 2, 16, 2, 14, 11, 14	2, 11, 15, 2, 14, 11, 14	2, 11, 15, 2, 13, 11, 13
11, 2, 14, 11, 14, 6, 16, 4	11, 6, 16, 2, 14, 11, 14, 4	6, 4, 11, 15, 2, 14, 11, 14	4, 11, 15, 2, 13, 6, 11, 15
11, 11, 14, 2, 16	11, 2, 16, 11, 14	2, 11, 15, 11, 14	2, 11, 15, 11, 14
11, 11, 14, 6, 16, 4	11, 6, 16, 11, 14, 4	6, 4, 11, 15, 11, 14	4, 11, 15, 6, 11, 15

Figure 6 is a diagram of the first 35 characters of the Thai Alphabet. The resolving of these characters is summarized in the following Table 9. In Table 9 the first numeral is the reference number from Figure 6 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

(a) Table 9: *Thai characters*

No.	Top	Right
2.	Left	Bottom
101	8, 1, 2 1, 8, 2	8, 1, 2 2, 8, 1, 14
102	9, 4, 14, 7, 7, 2 9, 4, 16, 7, 7, 2	4, 7, 13, 2, 7, 9 4, 2, 7, 9, 7
103	9, 4, 14, 7, 14, 2, 7, 2 9, 4, 16, 7, 2, 7, 2	4, 7, 13, 2, 2, 7, 13, 9 4, 2, 7, 9, 7, 2, 13
104	9, 8, 7, 3 9, 3, 7, 8	8, 7, 13, 3, 9 9, 8, 3, 7
105	9, 8, 14, 2, 14, 7, 3 9, 3, 7, 2, 8	8, 2, 7, 13, 3, 9 9, 8, 3, 7, 2, 14
106	9, 4, 14, 7, 14, 2, 7, 13, 9 9, 9, 16, 7, 2, 7, 13, 4	4, 7, 13, 9, 16, 2, 7, 9 9, 4, 7, 9, 7, 2, 14, 16, 13
107	9, 4 9, 4	4, 9 4, 9
108	8, 9, 7 8, 9, 7	8, 9, 7 8, 9, 7
109	8, 9, 16, 6, 7, 13 8, 9, 16, 6, 7, 13	7, 8, 16, 6, 9 6, 8, 7, 9, 14, 16
110	3, 9, 14, 7, 7, 7, 2 9, 7, 16, 7, 7, 2, 3	7, 3, 2, 7, 7, 13, 9 7, 2, 7, 9, 7, 3
111	3, 9, 14, 7, 14, 2, 7, 7, 2 9, 7, 16, 7, 2, 7, 2, 3	7, 3, 2, 7, 2, 7, 13, 9 7, 2, 7, 9, 7, 3, 2, 13
112	7, 4, 14, 1, 6, 7, 9, 13	4, 7, 13, 9, 16, 7, 6, 1

	1, 6, 16, 7, 7, 9, 4, 13	6, 7, 4, 7, 9, 1, 14, 14, 16
113	8, 4, 14, 1, 6, 7, 9, 16, 4, 7	4, 4, 15, 9, 7, 13, 8, 7, 6, 1
	1, 9, 16, 6, 8, 7, 4, 7, 4	9, 4, 7, 6, 8, 7, 4, 1, 15, 14
114	7, 1, 4, 9, 3, 9, 13	7, 3, 13, 9, 16, 4, 1, 9
	1, 9, 16, 9, 16, 4, 3, 7, 13	9, 7, 3, 9, 4, 1, 16
115	7, 1, 4, 9, 3, 9, 13, 6	7, 6, 3, 16, 9, 1, 4, 9
	1, 9, 16, 9, 16, 4, 3, 7, 13, 6	9, 6, 3, 7, 9, 4, 1, 16, 15
116	11, 4, 8, 9, 7, 9, 16, 7, 9, 3, 13 9, 7	7, 8, 15, 4, 15, 9, 6, 3, 16, 9
	11, 9, 16, 9, 16, 7, 8, 4, 3, 13, 6, 7	9, 6, 3, 7, 9, 8, 9, 7, 11, 16, 15
117	9, 8, 14, 7, 14, 2, 7, 6	8, 6, 7, 2, 7, 13, 9
	9, 7, 2, 7, 6, 8	6, 8, 9, 7, 7, 2, 13, 14
118	9, 4, 14, 7, 14, 2, 9, 3, 9, 13	4, 7, 13, 9, 16, 2, 3, 13, 9, 9
	9, 3, 9, 2, 7, 9, 13, 4	9, 9, 4, 3, 7, 9, 2, 14, 14, 16
119	8, 6, 14, 1, 6, 7, 7, 13	7, 6, 16, 8, 7, 6, 1
	1, 6, 16, 7, 8, 7, 6, 13	6, 8, 6, 7, 7, 1, 14, 14, 16
120	9, 8, 9, 16, 3	8, 3, 13, 9, 9
	9, 3, 9, 8	9, 8, 3, 9
121	9, 8, 14, 2, 14, 9, 3	8, 2, 3, 13, 9, 9
	9, 3, 9, 2, 8	9, 8, 3, 9, 2, 14
122	8, 1, 6, 7	8, 7, 6, 1
	1, 8, 6, 7	6, 8, 7, 1, 14
123	9, 8, 14, 6	8, 6, 9
	9, 6, 8	6, 8, 9
124	11, 4, 7, 2	7, 4, 15, 2, 11
	11, 7, 2, 4	7, 2, 11, 4
125	9, 6, 14, 6, 7, 13	7, 6, 16, 6, 9
	9, 6, 6, 7, 13	6, 6, 7, 9, 14, 16
126	9, 4, 14, 2	4, 2, 9
	9, 4, 16, 2	4, 2, 9
127	4, 9, 14, 2	4, 2, 9
	9, 4, 16, 2	4, 2, 9
128	9, 4, 14, 7	4, 9, 7
	9, 7, 4	9, 4, 7
129	4, 9, 14, 7	4, 9, 7
	9, 7, 4	9, 4, 7
130	9, 4, 14, 6	4, 6, 9
	9, 6, 4	6, 4, 9
131	4, 9, 14, 6	4, 6, 9
	9, 6, 4	6, 4, 9
132	8, 1, 4, 9	8, 1, 4, 9
	1, 9, 16, 8, 4	9, 8, 4, 1, 14
133	9, 4, 14, 7, 13, 9	4, 7, 13, 9, 16, 9
	9, 9, 16, 7, 13, 4	9, 4, 7, 9, 14
134	9, 4, 14, 7, 9	4, 9, 13, 7, 9
	9, 9, 7, 4	9, 4, 9, 7
135	11, 4, 7, 9	7, 4, 15, 9, 11
	11, 9, 16, 7, 4	9, 7, 11, 4

Figure 7 is a diagram of the last 33 characters of the Thai alphabet. The resolving of these characters is summarized in the following Table 10. In Table 10 the first numeral is the reference number from Figure 7 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column

first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

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Table 10: Thai characters

No.	Top	Right
3.	Left	Bottom
136	8, 1, 6, 7 1, 8, 6, 7	8, 7, 13, 6, 1 8, 6, 7, 1, 13
137	8, 9, 7 8, 9, 7	8, 9, 7 9, 8, 7
138	8, 1, 4, 9 1, 9, 16, 8, 4	8, 1, 4, 7 8, 9, 4, 1, 13
139	7, 9 7, 9	7, 9 9, 7
140	3, 9, 13, 8, 7, 3, 16 9, 3, 7, 8, 3, 13	3, 8, 16, 7, 13, 3, 9 9, 8, 3, 7, 3, 16
141	9, 4, 14, 2, 9, 4, 13, 7 9, 4, 16, 2, 9, 14, 7, 13, 3	4, 4, 16, 7, 9, 2, 9 4, 2, 9, 4, 7, 9, 15, 16
142	3, 8, 13, 9, 16, 7 8, 9, 7, 3, 13	3, 8, 16, 9, 7 9, 8, 7, 3, 16
143	9, 9, 14, 6, 7, 13, 8 9, 6, 9, 7, 8, 13	8, 7, 15, 9, 16, 6, 9 6, 8, 9, 9, 7, 14, 16
144	3, 9, 7, 13, 9, 6 9, 6, 9, 14, 4, 3, 13	3, 7, 16, 9, 6, 9 6, 7, 9, 9, 3, 16
145	7, 9, 7 7, 9, 7	7, 9, 7 9, 7, 7
146	3, 9, 7, 13, 9, 7 9, 9, 16, 7, 7, 3, 13	7, 3, 16, 9, 9, 7 9, 7, 7, 9, 3, 16
147	9, 4, 7, 2 9, 7, 4, 2	2, 4, 7, 9 2, 9, 4, 7, 13
148	9, 4, 7, 9, 16, 4, 7 9, 9, 16, 7, 7, 4, 4	4, 4, 15, 7, 7, 9, 9 9, 4, 7, 9, 4, 7, 15
149	9, 4, 7 9, 7, 4	4, 9, 7 9, 4, 7
150	8 8	8 8
151	11, 8, 16 11, 8, 16	8, 11, 15 8, 11, 16
152	11, 1 1, 11	1, 11 1, 11
153	2, 11, 1 1, 11, 2	1, 11, 2 1, 11, 2
154	11, 11, 1 1, 11, 11	1, 11, 11 1, 11, 11
155	2, 2, 14, 11, 1 1, 11, 2, 2	1, 11, 2, 2 1, 11, 2, 2

156	9, 2 9, 2	2, 9 2, 9
157	9, 4, 14, 6 9, 6, 4	4, 6, 9 6, 4, 9
158	11 11	11 11
159	6, 7 6, 7	7, 6 6, 7
160	6, 6, 14, 7, 7 6, 7, 6, 14, 7	7, 6, 7, 13, 6 6, 6, 7, 7, 14
161	11, 4, 8, 7 11, 8, 4, 7	7, 4, 15, 8, 11 8, 7, 11, 4
162	9, 6, 7, 7 9, 7, 6, 7	7, 6, 9, 7 6, 7, 9, 7
163	1, 8, 14, 7 1, 8, 7	7, 8, 1 8, 7, 1
164	3, 9, 14, 7, 13 9, 3, 14, 7, 13	7, 3, 16, 9 9, 7, 3, 16
165	2 2	2 2
166	9, 4, 7, 13 7, 9, 13, 4	4, 9, 7, 16 7, 4, 9, 14, 16
167	9, 4, 14, 7, 14, 2, 7 9, 7, 2, 7, 4	4, 7, 2, 7, 13, 9 9, 7, 7, 4, 2, 14
168	2, 5, 13 5, 2, 13	5, 2, 16 2, 5, 16

Figure 8 is a diagram of the second 40 characters of the phonetic Chinese characters called Zhuyin or Bopomofo. The resolving of these characters is summarized in the following Table 11. In Table 11 the first numeral is the reference number from Figure 8 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 11: Chinese Zhuyin characters (Bopomofo)

No.	Top	Right	
		Left	Bottom
4.			
201	3, 7 3, 7		7, 3 7, 3
202	3, 10, 1, 13 3, 1, 16, 10, 13		1, 10, 16, 3 10, 1, 16, 3
203	8, 2 2, 8		8, 2 2, 8

204	5, 6 6, 5	6, 5 6, 5
205	3, 7, 4 3, 4, 16, 7	7, 4, 3 4, 7, 3
206	3, 5, 13, 1, 16, 3 5, 3, 16, 3, 13, 1	1, 5, 15, 3, 3, 16 3, 1, 3, 5, 16
207	10, 7 10, 7	7, 10 7, 10
208	3, 4, 14, 7, 13 3, 4, 16, 7	7, 4, 16, 3 4, 7, 16, 3
209	3, 3, 14, 1, 1 3, 1, 3, 14, 1	3, 1, 3, 13, 1 1, 1, 14, 3, 3
210	5, 3, 7 5, 3, 7	7, 5, 15, 3 7, 3, 5
211	5, 4 4, 5	5, 4 4, 5
212	2, 2, 14, 3 3, 2, 2	2, 3, 2 2, 3, 2
213	3, 1 3, 1	3, 1 1, 3
214	5, 2 5, 2	5, 2 2, 5
215	2, 2, 14, 2, 14, 5, 13, 5 2, 5, 16, 5, 2, 13, 2	5, 2, 15, 5, 2, 16, 2 5, 2, 2, 15, 5, 16, 2
216	3, 3, 16, 2 3, 3, 16, 2	3, 3, 15, 2 2, 3, 3, 15
217	8, 5, 4 8, 4, 16, 5	8, 5, 4 4, 5, 8
218	8, 2, 1, 16, 5 2, 8, 5, 1, 14	8, 5, 1, 13, 2 2, 5, 8, 1, 15
219	7, 2 7, 2	7, 2 2, 7
220	3, 5, 13, 10 5, 3, 13, 10	10, 5, 15, 3, 16 10, 3, 5, 16
221	3, 1, 16, 3 3, 3, 1	1, 3, 3 3, 1, 3
222	1, 3, 2 1, 2, 6	3, 2, 1 2, 1, 3
223	5, 2, 9 5, 9, 16, 2	9, 5, 15, 2 9, 2, 5
224	2, 5, 13, 9 5, 9, 16, 2, 13	9, 5, 15, 2, 16 9, 2, 5, 16
225	6, 2, 14, 5, 13 5, 6, 13, 2, 13	6, 5, 16, 2, 16 6, 2, 15, 5, 16
226	5, 4, 3, 16, 10, 13 5, 3, 16, 4, 10, 13	10, 5, 15, 4, 16, 3 4, 10, 16, 3, 5
227	9 9	9 9
228	3, 3, 16, 3, 1, 16, 3 3, 3, 16, 3, 3, 1	1, 3, 3, 3, 3 3, 1, 3, 3, 3
229	10, 1, 13 10, 1, 13	1, 10, 16 10, 1, 16
230	10, 3, 16, 10 10, 3, 16, 10	10, 10, 3 10, 3, 10
231	3, 10 3, 10	10, 3 10, 3
232	4, 5, 13, 6, 16	6, 5, 15, 4, 16

	5, 4, 13, 6, 14	4, 6, 14, 5, 16
233	3, 5	5, 3
	3, 5	5, 3
234	4, 6, 14	6, 4, 13
	4, 6, 14	4, 6
235	5	5
	5	5
236	1, 3, 13	1, 3, 16
	1, 3, 13	3, 1, 16
237	2, 2, 14, 5	2, 5, 2
	2, 5, 2	2, 5, 2
238	5, 4, 7	7, 5, 15, 4
	5, 4, 7	4, 7, 5
239	5, 4, 6	6, 5, 4
	5, 4, 6	4, 6, 14, 5
240	2, 5, 4	5, 2, 4
	4, 5, 2	4, 5, 2

Figure 9 is a diagram of the 40 characters of the phonetic Korean called Hangul characters. The resolving of these characters is summarized in the following Table 12. In Table 12 the first numeral is the reference number from Figure 9 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 5. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 12: Korean Hangul characters

No.	Top		Right
	5.	Left	Bottom
301	8		8
	8		8
302	6		6
	6		6
303	5, 6		6, 5
	6, 5		6, 5
304	8, 5, 6		6, 8, 15, 5
	8, 6, 16, 5		6, 5, 8
305	8, 2, 5		8, 5, 2
	2, 8, 5		2, 5, 8
306	2, 2, 14, 5, 5		2, 5, 5, 2
	2, 5, 5, 2		2, 5, 2, 5
307	3, 1		1, 3
	3, 1		3, 1
308	2, 11		11, 2

	11, 2	11, 2
309	5, 3, 1	1, 5, 15, 3
	5, 3, 1	3, 1, 5
310	5, 5, 16, 3, 1	1, 5, 15, 5, 15, 3
	5, 5, 16, 3, 1	3, 1, 5, 5, 15
311	10, 5	10, 5
	10, 5	10, 5
312	5, 6, 5	6, 5, 5
	6, 5, 5	6, 5, 5
313	5, 1, 16, 3, 14, 5	5, 5, 15, 3, 13, 1
	5, 5, 16, 1, 14, 3	5, 1, 15, 3, 5, 15
314	5, 5, 16, 2, 16, 11	11, 5, 15, 5, 15, 2
	5, 5, 16, 2, 16, 11	11, 2, 5, 15, 5
315	8, 8, 14	8, 8, 13
	8, 8, 14	8, 8, 14
316	5, 5, 14, 6, 6	6, 5, 6, 13, 5
	6, 5, 6, 14, 5	6, 6, 14, 5, 5
317	2, 2, 14, 2, 14, 2, 14, 5, 5, 5, 5	2, 5, 5, 2, 2, 13, 5, 5, 2
	2, 5, 5, 2, 2, 14, 5, 5, 2	2, 2, 14, 5, 5, 2, 2, 5, 5
318	3, 3, 14, 1, 1	1, 3, 1, 13, 3
	3, 1, 3, 14, 1	3, 3, 14, 1, 1
319	5, 5, 14, 3, 3, 1, 1	1, 5, 15, 3, 1, 13, 5, 15, 3
	5, 3, 1, 5, 14, 3, 1	3, 3, 14, 1, 1, 5, 5
320	2, 5	5, 2
	2, 5	2, 5
321	2, 5, 5	5, 5, 15, 2
	2, 5, 5	2, 5, 5
322	2, 5	5, 2
	5, 2	2, 5
323	2, 5, 5	2, 5, 5
	5, 5, 16, 2	2, 5, 5
324	2, 5	5, 2
	5, 2	5, 2
325	2, 2, 14, 5	5, 2, 2
	5, 2, 2	5, 2, 2
326	5, 2	5, 2
	5, 2	2, 5
327	5, 2, 2	5, 2, 2
	5, 2, 2	2, 2, 14, 5
328	5	5
	5	5
329	2	2
	2	2
330	2, 2, 14, 5	2, 5, 2
	2, 5, 2	2, 2, 14, 5
331	2, 2, 14, 5, 5	2, 5, 5, 2
	2, 5, 5, 2	2, 2, 14, 5, 5
332	2, 2, 14, 5	2, 2, 13, 5
	5, 2, 2, 14	2, 2, 14, 5
333	2, 2, 14, 5, 5	2, 2, 13, 5, 5
	5, 5, 16, 2, 2, 14	2, 2, 14, 5, 5
334	2, 2, 14, 3, 5	5, 2, 3, 2
	3, 2, 2, 5	2, 3, 2, 5
335	2, 2, 14, 2, 14, 3, 5	2, 5, 2, 3, 2
	3, 2, 2, 5, 2	2, 2, 14, 3, 2, 5
336	2, 2, 14, 3	2, 3, 2
	3, 2, 2	2, 3, 2

337	2, 3, 14, 2, 5 3, 2, 5, 14, 2	2, 5, 3, 13, 2 2, 2, 14, 5, 3
338	2, 3, 14, 2, 14, 2, 5 3, 2, 5, 14, 2, 2, 14	2, 2, 13, 3, 6, 13, 2 2, 2, 14, 2, 14, 5, 3
339	2, 3, 2 3, 2, 2	2, 3, 2 2, 2, 14, 3
340	2, 3 3, 2	2, 3 2, 3

Figure 10 is a diagram of the first 42 characters of the phonetic Japanese called Katakana. The resolving of these characters is summarized in the following Table 13. In Table 13 the first numeral is the reference number from Figure 10 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 5. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 13: Japanese Katakana characters

No.	Top		Right
	6.	Left	Bottom
401	10, 4 10, 4		10, 4 4, 10
402	3, 2 3, 2		3, 2 2, 3
403	2, 10, 2 2, 10, 2		10, 2, 2 10, 2, 2
404	5, 2, 5 5, 5, 16, 2		5, 5, 15, 2 5, 2, 5
405	4, 5, 13, 3 5, 3, 4, 13		5, 4, 16, 3 3, 4, 5, 13
406	4, 7, 13 7, 4, 13		7, 4, 16 4, 7, 13
407	4, 1, 14, 1, 14, 7, 13 7, 4, 13, 1, 14, 1, 14		7, 1, 15, 1, 13, 4, 16 4, 7, 13, 1, 15, 1, 14
408	1, 5, 13, 5, 13 5, 5, 16, 1, 13		5, 5, 16, 1, 16 1, 5, 13, 5, 13
409	1, 1, 14, 1, 14, 5, 13, 5, 13 5, 5, 16, 1, 13, 1, 14, 1, 14		5, 1, 15, 5, 15, 1, 13, 1, 16 1, 5, 13, 5, 13, 1, 15, 1, 14
410	3, 10 3, 10		10, 3 10, 3
411	3, 1, 14, 1, 14, 10 1, 10, 1, 14, 1, 14		10, 1, 15, 1, 13, 3 10, 3, 1, 15, 1, 14
412	3, 5, 3 3, 3, 16, 5		5, 3, 3 3, 3, 15, 5

413	3, 1, 14, 1, 14, 5, 3 1, 1, 16, 5, 1, 14, 1, 14	5, 1, 15, 1, 13, 3, 3 3, 3, 15, 5, 1, 15, 1, 14
414	8, 5 8, 5	8, 5 5, 8
415	8, 1, 14, 1, 14, 5 8, 5, 1, 14, 1, 14	8, 1, 15, 1, 13, 5 5, 8, 1, 15, 1, 14
416	2, 4, 14, 5, 13 5, 2, 13, 4, 13	5, 4, 16, 2, 16 4, 2, 15, 5, 16
417	2, 1, 14, 4, 14, 1, 14, 5, 13 5, 2, 13, 4, 13, 1, 14, 1, 14	5, 1, 15, 1, 13, 4, 16, 2, 16 4, 2, 15, 5, 16, 1, 15, 1, 14
418	1, 1, 16, 3, 16 1, 1, 16, 3, 16	3, 1, 13, 1, 15 3, 1, 15, 1, 15
419	1, 1, 14, 1, 14, 1, 16, 3, 16 1, 1, 16, 3, 16, 1, 14, 1, 14	3, 1, 15, 1, 13, 1, 13, 1, 15 3, 1, 15, 1, 15, 1, 14, 1, 14
420	10, 1 10, 1	1, 10 10, 1
421	10, 1, 14, 1, 14, 1 10, 1, 1, 14, 1, 14	1, 1, 15, 1, 13, 10 10, 1, 1, 15, 1, 14
422	6, 10, 13 10, 6, 13	6, 10, 16 6, 10, 13
423	6, 1, 14, 1, 14, 10, 13 10, 6, 13, 1, 14, 1, 14	6, 1, 15, 10, 16, 1, 13 6, 10, 13, 1, 15, 1, 14
424	1, 3, 14 1, 3, 16	3, 1, 13 3, 1, 15
425	1, 1, 14, 3, 16, 1, 14 1, 3, 16, 1, 14, 1, 14	3, 1, 15, 1, 13, 1, 13 3, 1, 15, 1, 14, 1, 14
426	3, 10, 1 3, 10, 1	10, 1, 3 10, 1, 3
427	3, 1, 14, 1, 14, 10, 1 1, 10, 1, 1, 14, 1, 14	10, 1, 15, 1, 13, 1, 3 10, 1, 3, 1, 15, 1, 14
428	3, 4, 5, 13 3, 5, 16, 4, 13	5, 3, 15, 4, 16 4, 5, 16, 1
429	3, 1, 14, 1, 14, 4, 5, 13 1, 5, 16, 6, 13, 1, 14, 1, 14	5, 1, 15, 1, 13, 3, 13, 4, 16 4, 5, 13, 3, 1, 15, 1, 14
430	1, 1, 14, 3, 14 1, 3, 16, 1, 14	3, 1, 13, 1, 13 3, 1, 15, 1, 14
441	1, 1, 14, 1, 14, 1, 14, 3, 16 1, 3, 16, 1, 14, 1, 14, 1, 14	3, 1, 15, 1, 13, 1, 13, 1, 13 3, 1, 15, 1, 14, 1, 14, 1, 14
432	5, 5, 16, 3 5, 5, 16, 3	5, 5, 15, 3 3, 5, 5, 15
433	5, 1, 14, 1, 14, 5, 16, 3 5, 5, 16, 3, 1, 14, 1, 14	5, 1, 15, 1, 13, 5, 13, 3 3, 5, 5, 15, 1, 15, 1, 14
434	2, 1 2, 1	1, 2 2, 1
435	2, 1, 14, 1, 14, 1 2, 1, 1, 14, 1, 14	1, 1, 15, 1, 13, 2 2, 1, 1, 15, 1, 14
436	4, 5, 13 5, 4, 13	5, 4, 16 4, 5, 13
437	5, 5, 16 5, 5, 16	5, 5, 15 5, 5, 15
438	10, 1, 13 10, 1, 13	1, 10, 16 10, 1, 13
439	1, 10, 16, 2, 1, 14 1, 10, 16, 2, 1, 14	1, 1, 15, 10, 2 2, 10, 1, 14, 1, 15
440	3 3	3 3
441	3, 1, 14	1, 3, 13

	3, 1, 14	3, 1, 14
442	3, 1, 14, 1, 14, 1, 15	1, 1, 15, 1, 13, 3, 13
	3, 1, 14, 1, 14, 1, 14	3, 1, 14, 1, 15, 1, 14

Figure 11 is a diagram of the last 38 characters of the phonetic Japanese called Katakana. The resolving of these characters is summarized in the following Table 14. In Table 14 the first numeral is the reference number from Figure 11 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 14: Japanese Katakana characters

No.	Top		Right
	7.	Left	Bottom
443	3, 11, 14, 1, 15 3, 1, 14, 11, 14		1, 11, 15, 3, 13 3, 1, 14, 11, 15
444	6, 3 6, 3		6, 3 6, 3
445	6, 1, 14, 1, 14, 3 6, 3, 1, 14, 1, 14		6, 1, 15, 3, 1, 13 6, 3, 1, 15, 1, 14
446	6, 11, 14, 3 6, 3, 11, 14		6, 11, 15, 3 6, 3, 11, 15
447	10 10		10 10
448	10, 1, 14, 1, 14 10, 1, 14, 1, 14		10, 1, 15, 1, 13 10, 1, 15, 1, 14
449	10, 11, 14 10, 11, 14		10, 11, 15 10, 11, 15
450	3, 1 3, 1		1, 3 3, 1
451	3, 1, 14, 1, 14, 1 3, 1, 1, 14, 1, 14		1, 1, 15, 1, 13, 3 3, 1, 1, 15, 1, 14
452	3, 11, 14, 1 3, 1, 11, 14		1, 11, 15, 3 3, 1, 11, 15
453	4, 5, 13, 3, 16, 1, 14 5, 3, 16, 4, 13, 1, 14		1, 5, 15, 4, 16, 3, 13 3, 4, 14, 1, 14, 5, 13
454	4, 1, 14, 1, 14, 5, 13, 3, 16, 1, 14 13 5, 3, 16, 4, 13, 1, 14, 1, 16, 1, 14		1, 5, 15, 1, 15, 1, 13, 4, 16, 3, 3, 4, 14, 1, 14, 5, 13, 1, 15, 1,
14			
455	4, 11, 14, 5, 13, 3, 16, 1, 14 5, 3, 16, 4, 13, 11, 14, 1, 16		1, 5, 15, 11, 15, 4, 13, 3, 13 3, 4, 14, 1, 14, 5, 13, 11, 15
456	10, 1		1, 10

	10, 1	1, 10
457	1, 1, 16, 1, 16	1, 1, 15, 1, 15
	1, 1, 16, 1, 16	1, 1, 15, 1, 15
458	3, 1, 16, 3	1, 3, 3
	3, 3, 1	3, 1, 3
459	3, 1, 13	1, 3, 16
	1, 3, 13	3, 1, 16
460	5, 6, 5, 13	6, 5, 16, 5
	5, 5, 16, 6, 13	6, 5, 13, 5
461	1, 10, 13	10, 1, 16
	10, 1, 13	1, 10, 13
462	8, 5	5, 8
	8, 5	5, 8
463	8, 5, 5	8, 5, 5
	8, 5, 5	5, 8, 5
464	5, 10, 16	10, 5, 15
	5, 10, 16	10, 5, 15
465	2, 4, 14	4, 2, 13
	2, 4, 14	2, 4, 14
466	3, 6, 14	6, 3, 13
	3, 6, 14	3, 6, 14
467	6	6
	6	6
468	8, 2, 5	8, 5, 2
	2, 8, 5	2, 5, 8
469	10, 2	10, 2
	2, 10	10, 2
470	2, 5, 13, 2, 5, 13	5, 5, 15, 2, 16, 2
	5, 5, 16, 2, 2, 13	2, 5, 13, 2, 5, 13
471	10, 2, 5	5, 10, 15, 2
	10, 5, 16, 2	5, 2, 10
472	10, 5	10, 5
	10, 5	10, 5
473	1, 3, 16	3, 1, 13
	1, 3, 16	3, 1, 15
474	2, 1, 14, 1, 14, 10, 2	10, 1, 15, 1, 13, 2, 2
	2, 10, 2, 1, 14, 1, 14	10, 2, 2, 1, 15, 1, 14
475	10, 1, 14, 1, 14, 2	10, 1, 15, 1, 13, 2
	2, 10, 1, 14, 1, 14	10, 2, 1, 15, 1, 14
476	2, 1, 14, 1, 14, 5, 13, 2, 5, 13	5, 1, 15, 1, 13, 5, 16, 2, 2
	5, 5, 16, 2, 2, 13, 1, 14, 1, 14	2, 5, 13, 2, 5, 13, 1, 15, 1, 14
477	10, 1, 14, 1, 14, 2, 5	5, 1, 15, 10, 15, 1, 13, 2
	10, 5, 16, 2, 1, 14, 1, 14	5, 2, 10, 1, 15, 1, 14
478	10, 1, 14, 1, 14, 5	10, 1, 15, 1, 13, 5
	10, 5, 1, 14, 1, 14	10, 5, 1, 15, 1, 14
479	5	5
	5	5
480	1	1
	1	1

Chinese characters are used in Chinese, Japanese, Korean, and Vietnamese (CJKV). They are ideographs and are not necessarily phonetic. The invention is particularly adapted for resolving CJKV unified ideographs. Radicals are the building blocks of CJKV unified ideographs of which the most common set

contains 214 radicals. A supplemental set of radicals are used for simplified and alternative forms of traditional ideographs used for combining ideographs to form separate entries in character dictionaries.

Figure 12 is a diagram of the first 42 radicals of unified ideographs. The resolving of these characters is summarized in the following Table 15. In Table 15 the first numeral is the reference number from Figure 12 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 15: CJKV unified ideographs

No.	Top	Right	
		Left	Bottom
	8.		
501	5		5
	5		5
502	2		2
	2		2
503	1		1
	1		1
504	4		4
	4		4
505	9		9
	9		9
506	4		4
	4		4
507	5, 5, 16		5, 5, 15
	5, 5, 16		5, 5, 15
508	1, 5, 16		1, 5, 15
	1, 5, 16		5, 1, 15
509	4, 1		1, 4
	4, 1		4, 1
510	4, 6, 14		6, 4, 13
	4, 6, 14		4, 6, 14
511	1, 3		1, 3
	1, 3		1, 3
512	3, 1, 14		1, 3, 13
	3, 1, 14		3, 1, 14
513	7, 2		7, 2
	2, 7		2, 7
514	10, 3		10, 3

	3, 10	3, 10
515	1, 3, 16	1, 3, 15
	1, 3, 16	1, 3, 15
516	9, 4	9, 4
	4, 9	4, 9
517	2, 2, 14, 5	2, 5, 2
	2, 5, 2	2, 5, 2
518	7, 4	7, 4
	7, 4	4, 7
519	4, 7, 13	7, 4, 16
	7, 4, 13	4, 7, 16
520	3, 7	7, 3
	3, 7	7, 3
521	6, 3	6, 3
	6, 3	6, 3
522	5, 2, 5	5, 5, 15, 2
	2, 5, 5	5, 2, 5
523	5, 2, 5	5, 5, 15, 2
	5, 2, 5	5, 2, 5
524	2, 5, 13	5, 2, 16
	5, 2, 13	2, 5, 16
525	2, 1	1, 2
	2, 1	2, 1
526	7, 2	7, 2
	2, 7	2, 7
527	5, 4	5, 4
	4, 5	4, 5
528	3, 1, 16, 3	1, 3, 3
	3, 3, 1	3, 1, 3
529	10, 1, 13	1, 10, 16
	10, 1, 13	10, 1, 16
530	8, 2, 5	8, 5, 2
	2, 8, 5	2, 5, 8
531	8, 2, 5	8, 5, 2
	2, 8, 5	2, 5, 8
532	2, 5, 13, 5	5, 5, 15, 2, 16
	5, 5, 16, 2, 13	5, 2, 5, 16
533	2, 5, 13, 5	5, 5, 15, 2, 16
	5, 5, 16, 2, 13	5, 2, 5, 16
534	3, 10, 1, 13	1, 10, 16, 3
	3, 10, 1, 13	10, 1, 16, 3
535	3, 10, 1, 13	1, 10, 16, 3, 16
	3, 1, 13, 10, 13	10, 1, 16, 3
536	3, 10, 1	10, 1, 3
	3, 10, 1	10, 1, 3
537	4, 5, 13, 1	1, 5, 4, 16
	5, 4, 13, 1	4, 1, 5, 16
538	3, 5, 13, 3, 1, 13	1, 5, 15, 3, 16, 3, 16
	5, 3, 3, 13, 1, 13	3, 1, 16, 3, 5, 16
539	10, 4, 5, 13	5, 10, 15, 4, 16
	10, 5, 16, 4, 13	4, 5, 16, 10
540	1, 10, 16, 3	10, 1, 15, 3
	1, 3, 16, 10	3, 10, 1, 15
541	4, 5, 13, 1, 16	5, 4, 16, 1, 13
	5, 1, 16, 4, 13	1, 4, 14, 5, 16
542	4, 3, 16, 1, 14	1, 4, 13, 3, 13
	3, 4, 14, 1, 14	3, 4, 14, 1, 14

Figure 13 is a diagram of the second 42 radicals of unified ideographs. The resolving of these characters is summarized in the following Table 16. In Table 16 the first numeral is the reference number from Figure 13 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The 5 third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 16: CJKV unified ideographs

No.	Top		Right
	9.	Left	Bottom
543	4, 5, 13, 6 5, 4, 13, 6, 14		6, 5, 4, 16 4, 6, 14, 5, 16
544	8, 4, 5 4, 8, 5		8, 5, 4 4, 5, 8
545	2, 2, 14, 2, 14, 5, 13 2, 5, 2, 13, 2		2, 5, 2, 16, 2 2, 2, 15, 5, 16, 2
546	2, 2, 14, 2, 14, 5 2, 5, 2, 2		2, 5, 2, 2 2, 5, 2, 2
547	3, 3, 14, 3, 14, 1, 1, 1 3, 1, 3, 14, 1, 3, 14, 1		1, 3, 1, 13, 3, 1, 13, 3 1, 1, 14, 1, 14, 3, 3, 3
548	5, 2, 5 5, 5, 16, 2		5, 5, 15, 2 5, 2, 5
549	8, 5, 6 8, 6, 16, 5		6, 8, 15, 5 6, 5, 8
550	2, 7, 13, 2 2, 7, 2, 13		7, 2, 16, 2 2, 2, 14, 7, 16
551	5, 2, 5, 13 5, 5, 16, 2, 13		5, 5, 15, 2, 16 2, 5, 16, 5
552	3, 3, 3, 1, 16, 3 3, 3, 16, 3, 3, 1		1, 3, 3, 3, 3 3, 1, 3, 3, 3
553	1, 5, 16, 4 1, 4, 16, 5		5, 1, 15, 4 4, 5, 1, 15
554	10, 10, 1, 13 10, 10, 1		1, 10, 16, 10 10, 1, 16, 10
555	4, 2, 14, 5, 13 5, 4, 13, 2, 13		5, 2, 16, 4, 16 4, 2, 14, 5, 16
556	6, 1, 14, 3, 13 3, 6, 13, 1, 14		6, 1, 15, 3, 16 6, 3, 16, 1, 15
557	8, 5, 3, 7 8, 3, 16, 7, 5		7, 8, 15, 5, 3 7, 3, 5, 8
558	8, 5, 5 8, 5, 5		5, 8, 5 5, 8, 5
559	3, 3, 16, 3, 16		3, 3, 15, 3, 15

	3, 3, 16, 3, 16	3, 3, 15, 3, 15
560	3, 3, 16, 2	3, 3, 15, 2
	3, 3, 16, 2	2, 3, 3, 15
561	1, 6, 16, 3, 16, 1, 14	1, 6, 13, 1, 15, 3, 13
	3, 1, 14, 6, 16, 1, 14	3, 6, 14, 3, 14, 1, 15
562	6, 1, 14, 3, 13, 3, 13	6, 1, 15, 3, 16, 3, 16
	3, 3, 16, 6, 13, 1, 14	3, 6, 16, 3, 16, 1, 15
563	3, 4, 8, 5	8, 3, 15, 5, 4
	4, 3, 8, 5	4, 5, 8, 3
564	3, 4, 5, 13, 5, 13	5, 5, 15, 5, 15, 4, 16
	3, 5, 16, 5, 16, 4, 13	4, 5, 16, 5, 16, 3
565	2, 5, 13, 10, 1, 13	1, 5, 15, 10, 16, 2, 16
	5, 10, 16, 1, 13, 2, 13	10, 1, 16, 2, 5, 16
566	2, 5, 10, 16, 1, 13	1, 5, 15, 10, 16, 2
	2, 10, 16, 1, 13, 5	10, 1, 16, 2, 5
567	1, 5, 16, 1, 16, 3, 13	1, 5, 15, 1, 15, 3, 16
	1, 5, 16, 1, 13, 3	3, 1, 16, 5, 15, 1, 15
568	1, 2, 14, 1, 16, 3, 13	3, 2, 16, 1, 13, 1, 15
	1, 1, 16, 3, 16, 2, 13	2, 3, 16, 1, 15, 1, 15
569	3, 4, 5, 2	5, 3, 15, 2, 4
	4, 3, 5, 2	4, 2, 14, 5, 3
570	1, 5, 16, 4, 7	7, 5, 15, 1, 15, 4
	1, 5, 16, 4, 7	4, 7, 5, 1, 15
571	5, 4, 5, 13, 6, 16	6, 5, 5, 15, 4, 16
	5, 5, 16, 4, 13, 6, 14	4, 6, 14, 5, 16, 5
572	8, 2, 5, 5	8, 5, 5, 2
	2, 8, 5, 5	2, 5, 8, 5
573	8, 2, 5, 5	8, 5, 5, 13, 2
	2, 8, 5, 5	2, 5, 8, 5
574	7, 4, 5, 5	7, 5, 5, 4
	4, 7, 5, 5	4, 7, 5, 5
575	2, 5, 13, 3, 1	1, 5, 2, 13, 3
	5, 3, 2, 13, 1	3, 2, 1, 5, 16
576	3, 10, 4, 16, 1	1, 10, 15, 4, 3
	3, 4, 16, 10, 1	4, 1, 3, 15, 10
577	2, 2, 16, 5, 5	5, 5, 15, 2, 2
	5, 2, 2, 5	5, 2, 2, 5
578	5, 3, 10, 1	10, 5, 15, 1, 3
	5, 3, 10, 1	10, 1, 3, 5
579	9, 4, 10, 16, 1	1, 9, 15, 10, 16, 4
	4, 10, 16, 9, 1, 13	10, 1, 16, 4, 15, 9
580	7, 3, 3, 5, 13, 5, 13	5, 5, 15, 7, 15, 3, 16, 3, 16
	5, 3, 13, 7, 13, 5, 13, 3, 13, 13	7, 3, 5, 16, 3, 5, 16
581	2, 6, 14, 5, 3, 3	6, 3, 3, 13, 5, 2
	3, 2, 5, 6, 14, 3	3, 6, 14, 5, 3, 3
582	3, 6, 3, 13, 3, 13	6, 3, 16, 3, 16, 3
	3, 3, 16, 3, 16, 6, 13	6, 3, 16, 3, 16, 3
583	3, 2, 6, 5, 13, 3	6, 5, 16, 3, 3, 13, 2
	3, 2, 3, 5, 6, 13	3, 6, 14, 2, 5, 16, 3
584	3, 5, 5, 16, 9, 16	9, 5, 15, 5, 15, 3
	3, 5, 16, 9, 16, 5	9, 5, 15, 3, 15, 5

Figure 14 is a diagram of the third 42 radicals of unified ideographs. The resolving of these characters is summarized in the following Table 17. In Table 17

the first numeral is the reference number from Figure 14 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 17: CJKV unified ideographs

No.	Top			Right
	10.	Left	Bottom	
585	4, 10, 16, 1, 14, 3 10, 4, 14, 1, 14, 3, 14			1, 3, 4, 13, 10, 13 10, 4, 14, 1, 14, 3
586	4, 3, 16, 1, 14, 3 3, 4, 14, 1, 3, 14			1, 3, 15, 4, 3, 13 4, 1, 3, 15, 3, 14
587	3, 4, 6, 2, 16 4, 3, 2, 14, 6			6, 3, 2, 4 4, 2, 14, 6, 14, 3
588	3, 1, 14, 1, 16, 3, 13 3, 1, 16, 3, 13, 1, 14			1, 1, 15, 3, 16, 3, 13 3, 1, 16, 1, 15, 3, 14
589	1, 3, 13, 1, 16, 3, 13 1, 1, 16, 3, 13, 3, 13			1, 1, 15, 3, 16, 3, 16 1, 3, 16, 1, 15, 3, 16
590	2, 2, 14, 5, 5, 4 5, 2, 16, 4, 5, 2			2, 5, 5, 4, 2 4, 2, 14, 5, 2, 5
591	4, 2, 14, 5, 8 4, 5, 8, 2			8, 5, 15, 2, 4 4, 8, 5, 2
592	5, 4, 3, 16, 5, 13, 3 5, 3, 16, 3, 16, 5, 4, 13			5, 5, 15, 4, 16, 3, 3 3, 4, 3, 15, 5, 16, 5
593	2, 3, 16, 5, 13, 5, 13 3, 5, 16, 5, 2, 13			5, 5, 15, 2, 16, 3 2, 5, 16, 3, 15, 5, 16
594	4, 1, 14, 5, 13, 1 5, 4, 13, 1, 1, 14			1, 1, 15, 5, 15, 4, 16 4, 1, 5, 16, 1, 14
595	1, 5, 16, 3, 16, 3, 3, 1, 16, 3, 3 1, 5, 16, 3, 16, 3, 16, 3, 3, 1, 1			1, 5, 15, 1, 15, 3, 3, 3, 3, 3 3, 1, 3, 3, 3, 5, 15, 3, 15, 3, 15
596	5, 2, 5, 13, 1, 16, 5 5, 5, 16, 5, 16, 2, 13, 1, 14			5, 1, 15, 5, 15, 5, 15, 2, 16 5, 2, 1, 15, 5, 16, 5
597	3, 4, 6, 2, 16, 1, 14, 3 4, 3, 3, 14, 2, 1, 6			6, 3, 1, 13, 3, 2, 4 4, 3, 14, 6, 14, 1, 2, 3
598	5, 3, 9, 1, 16, 3 5, 3, 16, 2, 9, 1, 14			9, 5, 15, 3, 13, 1, 15, 3 3, 9, 14, 3, 1, 15, 5
599	2, 2, 14, 5, 13, 5, 5 5, 2, 13, 5, 5, 2, 13			5, 2, 16, 5, 5, 2, 16 2, 5, 2, 5, 5, 16
600	2, 3, 16, 5, 13, 5, 13, 5 3, 5, 16, 5, 16, 5, 2, 13			5, 5, 15, 5, 15, 2, 16, 3 5, 2, 5, 16, 3, 15, 5, 16
601	7, 4, 2, 5, 13, 5, 13 4, 7, 5, 5, 2, 13			7, 5, 5, 2, 16, 4 4, 2, 14, 7, 5, 16, 5, 16
602	8, 2, 2, 5, 13, 5, 13 2, 8, 5, 5, 2			8, 5, 5, 2, 16, 2 2, 5, 8, 2, 5, 16
603	10, 2, 3, 16, 5, 1			1, 10, 15, 5, 15, 2, 3

	10, 3, 16, 1, 2, 5	3, 1, 2, 5, 10
604	1, 5, 16, 4, 1, 16, 3, 16 1, 3, 16, 1, 14, 4, 16, 5	5, 1, 15, 4, 3, 13, 1, 15 4, 3, 15, 1, 15, 5, 1, 15
605	10, 1, 14, 3, 1, 3 10, 1, 1, 14, 3, 3	1, 3, 3, 10, 1 10, 1, 14, 1, 3, 3
606	3, 8, 16, 2, 5, 5 3, 2, 16, 8, 5, 5	8, 3, 15, 5, 5, 2 2, 5, 8, 5, 3, 15
607	2, 10, 13, 4, 10, 1, 13 4, 10, 10, 14, 1, 13, 2, 13	1, 10, 15, 10, 16, 2, 16, 4 4, 10, 14, 1, 16, 2, 10, 16
608	8, 2, 2, 2, 5 5, 2, 8, 2, 2	5, 8, 2, 2, 2 5, 2, 2, 2, 8
609	8, 2, 5, 5, 5 2, 8, 5, 5, 5	8, 5, 5, 5, 2 2, 5, 8, 5, 5
610	10, 1, 10, 16, 3, 4 10, 10, 16, 3, 1, 4	10, 10, 15, 1, 4, 3 3, 4, 10, 1, 10
611	3, 5, 4, 5, 13, 1 3, 5, 16, 4, 13, 5, 1	1, 5, 5, 15, 4, 16, 3 4, 1, 5, 16, 3, 15, 5
612	5, 3, 8, 16, 2, 5 5, 3, 2, 8, 5	8, 5, 15, 5, 2, 3 2, 5, 8, 3, 15, 5
613	5, 5, 16, 2, 3, 16, 1, 14 5, 5, 16, 3, 16, 2, 1, 14	1, 5, 15, 5, 15, 2, 3, 13 3, 2, 14, 1, 14, 5, 5, 15
614	3, 7, 13, 2, 1, 16, 3 2, 7, 3, 3, 1	7, 1, 13, 3, 3, 16, 2 2, 3, 14, 7, 1, 3, 16
615	3, 2, 5, 13, 3, 1 3, 5, 16, 3, 2, 13, 1	1, 5, 3, 15, 2, 16, 3 3, 2, 1, 5, 16, 3
616	1, 10, 16, 3, 3, 16, 1, 14 1, 3, 16, 3, 16, 10, 1, 14	1, 10, 15, 1, 15, 3, 13, 3 3, 1, 14, 3, 15, 10, 1, 15
617	1, 5, 16, 1, 16, 3, 14, 5 1, 5, 16, 1, 16, 5, 16, 3	5, 5, 15, 1, 15, 3, 1, 13 5, 3, 1, 15, 5, 15, 1, 15
618	3, 3, 14, 5, 5, 2, 4 3, 5, 2, 3, 14, 4, 16, 5	5, 4, 3, 5, 13, 2, 3 2, 4, 14, 3, 15, 3, 15, 5, 5
619	1, 2, 14, 3, 14, 5, 13, 3, 1 1, 5, 16, 3, 2, 13, 1, 1, 14	1, 5, 3, 15, 2, 16, 3, 1, 13 3, 2, 1, 5, 16, 3, 15, 1, 15
120	3, 3, 3, 1, 16, 3, 4, 3, 16, 1, 14, 3, 16, 1, 14 13, 3, 13	1, 1, 15, 3, 3, 3, 3, 4, 13, 3, 13, 4, 3, 4, 14, 1, 14, 3, 15, 1, 3, 3, 3, 3, 3
621	3, 5, 2, 5, 13, 2, 16, 2, 14, 5, 5 3, 5, 16, 2, 16, 5, 5, 2, 13, 2, 2	2, 5, 15, 5, 15, 5, 2, 16, 2, 3, 3 2, 5, 2, 2, 5, 16, 3, 15, 5, 5
622	7, 2, 1, 16, 1, 14, 3, 13, 3, 13 2, 7, 1, 14, 3, 13, 1, 14, 3, 13	7, 1, 13, 3, 16, 1, 13, 3, 16, 2 2, 3, 14, 3, 14, 7, 3, 16, 3, 16
623	1, 3, 14, 5, 16, 2, 5, 13, 5, 13 1, 5, 16, 5, 16, 5, 16, 2, 13, 3, 14	5, 3, 15, 5, 15, 5, 15, 2, 16, 1, 13 2, 5, 16, 5, 16, 5, 1, 15, 3, 14
624	7, 7, 14, 1, 16, 1, 14, 3, 16, 3, 14 7, 1, 16, 3, 16, 7, 14, 1, 16, 3, 16	7, 3, 1, 13, 7, 13, 3, 1, 13 3, 3, 14, 7, 7, 1, 15, 1, 15
625	2, 5, 13, 3, 16, 5, 13, 6, 16, 3 5, 3, 16, 6, 16, 5, 13, 2, 13, 3	6, 5, 15, 3, 16, 3, 5, 13, 2, 16 6, 3, 3, 15, 5, 16, 2, 5, 16
626	5, 3, 7, 16, 2, 2, 2 5, 2, 16, 3, 7, 2, 2	7, 5, 15, 3, 13, 2, 2, 2 2, 2, 14, 2, 14, 7, 3, 15, 5

Figure 15 is a diagram of the fourth 42 radicals of unified ideographs. The resolving of these characters is summarized in the following Table 18. In Table 18 the first numeral is the reference number from Figure 15 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The

third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

5

Table 18: CJKV unified ideographs

No.	Top	Right	
		Left	Bottom
	11.		
627	2, 3, 13, 5, 13, 5, 13, 3, 1 3, 5, 16, 5, 16, 3, 2, 13, 1		1, 5, 5, 15, 3, 15, 2, 16, 1 3, 2, 1, 5, 16, 5, 16, 3, 16
628	5, 2, 2, 5, 5, 3, 13 5, 3, 16, 2, 5, 5, 2, 13		3, 5, 15, 2, 16, 5, 5, 2 2, 5, 16, 2, 5, 5, 5
629	2, 8, 13, 5, 13, 5, 13, 5, 13, 5, 13 8, 5, 13, 5, 5, 16, 5, 16, 2, 13		5, 5, 15, 5, 15, 8, 16, 5, 15, 2, 16 2, 5, 16, 5, 16, 5, 16, 8, 16, 5, 16
630	3, 7, 13, 2, 1, 3, 16, 1 2, 7, 3, 3, 13, 1, 16, 1		7, 1, 13, 1, 15, 3, 3, 16, 2 2, 3, 14, 7, 1, 3, 16, 1
631	5, 2, 2, 8, 5, 2, 5, 5 2, 5, 5, 8, 5, 2, 2, 2		5, 8, 15, 5, 15, 5, 2, 2, 2, 2 2, 5, 2, 5, 8, 2, 5, 5
632	3, 8, 16, 2, 5, 5, 5 3, 2, 16, 8, 5, 5, 5		8, 3, 15, 5, 5, 5, 2 2, 5, 8, 5, 5, 3, 15
633	5, 3, 1, 16, 3, 2, 16, 5, 13, 5, 5 5, 5, 16, 3, 3, 5, 16, 2, 13, 1, 1		5, 1, 15, 5, 15, 5, 15, 3, 2, 16, 3, 3 5, 2, 5, 16, 3, 15, 1, 3, 5, 5
634	3, 8, 14, 2, 5, 5, 5 2, 3, 5, 5, 8, 5		8, 5, 5, 5, 3, 13, 2 2, 5, 8, 5, 5, 3
635	3, 2, 5, 13, 8, 16, 2, 5 3, 2, 16, 5, 16, 8, 5, 2, 13		8, 5, 15, 3, 15, 5, 2, 16, 2 2, 5, 8, 2, 15, 5, 16, 3
636	3, 2, 14, 10, 5, 13, 1, 3, 16, 5, 13, 5, 13 3, 10, 1, 5, 14, 3, 16, 5, 13, 2, 13, 2, 13		5, 5, 15, 2, 16, 3, 10, 13, 1, 3, 3 10, 2, 14, 3, 15, 1, 5, 16, 3, 5, 16, 5,
16			
637	3, 7, 16, 4, 1, 16, 5, 13, 1, 16 3, 5, 16, 4, 13, 7, 1, 14, 1, 16		5, 3, 15, 7, 16, 1, 13, 1, 15, 4, 16 4, 1, 14, 7, 5, 16, 1, 15, 3, 15
638	8, 2, 5, 5, 1, 16, 3, 3, 3 3, 2, 8, 5, 5, 1, 14, 3, 3		1, 8, 15, 3, 5, 5, 3, 13, 2, 2 3, 1, 14, 2, 3, 5, 8, 5, 5
639	3, 10, 8, 16, 6, 2, 5 3, 6, 16, 8, 5, 10, 2		6, 8, 15, 10, 15, 5, 2, 3 6, 5, 8, 2, 3, 15, 10
640	4, 2, 14, 2, 16, 2, 14, 2, 14, 2, 14, 5, 13, 5, 13, 5, 13, 16, 2, 5, 13 2, 4, 16, 5, 13, 2, 2, 14, 5, 2, 13, 2, 2, 13, 2 16, 5, 16, 5,		4, 2, 14, 2, 15, 2, 15, 2, 14, 2, 15, 5, 16, 5, 16
641	2, 5, 10, 16, 4, 6, 16, 3, 13 2, 4, 16, 10, 3, 14, 6, 13, 5		6, 10, 15, 5, 15, 3, 16, 2, 4 4, 6, 14, 3, 16, 10, 2, 5
642	2, 8, 13, 2, 5, 13, 1, 16, 3 2, 3, 16, 8, 5, 2, 13, 1		1, 8, 15, 5, 3, 2, 16, 2 3, 1, 2, 2, 15, 5, 16, 8, 16
643	3, 8, 16, 2, 2, 2, 5 3, 5, 16, 2, 8, 2, 2		5, 3, 15, 8, 2, 2, 2 5, 2, 2, 2, 8, 3, 15
644	3, 5, 14, 3, 16, 5, 14, 2, 4		5, 5, 15, 4, 3, 13, 3, 15, 2

	3, 3, 16, 2, 5, 14, 5, 16, 4	2, 4, 14, 3, 5, 3, 15, 5, 14
645	1, 5, 16, 3, 16, 1, 14, 3, 2, 3, 3	1, 5, 15, 3, 15, 3, 3, 13, 3, 15, 2, 2
	1, 5, 16, 3, 3, 16, 2, 1, 14, 3, 3	3, 1, 14, 2, 3, 3, 5, 15, 1, 15, 1, 15
646	5, 2, 2, 8, 13, 2, 5	8, 5, 15, 2, 16, 5, 2, 16, 2
	5, 2, 16, 8, 2, 13, 5, 2, 13	2, 2, 14, 8, 16, 5, 2, 16, 5
647	8, 2, 5, 5, 4, 16, 6, 14, 6, 14	6, 8, 15, 5, 5, 5, 4, 13, 2, 2
	2, 4, 16, 8, 5, 5, 6, 14, 6, 14	4, 6, 14, 2, 15, 5, 8, 5, 5, 5
648	3, 10, 7, 16, 4, 2, 5, 13, 5, 5	7, 10, 15, 5, 5, 2, 16, 4, 3, 3
	3, 4, 16, 7, 10, 5, 5, 2, 13, 2, 13	4, 7, 5, 2, 5, 16, 3, 15, 10, 10
649	1, 5, 16, 5, 16, 5, 16, 8, 16, 2, 5, 5	8, 5, 15, 5, 15, 5, 15, 1, 15, 5, 2, 2
	1, 5, 16, 5, 16, 5, 16, 2, 16, 8, 5, 5	2, 5, 8, 5, 65, 5, 65, 5, 65, 1, 65, 1,
65		
650	3, 1, 14, 3, 16, 1, 8, 16, 2, 5, 5	8, 3, 15, 3, 15, 5, 3, 2, 3, 13, 3, 13
	3, 3, 16, 2, 16, 8, 5, 1, 1, 14, 1, 14	2, 5, 8, 3, 15, 1, 3, 15, 1, 14, 1, 14
651	5, 8, 16, 2, 5, 1, 16, 3, 14, 5, 5	5, 8, 15, 5, 15, 3, 5, 1, 13, 2, 2
	5, 2, 16, 1, 16, 5, 16, 8, 5, 3, 3	5, 3, 1, 15, 2, 15, 5, 8, 5, 15, 5, 15
652	5, 3, 4, 1, 16, 3, 3, 3, 3	1, 5, 15, 3, 4, 13, 3, 3, 3, 3
	5, 3, 3, 16, 3, 16, 4, 1, 14, 3, 3	3, 1, 14, 4, 3, 3, 3, 5, 5
653	3, 1, 16, 1, 14, 3, 16, 4, 16, 3, 3, 3	4, 3, 15, 3, 15, 1, 13, 3, 3, 1, 13, 1,
13		
	3, 3, 16, 3, 16, 3, 16, 1, 14, 4, 1, 14, 1, 14	3, 4, 3, 3, 1, 15, 1, 14, 3, 15, 3, 15
654	8, 2, 5, 5, 3, 16, 1, 14, 1, 14	1, 8, 15, 5, 5, 5, 3, 2, 13, 2, 13
	2, 3, 16, 8, 5, 5, 5, 1, 14, 1, 14	3, 1, 14, 2, 15, 5, 8, 5, 5, 5
655	2, 5, 13, 5, 4, 6, 3, 16, 1, 14, 1, 14	1, 5, 15, 5, 15, 4, 2, 16, 4, 3, 13, 3,
13		
	5, 3, 16, 5, 16, 4, 14, 2, 13, 4, 1, 14, 1, 14	4, 4, 14, 3, 15, 1, 14, 5, 2, 5, 16, 5,
16		
656	2, 5, 13, 5, 2, 16, 3, 16, 5, 1, 1	1, 5, 15, 5, 15, 5, 15, 2, 16, 2, 16, 3,
3		
	5, 3, 16, 5, 16, 1, 2, 13, 2, 5, 5	3, 1, 2, 5, 5, 15, 2, 5, 16, 5, 16
657	8, 2, 5, 2, 16, 3, 16, 5, 1, 1	1, 8, 15, 5, 15, 5, 2, 3, 2, 2
	2, 3, 16, 8, 5, 1, 2, 5, 5	3, 1, 2, 5, 2, 15, 5, 8, 8
658	3, 7, 16, 2, 5, 5, 3, 3, 13, 3, 13	3, 3, 15, 7, 16, 3, 5, 5, 2, 2
	3, 3, 16, 3, 2, 7, 13, 5, 5, 5	3, 7, 16, 3, 2, 5, 5, 3, 15, 3, 15
659	2, 5, 13, 8, 13, 2, 5, 13, 5, 13, 5, 13	5, 8, 15, 5, 15, 5, 5, 2, 16, 2, 2
	5, 2, 16, 5, 16, 8, 5, 5, 2, 13, 2, 13	2, 5, 16, 2, 15, 5, 16, 8, 16, 5, 16, 5,
16, 5, 16		
660	1, 5, 16, 1, 16, 3, 14, 5, 16, 2, 5, 13, 5, 13	5, 5, 15, 3, 15, 5, 15, 1, 15, 2, 16, 1,
13, 1, 13		
	1, 5, 16, 1, 16, 5, 16, 5, 16, 2, 13, 3, 3	2, 5, 16, 5, 1, 15, 3, 14, 5, 15, 1, 15,
1, 15		
661	5, 4, 5, 16, 5, 16, 2, 1, 14, 3, 3, 3, 3	1, 5, 15, 5, 15, 5, 15, 3, 3, 13, 2, 4,
2, 4		
	4, 5, 5, 14, 5, 16, 3, 16, 2, 1, 14, 3, 1, 14, 3	4, 3, 14, 1, 14, 2, 3, 5, 15, 5, 15, 5,
5, 15, 5		
662	3, 3, 16, 3, 16, 2, 16, 3, 16, 5, 1, 1	1, 3, 15, 5, 15, 3, 15, 3, 15, 2, 3, 3
	3, 3, 16, 3, 16, 3, 16, 1, 2, 5, 5	3, 1, 2, 5, 3, 15, 3, 15, 3, 15, 3, 15
663	8, 2, 5, 8, 16, 6, 2, 5, 5	6, 8, 15, 8, 5, 5, 2, 2, 2
	2, 6, 16, 8, 8, 5, 5, 2, 2	6, 5, 8, 2, 2, 15, 5, 8, 8
664	5, 4, 6, 8, 13, 2, 5, 5, 5	8, 5, 15, 5, 5, 6, 16, 4, 16, 2, 2
	5, 2, 16, 8, 5, 5, 4, 13, 6, 13, 6, 13	2, 5, 8, 5, 4, 16, 6, 16, 5, 5
665	3, 2, 1, 16, 3, 14, 5, 13, 3, 1, 1	1, 5, 3, 15, 3, 15, 2, 16, 3, 1, 13, 1,
13		
	3, 1, 16, 5, 16, 3, 2, 13, 1, 3, 14, 3, 14	3, 2, 1, 5, 16, 1, 15, 3, 15, 3, 3
666	8, 2, 2, 5, 13, 5, 13, 5, 13, 5, 5	5, 5, 15, 8, 15, 5, 5, 2, 16, 2, 2
	2, 5, 16, 5, 16, 8, 5, 5, 2, 13, 2, 13	5, 2, 5, 16, 2, 15, 5, 16, 8, 5, 16, 5,
16		

667	3, 1, 5, 16, 2, 5, 13, 1, 16, 3, 14, 5, 3, 14, 5 13, 3, 1, 13, 3 3, 5, 16, 5, 16, 1, 16, 5, 16, 2, 13, 1, 3, 14, 1, 3, 14 3, 15, 1	5, 3, 15, 3, 15, 5, 15, 5, 15, 2, 16, 1, 5, 2, 1, 15, 3, 15, 5, 16, 5, 3, 15, 1
668	5, 2, 5, 5, 5, 2, 1, 16, 3, 3, 1, 16, 3, 3 2, 2, 3, 13, 2, 2 5, 3, 16, 2, 2, 5, 5, 5, 1, 14, 3, 5, 1, 14, 3	1, 5, 15, 3, 5, 15, 5, 15, 5, 15, 3, 13, 3, 1, 14, 2, 3, 5, 2, 5, 5, 5, 5, 5, 5

Figure 16 is a diagram of the fifth 42 radicals of unified ideographs. The resolving of these characters is summarized in the following Table 19. In Table 19 the first numeral is the reference number from Figure 16 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third 5 column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 19: CJKV unified ideographs

No.	Top	Right	
		Left	Bottom
	12.		
669	8, 7, 14, 2, 2, 5, 5, 5, 5, 5, 5 2, 8, 5, 5, 2, 14, 7, 5, 5, 5, 5	7, 5, 5, 2, 8, 13, 5, 5, 2, 5, 2 2, 7, 14, 5, 2, 5, 8, 5, 5, 5, 5	
670	3, 8, 16, 2, 5, 8, 5, 2, 16, 5, 13, 2, 16, 5, 13 2, 16, 2 3, 2, 16, 5, 16, 8, 5, 8, 5, 2, 13, 5, 2, 13	5, 8, 15, 3, 15, 8, 15, 5, 5, 2, 16, 2, 2, 5, 16, 2, 15, 5, 8, 5, 8, 3, 15, 8, 3,	
15			
671	4, 8, 13, 5, 13, 5, 13, 1, 16, 1, 14, 3, 3, 16, 3, 3, 16 1, 15, 3, 13, 8, 1, 16, 3, 16, 5, 13, 5, 4, 13, 1, 14, 3, 1, 14, 3 5, 16, 8, 16,	1, 5, 15, 3, 8, 16, 5, 16, 4, 16, 3, 13, 1, 15 3, 4, 14, 1, 14, 1, 15, 3, 5, 16, 8, 16,	
16			
672	3, 1, 14, 5, 2, 2, 5, 13, 5, 13, 5, 5, 13, 5 3, 2, 3 3, 2, 5, 5, 5, 5, 1, 14, 2, 13, 1, 14, 2, 13	5, 5, 15, 5, 15, 5, 15, 1, 15, 2, 16, 2, 2, 5, 2, 5, 16, 5, 16, 3, 5, 1, 15, 5, 1,	
15			
673	5, 2, 7, 13, 2, 1, 16, 1, 14, 1, 16, 1, 14, 1, 16, 1, 14 15, 2, 1, 15, 2 5, 2, 16, 7, 1, 14, 1, 16, 2, 13, 1, 14, 1, 16, 1, 14, 1, 15, 5, 1, 15, 5 16	7, 5, 15, 1, 13, 1, 15, 2, 16, 1, 13, 1, 2, 1, 14, 2, 14, 1, 14, 7, 13, 1, 15, 1,	
16			
674	2, 5, 13, 5, 13, 5, 7, 16, 2, 2, 5, 2, 5 2, 16, 2 5, 2, 16, 5, 16, 5, 16, 7, 5, 2, 13, 2, 2, 13, 2 16, 5, 16	7, 5, 15, 5, 15, 5, 15, 5, 2, 2, 16, 2, 2, 7, 5, 2, 5, 15, 2, 5, 16, 5, 16, 5,	

675	2, 2, 14, 5, 5, 5, 5, 5, 5, 5, 5, 5	5, 5, 15, 5, 15, 2, 15, 2, 5, 13, 5, 5,
	5, 5	5, 5, 16, 5, 16, 2, 2, 14, 5, 5, 5, 5, 5
676	5, 3, 8, 16, 2, 2, 2, 5, 5, 5, 5, 5, 5	2, 2, 14, 5, 5, 5, 5, 5, 5, 5, 5
	2	8, 5, 15, 3, 15, 5, 2, 5, 5, 2, 2, 5, 2,
	5, 2, 16, 3, 8, 5, 2, 5, 5, 2, 5, 5, 2	2, 5, 8, 2, 2, 5, 5, 3, 15, 5, 5, 3, 15,
677	5	5, 8, 15, 5, 15, 5, 15, 2, 16, 5, 2, 16,
	2, 2, 14, 5, 13, 5, 2, 16, 8, 13, 2, 5, 13, 5, 13, 2, 5,	2, 16, 2
	2, 16, 2, 2, 16,	2, 5, 16, 2, 15, 5, 16, 8, 16, 2, 15, 5,
	13, 5, 13	5, 16
	5, 2, 16, 5, 16, 2, 13, 8, 5, 5, 2, 13, 2, 13, 5, 2, 13,	5, 8, 15, 5, 15, 5, 15, 5, 8, 2, 16, 3,
	2, 5, 16, 5, 2,	3, 2, 16, 3
	2, 13	2, 3, 15, 5, 16, 5, 16, 2, 15, 5, 8, 5,
678	3, 8, 13, 5, 8, 16, 2, 5, 2, 16, 5, 13, 3, 16, 5, 13, 2,	5, 15, 3, 8, 16
	2, 16, 3, 2, 16,	5, 5, 15, 5, 15, 5, 15, 2, 2, 5, 5, 5, 5,
	16, 5, 13, 3, 16, 5, 13	5, 2, 2, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5
	8, 2, 16, 5, 16, 3, 16, 5, 8, 5, 5, 3, 13, 2, 13, 5, 5, 3,	8, 5, 15, 1, 15, 5, 15, 3, 13, 5, 15, 5,
	15, 3, 8, 16, 8,	13, 2
	13, 2, 13	2, 5, 8, 5, 5, 15, 1, 15, 3, 14, 5, 15,
679	2, 2, 14, 5, 5, 5, 5, 5, 5, 5, 5, 5	15, 1, 15
	5, 5	1, 8, 15, 5, 15, 3, 13, 5, 5, 5, 3, 13,
	5, 5, 16, 5, 16, 5, 16, 2, 2, 14, 5, 5, 5, 5, 5	3, 1, 14, 2, 15, 5, 8, 5, 5, 3, 15, 5, 5,
680	680 1, 5, 16, 1, 16, 3, 14, 5, 8, 16, 2, 5, 5, 2, 5, 5	9, 1, 13, 8, 15, 3, 15, 3, 5, 2, 16, 2,
	1, 13, 2, 5, 1,	4, 3, 14, 9, 1, 2, 2, 15, 5, 16, 8, 16,
	1, 2, 16, 5, 16, 1, 16, 5, 16, 8, 5, 5, 3, 5, 5, 3	9, 9, 15, 1, 15, 1, 15, 3, 15, 3, 15, 2,
	1, 15, 3, 14, 5,	2, 16, 3, 13, 4, 16
681	681 5, 3, 8, 16, 2, 5, 5, 5, 3, 16, 1, 14, 5, 3, 16, 1, 14	4, 2, 14, 9, 16, 1, 15, 3, 15, 3, 9, 15,
	2, 5, 3, 13, 2	15, 1, 15, 3, 15
	5, 2, 16, 3, 16, 3, 8, 5, 5, 5, 1, 14, 5, 5, 1, 14	1, 8, 15, 1, 15, 1, 15, 3, 5, 5, 3, 13,
	3, 15, 5	3
682	682 9, 4, 3, 16, 2, 8, 13, 2, 5, 13, 1, 16, 3, 5, 13, 1, 16, 3	3, 1, 14, 2, 3, 5, 8, 5, 1, 15, 3, 15, 1,
	4, 2, 16, 2, 4	1
	4, 9, 3, 14, 2, 16, 3, 16, 8, 5, 2, 13, 1, 5, 2, 13, 1	8, 5, 15, 3, 15, 3, 13, 5, 5, 5, 1, 13,
683	683 3, 5, 16, 8, 16, 3	2, 5, 8, 5, 5, 3, 15, 5, 15, 1, 15, 3,
	9, 3, 14, 1, 16, 3, 16, 2, 14, 4, 9, 13, 3, 14, 1, 16, 9,	14
	16, 3, 13, 4, 16,	8, 1, 15, 5, 15, 3, 15, 5, 5, 2, 16, 3,
	13, 3, 14, 1, 16	3, 2, 5, 8, 5, 3, 15, 2, 1, 5, 16, 3, 1,
	9, 3, 16, 9, 16, 4, 13, 2, 13, 1, 14, 3, 16, 1, 16, 3, 16,	16, 3, 15, 3, 15,
	1, 15, 3, 15, 9,	14
	3, 16, 1, 16, 3, 16	8, 1, 15, 5, 15, 3, 15, 5, 5, 2, 16, 3,
684	684 3, 1, 1, 16, 8, 16, 2, 5, 5, 1, 16, 3, 3, 5, 1, 16, 3, 3	3, 2, 5, 8, 5, 3, 15, 2, 1, 5, 16, 3, 1, 5,
	2, 3, 5, 3, 13, 2,	16, 3
	3, 1, 16, 3, 16, 2, 8, 5, 5, 5, 1, 16, 3, 5, 5, 1, 16, 3	
	5, 1, 15, 3, 15,	
685	685 1, 3, 14, 5, 3, 8, 16, 2, 5, 5, 5, 5, 5, 5	
	2, 5, 1, 13, 2	
	1, 5, 16, 2, 16, 3, 14, 8, 5, 5, 5, 3, 14, 5, 5, 3, 14	
	14, 5, 15, 1, 15, 3,	
686	686 3, 2, 5, 13, 3, 1, 8, 16, 2, 5, 5, 2, 5, 5	
	2, 2, 16, 3, 2	
	3, 2, 16, 5, 16, 3, 8, 5, 13, 2, 13, 5, 1, 2, 13, 5, 1	
	16, 3	

687	5, 2, 2, 5, 13, 5, 13, 7, 3, 16, 1, 14, 1, 14, 1, 14, 3, 16, 1, 13, 3, 13, 16, 1, 14, 1, 14, 1, 14 2, 3, 16, 5, 7, 5, 5, 1, 14, 1, 14, 2, 13, 1, 14, 1, 14, 16, 5, 16, 5, 2, 5, 1, 14, 2, 13, 1, 14	7, 5, 15, 5, 15, 5, 15, 1, 13, 1, 13, 2, 2, 2, 16, 1, 13, 3, 13, 2 3, 1, 14, 1, 14, 1, 14, 7, 14, 2, 2, 5,
688	8, 2, 5, 2, 10, 3, 7, 16, 2, 5, 5, 7, 16, 2, 5, 5 2, 3 3, 2, 16, 2, 10, 8, 7, 5, 5, 2, 5, 5, 5, 2, 5 8, 5	16, 5, 16, 5 7, 10, 15, 8, 5, 5, 5, 2, 2, 2, 3, 2, 2, 2, 8, 5, 5, 3, 15, 10, 2, 2, 8, 5, 2, 2,
689	1, 5, 16, 8, 16, 2, 5, 7, 16, 2, 8, 16, 2, 5, 2, 8, 16, 2, 2, 2, 5, 2, 2, 2 5 1, 5, 16, 2, 16, 2, 16, 8, 5, 7, 2, 16, 8, 5, 7, 2, 16, 8, 15, 5, 8, 5, 15, 5	7, 8, 15, 5, 15, 1, 15, 5, 8, 13, 5, 2, 2, 2, 14, 7, 5, 8, 2, 15, 5, 8, 5, 15, 1, 1, 15 3, 3, 15, 3, 15, 1, 13, 5, 15, 5, 15, 5, 15, 5,
690	5, 3, 14, 2, 5, 5, 5, 3, 16, 3, 14, 3, 16, 1, 14, 3, 3, 16, 15, 5, 15, 3, 3, 3, 14, 3, 16, 1, 14, 3 5, 3, 16, 3, 2, 5, 5, 5, 1, 3, 14, 3, 16, 3, 16, 5, 1, 3, 5, 2, 5, 5, 3, 15, 14, 3, 16, 3, 16	2, 5, 15, 5, 15, 3, 3, 2 3, 3, 14, 1, 3, 3, 15, 5, 2, 5, 5, 3, 15, 5 4, 5, 13, 5, 15, 5, 15, 2, 16, 5, 13, 5, 2, 13, 5, 15, 5, 15, 2, 16, 2, 13 2, 4, 14, 5, 15, 5, 14, 2, 2, 5, 16, 5, 16, 5, 16, 2, 13, 16, 5, 5, 5, 16, 4, 14, 5, 16, 5, 16, 2, 13, 4, 14
691	2, 5, 14, 5, 14, 4, 14, 2, 2, 5, 13, 5, 13, 5, 5, 5, 13, 15, 5, 15, 2, 16, 5, 13, 5, 5 2, 5, 14, 5, 16, 5, 16, 2, 13, 5, 14, 5, 16, 5, 16, 2, 13, 16, 5, 5, 5, 16, 4, 14, 5, 16, 5, 16, 2, 13, 4, 14	2, 5, 16, 5, 5 6, 2, 15, 3, 5, 1, 13, 1, 13, 3, 16, 1, 2, 3, 16, 1, 13, 1, 13, 1, 13, 2 6, 3, 2, 15, 5, 2, 1, 15, 1, 15, 3, 16, 15, 1, 15, 3, 16, 1, 15, 1, 15, 1, 15 7, 8, 15, 5, 15, 5, 5, 13, 3, 15, 2, 1,
692	2, 1, 14, 1, 14, 3, 13, 2, 14, 1, 16, 1, 14, 1, 16, 5, 6, 13, 1, 13, 1, 13, 16, 3, 1, 14, 1, 16, 5, 6, 16, 3 2, 6, 16, 5, 3, 1, 14, 1, 16, 3, 13, 1, 14, 1, 16, 1, 14, 1, 15, 1, 15, 1, 2, 3, 13, 1, 14, 1, 16, 1, 14, 2	2, 2 2, 2, 14, 7, 5, 1, 15, 3, 14, 2, 15, 5, 8, 5, 15 6, 1, 15, 8, 15, 3, 15, 3, 5, 5, 3, 13, 3, 13, 2, 16, 3, 13, 2 3, 6, 14, 3, 15, 1, 3, 2, 15, 5, 8, 2, 5, 2, 5, 16, 3, 16 1, 8, 15, 10, 15, 5, 5, 1, 13, 2, 16, 1, 2, 16, 1, 13, 3, 13, 2, 3 3, 1, 14, 1, 14, 1, 14, 2, 15, 5, 8, 2,
693	5, 8, 16, 2, 5, 7, 16, 2, 1, 16, 3, 14, 5, 2, 1, 16, 3, 13, 2, 2, 2, 1, 13, 14, 5, 2 5, 2, 16, 2, 16, 8, 5, 7, 1, 14, 5, 16, 2, 3, 1, 14, 5, 8, 5, 15, 2, 15, 5, 16, 2, 3	8, 5, 15 6, 1, 15, 8, 15, 3, 15, 3, 5, 5, 3, 13, 3, 13, 2, 16, 3, 13, 2 3, 6, 14, 3, 15, 1, 3, 2, 15, 5, 8, 2, 5, 2, 5, 16, 3, 16 1, 8, 15, 10, 15, 5, 5, 1, 13, 2, 16, 1, 2, 16, 1, 13, 3, 13, 2, 3 3, 1, 14, 1, 14, 1, 14, 2, 15, 5, 8, 2,
694	3, 8, 16, 2, 2, 5, 13, 5, 3, 16, 6, 14, 3, 14, 1, 14, 3, 2, 16, 3, 13, 2, 5, 3, 16, 6, 14, 3, 14, 1, 14, 3 3, 2, 16, 4, 16, 8, 5, 5, 2, 13, 6, 16, 3, 14, 3, 1, 2, 16, 3, 16, 5, 8, 13, 6, 16, 3, 14, 3, 1	8, 5, 15 6, 1, 15, 8, 15, 3, 15, 3, 5, 5, 3, 13, 3, 13, 2, 16, 3, 13, 2 3, 6, 14, 3, 15, 1, 3, 2, 15, 5, 8, 2, 5, 2, 5, 16, 3, 16 1, 8, 15, 10, 15, 5, 5, 1, 13, 2, 16, 1, 2, 16, 1, 13, 3, 13, 2, 3 3, 1, 14, 1, 14, 1, 14, 2, 15, 5, 8, 2,
695	3, 10, 8, 16, 2, 2, 5, 13, 5, 3, 16, 1, 14, 1, 14, 1, 13, 3, 13, 2, 3, 14, 5, 3, 16, 1, 14, 1, 14, 1, 14 3, 2, 16, 3, 16, 8, 5, 5, 10, 1, 14, 2, 13, 1, 14, 1, 5, 16, 3, 15, 10, 14, 10, 1, 14, 2, 13, 1, 14, 1, 14	8, 2, 5, 16, 3, 15, 10 7, 1, 15, 5, 15, 8, 15, 5, 5, 1, 13, 1, 2, 1, 13, 1, 13, 1, 13, 3, 13, 2 3, 1, 14, 1, 14, 1, 14, 7, 14, 2, 5, 5,
696	3, 8, 16, 2, 5, 5, 5, 7, 3, 16, 1, 14, 1, 14, 1, 14, 7, 3, 13, 1, 13, 3, 13, 16, 1, 14, 1, 14, 1, 14 3, 2, 16, 3, 16, 8, 5, 5, 5, 7, 1, 14, 1, 14, 1, 14, 5, 7, 8, 5, 3, 15, 5, 5,	

1, 14, 1, 14, 1, 14
 697 2, 5, 8, 16, 2, 1, 16, 1, 14, 3, 13, 1, 16, 1, 14, 1, 16,
 1, 13, 1, 13, 2,
 5, 3, 13, 1, 16, 1, 14, 1, 16, 5
 2, 2, 16, 8, 5, 1, 14, 1, 16, 3, 13, 1, 14, 1, 16, 5, 1,
 15, 1, 15, 2, 5, 1,
 14, 3, 13, 1, 14, 1, 16, 5, 1, 14
 698 1, 5, 16, 4, 2, 16, 2, 14, 8, 13, 5, 2, 16, 6, 14, 5, 3,
 5, 15, 2, 2, 16, 4,
 3, 5, 2, 16, 6, 14, 5, 3, 3
 1, 4, 16, 5, 8, 5, 3, 14, 2, 2, 13, 5, 2, 13, 6, 3, 2, 2,
 16, 5, 1, 15, 5,
 13, 5, 2, 13, 6, 3
 699 2, 5, 13, 3, 16, 3, 14, 1, 1, 3, 1, 3, 16, 10, 1, 13, 3,
 16, 1, 13, 3, 3,
 1, 3, 16, 10, 1, 13
 5, 3, 16, 3, 16, 3, 16, 10, 1, 2, 13, 1, 13, 3, 14, 1,
 1, 1, 5, 16, 3,
 1, 2, 13, 1, 13, 3, 14, 1, 1
 700 1, 5, 16, 4, 2, 16, 2, 14, 5, 13, 5, 13, 4, 16, 6, 14,
 13, 5, 15, 2, 16,
 4, 14, 6, 14, 5, 13, 4, 16, 6, 14, 4, 14, 6, 14
 1, 4, 16, 5, 5, 14, 4, 16, 2, 13, 6, 14, 5, 14, 4, 16,
 14, 5, 16, 5, 16,
 2, 13, 6, 14, 6, 14, 5, 14, 4, 16, 2, 13, 6, 14
 701 2, 2, 14, 5, 13, 5, 5, 16, 2, 8, 13, 2, 5, 13, 5, 3, 16,
 2, 16, 3, 13, 2, 2,
 1, 14, 8, 13, 2, 5, 13, 5, 3, 16, 1, 14
 5, 5, 16, 2, 16, 3, 16, 2, 13, 8, 5, 5, 5, 2, 13, 2, 13,
 15, 5, 2, 5, 16, 5,
 1, 14, 5, 5, 5, 2, 13, 2, 13, 1, 14
 702 3, 2, 5, 13, 3, 1, 3, 16, 1, 4, 16, 1, 16, 3, 14, 3, 16,
 2, 16, 1, 3, 13,
 1, 14, 1, 4, 16, 1, 16, 3, 14, 3, 16, 1, 14
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 3, 15, 2, 1, 5,
 3, 14, 1, 16, 2, 13, 4, 16, 1, 1, 3, 14, 1, 16
 703 8, 2, 2, 1, 16, 3, 14, 5, 13, 5, 13, 5, 3, 16, 1, 14, 1,
 2, 16, 1, 13, 1,
 14, 1, 14, 5, 13, 5, 3, 16, 1, 14, 1, 14, 1, 14
 13, 3, 13, 2
 2, 3, 16, 5, 16, 5, 16, 8, 5, 1, 14, 1, 16, 2, 13, 1, 14,
 2, 15, 5, 16, 8,
 3, 14, 1, 16, 1, 14, 1, 16, 2, 13, 1, 14, 3, 14, 1, 16
 15, 3, 15
 704 2, 2, 14, 1, 16, 3, 14, 5, 2, 3, 16, 1, 14, 7, 13, 2, 3,
 3, 13, 2, 2, 3,
 16, 1, 14, 3, 16, 1, 14, 7, 13, 2, 3, 16, 1, 14
 13
 1, 5, 16, 3, 16, 2, 16, 7, 3, 14, 2, 2, 13, 2, 3, 14, 1,
 15, 5, 2, 2, 1,
 16, 1, 16, 2, 2, 13, 2, 3, 14, 1, 16, 1, 16
 705 8, 2, 6, 2, 5, 5, 5, 8, 2, 5, 5, 5, 5, 8, 2, 5, 5, 5, 5, 5,
 2, 2, 2, 5, 5, 5,

8, 5, 3, 15
 8, 5, 15, 5, 1, 13, 1, 13, 3, 16, 1, 13,
 2, 1, 13, 1, 13, 2, 2
 2, 5, 8, 1, 15, 1, 15, 3, 16, 1, 15, 1,
 15, 1, 15, 1, 15, 2, 5
 6, 8, 15, 1, 15, 3, 5, 5, 2, 16, 3, 13,
 2, 16, 3, 13, 5, 15, 2, 2, 16, 4
 4, 3, 14, 6, 14, 2, 5, 3, 5, 8, 2, 16, 2,
 8, 2, 16, 2, 16, 5, 1, 15
 1, 1, 15, 1, 15, 5, 15, 10, 16, 3, 3, 2,
 3, 2, 16, 1, 13, 3, 3
 10, 1, 16, 3, 3, 15, 2, 1, 3, 15, 3, 15,
 15, 3, 15, 1, 1, 5, 16
 6, 5, 15, 1, 15, 5, 15, 2, 16, 4, 13, 6,
 4, 13, 4, 6, 13, 5, 15, 2, 16, 4, 13, 4
 4, 4, 14, 4, 14, 2, 14, 2, 14, 6, 14, 6,
 5, 1, 15, 6, 14, 5, 16, 5, 16, 5, 1, 15
 1, 8, 15, 5, 15, 5, 15, 5, 2, 16, 5, 5,
 5, 5, 2, 16, 3, 13, 2, 2
 3, 1, 14, 2, 15, 5, 8, 2, 5, 16, 5, 2,
 16, 5, 2, 15, 5, 2, 5, 16, 5, 13,
 1, 1, 15, 1, 15, 3, 5, 15, 3, 15, 4, 13,
 1, 15, 3, 4, 13, 2, 16, 1, 3, 13, 1, 15,
 3, 4, 14, 1, 14, 1, 15, 3, 15, 3, 15, 1,
 16, 3, 1, 3, 15, 2, 1, 5, 16, 3
 1, 5, 15, 5, 15, 8, 15, 5, 1, 13, 3, 13,
 13, 3, 13, 2, 3, 13, 2, 16, 1, 13, 1,
 3, 1, 14, 1, 14, 1, 14, 5, 15, 2, 5, 16,
 1, 15, 3, 15, 5, 16, 2, 15, 5, 16, 8, 1,
 7, 1, 15, 5, 15, 3, 15, 1, 13, 2, 2, 16,
 13, 1, 13, 2, 16, 3, 13, 2, 2, 3, 13, 1,
 2, 3, 14, 2, 14, 1, 14, 7, 16, 3, 15, 1,
 15, 3, 15, 1, 15, 5, 2, 2, 1, 15, 3, 15
 6, 8, 15, 8, 15, 5, 5, 5, 2, 5, 5, 5, 5, 5,
 5, 2, 2

2, 2, 16, 8, 5, 5, 5, 5, 6, 2, 5, 8, 5, 5, 5, 6, 2, 5, 8, 5, 5, 5, 2, 5, 5, 5 706 8, 2, 5, 5, 5, 2, 16, 2, 14, 8, 5, 2, 5, 8, 4, 2, 14, 8, 5, 4, 2, 5, 5, 8, 5, 2, 5, 8, 4 2, 5, 16, 4, 8, 2, 14, 8, 5, 5, 5, 2, 16, 5, 8, 2, 5, 5, 5, 5, 2, 2, 2, 15, 5, 2, 16, 5, 8, 2 707 2, 2, 14, 5, 13, 5, 13, 5, 10, 8, 16, 2, 1, 13, 5, 1, 8, 15, 5, 15, 5, 16, 3, 14, 3, 8, 16, 2, 1, 13, 5, 1, 16, 3, 14, 3 15, 5, 1, 13, 2, 5, 2, 16, 1, 16, 3, 16, 5, 8, 5, 2, 13, 3, 5, 14, 10, 16, 5, 8, 2, 5, 2, 5, 1, 13, 2, 13, 5, 2, 13, 3, 5, 14, 10, 16, 1, 13, 2, 13 708 3, 8, 14, 2, 5, 5, 5, 2, 16, 2, 14, 6, 14, 1, 16, 1, 14, 5, 13, 3, 15, 3, 1, 16, 1, 14, 3, 3, 2, 16, 2, 14, 6, 14, 1, 16, 1, 14, 1, 16, 1, 14 15, 1, 15 2, 3, 16, 2, 3, 5, 5, 1, 14, 1, 16, 3, 14, 2, 8, 5, 1, 14, 15, 1, 15, 2, 15, 1, 16, 6, 14, 1, 14, 1, 16, 3, 14, 2, 8, 5, 1, 14 15, 5, 8, 5 709 3, 8, 16, 2, 5, 5, 5, 8, 16, 2, 2, 5, 13, 5, 5, 16, 4, 2, 2, 16, 4, 2, 2, 5, 8, 16, 2, 2, 5, 13, 5, 5, 16, 4 3, 2, 16, 5, 16, 2, 16, 4, 8, 5, 8, 5, 5, 5, 2, 13, 2, 15, 5, 8, 5, 5, 3, 5, 8, 5, 5, 5, 2, 13 710 1, 5, 16, 1, 16, 3, 14, 2, 7, 16, 3, 14, 2, 4, 1, 3, 4, 16, 13, 2, 13, 1, 13, 2, 14, 5, 5, 3, 14, 2, 4, 1, 3, 4, 16, 2, 14 13, 7, 13 1, 5, 16, 7, 16, 4, 16, 4, 5, 5, 1, 14, 2, 16, 3, 14, 3, 6, 2, 3, 1, 15, 3, 14, 2, 3, 2, 1, 5, 1, 14, 2, 16, 3, 14, 3, 14, 2, 3 15, 3, 14	6, 2, 2, 15, 5, 5, 8, 5, 5, 5, 2, 5, 5, 8, 5, 8 8, 2, 15, 5, 2, 8, 13, 5, 5, 5, 8, 13, 2, 13, 2, 5, 4, 2 4, 2, 14, 8, 8, 5, 5, 2, 2, 2, 15, 5, 8, 5, 8, 5, 5 1, 5, 15, 10, 16, 2, 16, 3, 13, 3, 15, 15, 5, 1, 13, 2, 16, 2, 8, 15, 5, 15, 5, 16, 2 3, 10, 14, 1, 16, 1, 15, 3, 14, 2, 15, 16, 5, 16, 5, 8, 2, 5, 2, 5, 16, 5, 16 6, 8, 15, 5, 5, 3, 13, 1, 15, 1, 15, 2, 13, 1, 15, 1, 15, 2, 2, 1, 15, 2, 5, 13, 3, 15, 3, 13, 1, 3, 3, 14, 6, 14, 2, 2, 1, 15, 1, 15, 1, 5, 8, 5, 5, 3, 1, 15, 1, 15, 1, 15, 2, 5, 8, 15, 8, 15, 1, 15, 5, 5, 5, 5, 5, 2, 5, 5, 2, 2, 16, 4, 2 4, 2, 14, 5, 2, 15, 5, 8, 2, 5, 16, 2, 15, 2, 5, 16, 2, 15, 5, 8, 5, 5 2, 6, 15, 5, 15, 1, 15, 3, 5, 5, 3, 2, 3, 7, 13, 4, 4, 5, 3, 2, 3, 13, 2, 13, 1, 4, 2, 14, 5, 5, 4, 15, 2, 14, 3, 14, 7, 14, 5, 15, 1, 15, 3, 14, 7, 6, 2, 3, 1, 15, 3, 14
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Figure 17 is a diagram of the last 4 radicals of unified ideographs and the first 30 CJKV simplified and supplemental ideographs. The resolving of these characters is summarized in the following Table 20. In Table 20 the first numeral is the reference number from Figure 17 and the second column first line are the keystrokes on 5 the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in

Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 20: CJKV Simplified and supplemental ideographs

No.	Top	Left	Bottom	Right
	13.			
711	2, 2, 16, 5, 5, 2, 16, 3, 14, 3, 14, 2, 14, 1, 1, 5, 3, 16,		2, 5, 15, 5, 15, 5, 5, 1, 13, 1, 15, 3,	
	3, 1, 13, 1, 13, 3,			
	3, 14, 1, 1, 3, 14, 2, 14, 1, 1, 5, 3, 16, 3, 14, 5		3, 2, 2, 1, 15, 3, 3, 1, 13, 1, 13, 3, 3,	
2	5, 2, 16, 5, 2, 5, 3, 14, 3, 16, 1, 1, 2, 3, 14, 3, 16, 5,		2, 5, 2, 3, 15, 3, 14, 1, 1, 5, 3, 15, 3,	
	14, 1, 1, 5, 15,			
	1, 1, 3, 16, 1, 1, 2, 3, 14, 3, 16, 5, 2		2, 2, 1, 5, 3, 15, 3, 14, 1, 1, 5, 15, 5	
712	1, 2, 14, 5, 16, 5, 16, 1, 16, 3, 14, 5, 8, 5, 7, 16, 2,		6, 5, 5, 5, 8, 15, 5, 5, 2, 7, 13, 5, 15,	
	3, 15, 5, 15, 1,			
	6, 5, 5, 5, 5, 8, 5, 7, 16, 2, 6, 5, 5, 5		15, 5, 5, 5, 2, 7, 13, 5, 15, 3, 15, 5,	
15, 1, 15, 1, 2	1, 2, 16, 5, 16, 1, 16, 5, 16, 7, 5, 5, 3, 2, 14, 8, 6,		2, 6, 14, 7, 5, 5, 5, 5, 5, 5, 8, 5, 15,	
	1, 15, 3, 14, 2, 5,			
	16, 5, 5, 5, 5, 3, 2, 14, 8, 6, 16, 5, 5, 5		15, 5, 5, 5, 8, 5, 15, 1, 15, 3, 14, 5,	
1, 15	16, 5, 5, 5, 5, 5, 3, 2, 14, 8, 6, 16, 5, 5, 5			
713	3, 10, 8, 16, 2, 6, 2, 5, 5, 8, 16, 8, 5, 13, 1, 16, 3, 13,		6, 10, 15, 8, 15, 8, 15, 5, 5, 1, 13, 3,	
	16, 2, 5, 5, 5, 8,			
	5, 8, 16, 5, 5, 8, 16, 8, 5, 13, 1, 16, 3, 13, 5, 13, 5, 5		16, 8, 16, 5, 1, 13, 3, 16, 2, 5, 5, 5,	
8, 16, 5, 2, 3	8, 16, 5, 2, 3			
	3, 2, 16, 8, 16, 8, 16, 10, 8, 5, 13, 5, 5, 13, 5, 5, 6, 2,		6, 5, 8, 15, 2, 5, 8, 5, 16, 3, 15, 1,	
16, 5, 15, 8, 5, 16,	16, 5, 15, 8, 5, 16,			
	5, 8, 5, 13, 5, 5, 13, 5, 5, 6, 2, 1, 14, 3, 13, 5		2, 15, 5, 5, 5, 16, 3, 15, 1, 16, 5, 15,	
8, 5, 16, 2, 15,	8, 5, 16, 2, 15,			
			8, 3, 15, 10	
714	3, 1, 5, 16, 8, 16, 8, 14, 8, 14, 2, 2, 2, 5, 5, 5, 7, 16,		7, 8, 15, 5, 15, 1, 15, 5, 5, 2, 2, 16,	
	8, 13, 5, 2, 2, 16,			
	2, 2, 2, 2, 5, 5, 5, 7, 16, 2, 5, 13		8, 13, 5, 2, 2, 2, 16, 8, 13, 5, 2, 2,	
16, 8, 13, 2, 3	16, 8, 13, 2, 3			
	3, 2, 16, 2, 16, 8, 5, 7, 5, 16, 5, 2, 16, 2, 13, 8, 5, 3,		2, 2, 14, 2, 14, 7, 5, 16, 2, 15, 2, 14,	
2, 14, 5, 5, 5, 8,	2, 14, 5, 5, 5, 8,			
	2, 16, 2, 13, 5, 16, 5, 2, 16, 2, 13, 8, 5, 3, 8, 5		8, 8, 5, 15, 2, 14, 2, 14, 5, 5, 5, 8, 8,	
3, 15, 1	3, 15, 1			
800	3, 10, 8, 16, 2, 6, 5, 13, 5, 13, 5, 13		6, 10, 15, 8, 5, 16, 5, 16, 2, 3, 3	
	3, 2, 16, 8, 5, 10, 5, 6, 13, 6, 13		6, 2, 15, 5, 16, 8, 5, 16, 3, 15, 10,	
10				
801	1, 1, 16		1, 1, 15	
	1, 1, 16		1, 1, 15	
802	3, 4		3, 4	
	4, 3		4, 3	
803	10		10	
	10		10	
804	6		6	
	6		6	
805	9		9	

	9	9
806	3, 2	3, 2
	3, 2	2, 3
807	7, 4	7, 4
	4, 7	4, 7
808	9, 4	9, 4
	4, 9	4, 9
809	3, 10	10, 3
	3, 10	3, 10
810	2, 4, 14	4, 2, 13
	2, 4, 14	4, 2, 15
811	2, 5	5, 2
	2, 5	2, 5
812	7, 6	6, 7
	6, 7	6, 7
813	1, 2, 14, 3, 14	3, 2, 13, 1, 13
	1, 2, 14, 3, 14	1, 2, 14, 3, 14
814	1, 1, 14, 3, 14	3, 1, 13, 1, 13
	1, 1, 14, 3, 14	1, 1, 14, 3, 14
815	5, 4, 6	6, 5, 4
	5, 4, 6	4, 6, 14, 5
816	3, 1, 14, 4, 16, 6, 14	6, 1, 15, 4, 13, 3, 15
	3, 4, 16, 1, 14, 6, 14	4, 6, 14, 3, 15, 1
817	4, 5, 13, 6, 16	6, 5, 15, 4, 16
	5, 4, 13, 6, 14	4, 6, 14, 5, 16
818	3, 1, 14, 9, 16, 4	9, 1, 15, 4, 3, 15
	3, 4, 16, 9, 1, 14	4, 9, 3, 15, 1, 14
819	8, 6, 5	6, 8, 5
	6, 8, 5	6, 5, 8
820	3, 3, 3, 1, 16, 3	1, 3, 3, 3, 3
	3, 3, 3, 3, 1	3, 1, 3, 3, 3
821	3, 10, 5, 5	5, 10, 5, 3
	3, 5, 16, 10, 5	5, 10, 5, 3
822	8, 5, 5	8, 5, 5
	8, 5, 5	5, 8, 5
823	2, 3, 16, 1, 16	1, 2, 13, 3, 13
	3, 2, 14, 1, 14	2, 3, 15, 1, 15
824	4, 3, 16, 1, 16, 1, 14	1, 1, 13, 4, 13, 3, 13
	3, 4, 14, 1, 14, 1, 14	3, 4, 14, 1, 14, 1, 14
825	4, 5, 13, 3, 13	3, 5, 15, 4, 16
	5, 3, 16, 4, 13	4, 3, 16, 5, 16
826	3, 5, 1, 16, 3, 13	1, 5, 15, 3, 16, 3
	3, 1, 16, 3, 13, 5	3, 1, 16, 3, 15, 5
827	5, 4, 3, 16, 5, 13, 6, 16	6, 5, 15, 5, 15, 4, 16, 3
	5, 3, 16, 4, 5, 13, 6, 14	4, 6, 14, 3, 15, 5, 16, 5
828	8, 2, 5, 16, 5, 16	8, 5, 13, 5, 15, 2
	2, 8, 5, 14, 5, 16	2, 5, 14, 8, 5, 16
829	7, 2, 5, 5	7, 5, 5, 2
	2, 7, 5, 5	2, 7, 5, 5
830	2, 5, 3, 16, 10, 1	10, 5, 15, 1, 2, 15, 3
	3, 2, 16, 10, 1, 5	10, 1, 3, 2, 15, 5
831	7, 3, 1, 16, 5, 13, 1, 16, 5, 13	5, 5, 15, 7, 16, 1, 13, 1, 13, 3, 16
	5, 3, 13, 5, 16, 7, 13, 1, 14, 1, 16	7, 3, 5, 16, 1, 15, 5, 16, 1, 15
832	8, 2, 5, 6, 16, 5, 3	6, 8, 15, 5, 16, 5, 3, 13, 2
	3, 2, 8, 5, 5, 6, 13	3, 6, 14, 2, 5, 16, 5, 8
833	1, 1, 16, 3, 16	3, 1, 15, 1, 15
	1, 1, 16, 3, 16	3, 1, 15, 1, 15

834	2, 1, 16, 3, 16, 3, 16, 1, 16 1, 3, 16, 4, 14, 3, 14, 1, 16	1, 3, 15, 4, 13, 3, 13, 1, 15 3, 4, 14, 1, 14, 1, 15, 3, 15
835	3, 1, 14, 1, 14, 1, 14 3, 1, 14, 1, 14, 1, 14	1, 1, 13, 1, 13, 3, 13 3, 1, 14, 1, 14, 1, 14

Figure 18 is a diagram of the last 42 CJKV simplified and supplemental ideographs. The resolving of these characters is summarized in the following Table 21. In Table 21 the first numeral is the reference number from Figure 18 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 21: CJKV Simplified and supplemental ideographs

No.	Top	Right		
		14.	Left	Bottom
836	3, 1, 16, 1, 14, 3, 14 3, 1, 16, 1, 14, 3, 14			3, 3, 15, 1, 13, 1, 13 1, 1, 14, 3, 14, 3, 15
837	4, 2, 14, 6, 14, 14 4, 2, 14, 6, 14			6, 2, 13, 4, 13 4, 2, 14, 6, 14
838	2, 1, 16, 3, 16 1, 3, 16, 2, 14			2, 3, 13, 1, 15 3, 2, 14, 1, 15
839	2, 3, 16, 5, 13, 5 3, 5, 16, 5, 2, 13			5, 5, 15, 2, 3 5, 2, 3, 15, 5, 16
840	4, 3, 13, 3 4, 3, 13, 3			4, 3, 16, 3 4, 3, 3, 16
841	5, 2, 5, 13, 3 5, 5, 16, 3, 16, 2, 13			3, 5, 15, 5, 15, 2, 16 3, 2, 5, 16, 5
842	10, 2, 16, 2, 5, 3 10, 3, 16, 2, 2, 5			3, 5, 15, 10, 15, 2, 2 3, 2, 2, 5, 10
843	8, 2, 2, 2, 5 2, 8, 5, 2, 2			8, 5, 2, 2, 2 2, 5, 8, 2, 2
844	5, 5, 16, 4, 3, 16, 1, 16 5, 5, 5, 3, 5, 4, 1			1, 5, 15, 5, 15, 4, 3 3, 4, 14, 1, 14, 5, 5, 15
845	1, 10, 16, 2, 1, 16 1, 10, 16, 2, 3, 14			1, 1, 15, 10, 2 2, 1, 14, 10, 1, 15
846	3, 3, 14, 5, 5, 1, 1 3, 5, 1, 3, 14, 5, 1			1, 5, 3, 1, 13, 5, 3 1, 1, 14, 3, 3, 5, 5
847	3, 3, 3, 1, 16, 3, 3, 16, 1, 14, 1, 14, 1, 14, 1, 14, 13			1, 1, 15, 3, 13, 3, 1, 3, 3, 3, 13, 3, 3, 3
848	3, 3, 16, 3, 3, 16 3, 3, 16, 3, 3, 3			3, 2, 14, 2, 14, 3, 15, 1, 3, 3, 3, 3, 3 3, 3, 15, 3, 3, 3 3, 3, 15, 3, 3, 3
849	8, 2, 1, 16, 3, 13			8, 1, 13, 3, 16, 2

	2, 8, 1, 14, 3, 13	2, 3, 14, 8, 1, 16
850	10, 3, 3, 16, 1, 14	1, 10, 15, 3, 13, 3
	3, 3, 16, 10, 1, 14	3, 1, 14, 3, 15, 10
851	10, 3, 4, 6	6, 10, 4, 3
	3, 4, 16, 10, 6	4, 6, 14, 3, 15, 10
852	8, 2, 2, 2	8, 2, 2, 2
	2, 8, 2, 2	2, 8, 2, 2
853	1, 3, 14, 5, 16, 4, 5, 13, 5, 13	5, 5, 15, 5, 15, 3, 15, 4, 16, 1, 13
	1, 5, 16, 5, 16, 5, 16, 4, 13, 3, 14	4, 5, 5, 16, 5, 1, 15, 3, 14
854	1, 3, 14, 5, 16, 2, 5, 13, 5	5, 5, 15, 5, 15, 3, 15, 2, 16, 1, 13
	1, 5, 16, 5, 16, 5, 16, 2, 13, 3, 14	5, 2, 5, 16, 5, 1, 15, 3, 14
855	2, 2, 14, 5, 5, 5, 16, 2, 5, 13, 5, 13	5, 5, 15, 5, 15, 2, 13, 2, 2, 13, 5, 5
	5, 5, 16, 5, 16, 2, 2, 13, 2, 14, 5, 5	2, 5, 16, 5, 2, 15, 2, 14, 5, 5, 5
856	2, 3, 14, 5, 13, 5, 13	5, 3, 16, 5, 13, 2, 16
	5, 3, 16, 5, 13, 2, 13	3, 5, 16, 2, 5, 16
857	2, 8, 13, 5, 13, 5, 13	5, 8, 16, 5, 2, 16
	8, 5, 13, 5, 2, 13	2, 5, 16, 8, 16, 5, 16
858	2, 8, 13, 5, 13, 5, 13, 5	5, 5, 15, 8, 16, 5, 2, 16
	8, 5, 16, 5, 13, 5, 2, 13	5, 2, 5, 16, 8, 16, 5, 16
859	7, 4, 1, 16, 3, 16	7, 3, 13, 1, 15, 4
	4, 7, 1, 14, 3, 16	4, 7, 3, 15, 1, 15
860	3, 8, 14, 2, 5, 5, 5, 5, 5	8, 5, 5, 5, 13, 5, 15, 3, 2, 2
	3, 2, 5, 5, 8, 14, 5, 5, 5	2, 5, 14, 5, 8, 5, 5, 3, 3
861	2, 2, 14, 5, 13	5, 2, 16, 2, 16
	5, 2, 13, 2, 13	2, 2, 14, 5, 16
862	2, 2, 14, 5, 5	5, 2, 2, 13, 5
	5, 2, 2, 14, 5	2, 2, 14, 5, 5
863	2, 2, 14, 5, 5	5, 2, 2, 13, 5
	5, 2, 2, 14, 5	2, 2, 14, 5, 5
864	2, 5, 10, 16, 4, 6, 16, 3, 13, 9, 16, 4, 9, 16, 4	9, 6, 15, 10, 15, 5, 15, 3, 16, 2, 15,
4, 4, 4, 4	2, 4, 16, 10, 3, 14, 4, 16, 6, 13, 9, 5, 9, 5	4, 4, 14, 9, 6, 15, 3, 16, 10, 2, 15, 5,
2, 15, 5		
865	1, 10, 16, 2, 3, 16, 1, 16	1, 1, 15, 3, 15, 10, 2
	1, 10, 16, 2, 3, 14, 1, 16	2, 1, 14, 10, 3, 15, 1, 15
866	5, 2, 2, 8, 13, 2, 5	8, 5, 15, 5, 2, 16, 2, 16, 2
	5, 2, 16, 8, 5, 2, 13, 2, 13	2, 5, 8, 2, 16, 2, 16, 5
867	5, 4, 6, 8, 13, 2, 5	8, 5, 15, 5, 6, 13, 4, 13, 2
	5, 2, 16, 8, 5, 4, 13, 6, 13	2, 5, 8, 4, 16, 6, 16, 5
868	8, 2, 4, 16, 6, 16	6, 8, 15, 4, 13, 2
	2, 4, 16, 8, 6	4, 6, 14, 2, 15, 8
869	3, 10, 7, 16, 4, 2, 5, 13, 5, 13, 5, 13	7, 10, 15, 5, 5, 2, 16, 4, 3, 3
	3, 4, 16, 7, 10, 5, 5, 2, 13, 2, 13	4, 2, 14, 7, 5, 16, 5, 16, 3, 15, 10,
10		
870	3, 10, 7, 16, 2, 3, 16, 1, 3, 16, 1, 3, 16, 1	7, 10, 15, 1, 13, 1, 15, 3, 3, 2, 3, 2,
3	3, 2, 16, 7, 10, 3, 14, 3, 16, 1, 1, 1, 1	2, 3, 14, 7, 1, 3, 15, 1, 3, 15, 10, 3,
15, 10		
871	1, 8, 16, 3	3, 1, 15, 8
	1, 8, 16, 3	3, 8, 1, 15
872	8, 2, 4, 16, 1	1, 8, 15, 4, 2
	2, 4, 16, 8, 1	4, 1, 2, 15, 8
873	8, 2, 5, 2, 2, 16, 5, 3, 3	3, 5, 15, 8, 15, 5, 2, 2, 2, 2
	2, 3, 16, 2, 8, 5, 2, 5, 5	3, 2, 2, 5, 2, 16, 5, 8, 8
874	3, 5, 13, 2, 16, 5, 13, 5, 13	5, 5, 15, 5, 15, 2, 16, 3, 16
	5, 5, 16, 3, 13, 5, 2, 13	2, 5, 16, 3, 15, 5, 16, 5, 16
875	1, 8, 16, 3, 1	1, 1, 15, 8, 1

	1, 8, 16, 3, 1	3, 1, 8, 1, 15
876	1, 1, 16, 8, 16, 3, 1	1, 1, 15, 1, 15, 8, 1
	1, 1, 16, 8, 16, 3, 16, 1	3, 1, 8, 1, 15, 1, 15
877	1, 10, 16, 10, 1	1, 1, 15, 10, 10
	1, 10, 16, 10, 1	10, 1, 10, 1, 15

Figure 19 is a diagram of the last 36 CJKV simplified and supplemental ideographs. The resolving of these characters is summarized in the following Table 22. In Table 22 the first numeral is the reference number from Figure 19 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 22: CJKV Simplified and supplemental ideographs

No.	Top	Right	
		15.	Left Bottom
878	10, 2, 4 2, 10, 4		4, 10, 2 2, 4, 14, 10
879	3, 5, 5, 16, 2, 5, 13, 3 3, 5, 16, 5, 16, 3, 16, 5, 2, 13		3, 5, 15, 5, 15, 5, 15, 2, 16, 3 3, 2, 5, 16, 5, 3, 16, 5
880	5, 2, 5, 5, 5, 2, 1, 16, 3, 3, 1, 16, 3, 3 2, 2, 3, 13, 2, 2		1, 5, 15, 5, 15, 5, 15, 5, 15, 3, 3, 13, 3, 1, 14, 2, 3, 5, 2, 15, 5, 5, 5, 5,
5	5, 3, 16, 2, 2, 5, 5, 5, 1, 14, 3, 5, 1, 14, 3		
881	5, 2, 5, 5, 5, 3, 1, 16, 3, 1, 16, 3 3, 2		1, 5, 15, 5, 15, 5, 15, 5, 15, 3, 3, 2,
	5, 3, 16, 2, 3, 5, 5, 5, 1, 5, 1		3, 1, 3, 5, 2, 5, 5, 5, 5, 5
882	2, 3, 14, 5, 13, 1, 16, 3 5, 3, 16, 2, 13, 3, 14, 1, 14		1, 5, 15, 3, 15, 3, 13, 2, 16 3, 1, 14, 2, 5, 16, 3, 15
883	1, 7, 14, 2, 16 2, 1, 14, 7, 14		7, 1, 13, 2, 13 2, 7, 14, 1, 15
884	3, 8, 16, 2, 5, 8, 5, 8, 5, 8, 5 3, 2, 16, 8, 5, 5, 8, 5, 8, 5, 8		8, 3, 15, 5, 8, 5, 8, 5, 2, 5, 2 2, 5, 8, 5, 8, 5, 8, 3, 15, 8, 3, 15
885	5, 2, 8, 13, 3, 5, 16, 5, 16, 5, 16, 5, 16, 5, 16 5, 15, 3, 5, 15, 3 5, 3, 16, 10, 5, 16, 5, 16, 2, 13, 5, 14, 5, 16, 5, 14, 10, 16, 5, 10, 16, 5 5, 16		5, 5, 15, 10, 15, 5, 15, 2, 16, 5, 13, 5, 2, 14, 5, 14, 5, 15, 5, 15, 3, 15,
886	2, 5, 5, 13, 5, 13, 7, 16, 2, 5, 5, 5, 5 2, 16, 2 5, 2, 16, 5, 16, 5, 16, 7, 5, 5, 2, 13, 5, 2, 13 16, 5, 16		7, 5, 15, 5, 15, 5, 15, 5, 2, 16, 2, 2, 7, 5, 5, 5, 15, 2, 5, 16, 5, 16, 5,
887	2, 5, 13, 5, 13, 7, 13		7, 5, 15, 5, 15, 2, 16

	5, 5, 16, 7, 16, 2, 13	2, 7, 16, 5, 16, 5, 16
888	5, 3, 8, 2, 4, 16, 1	1, 8, 15, 5, 15, 3, 13, 4, 2
	5, 2, 16, 4, 16, 8, 3, 1	4, 1, 2, 15, 8, 3, 5
889	9, 3, 14, 1, 16	9, 1, 15, 3, 15
	9, 3, 14, 1, 16	9, 1, 15, 3, 15
890	9, 4, 1, 16, 3, 13	9, 1, 13, 3, 16, 4
	4, 9, 1, 14, 3, 13	4, 3, 14, 9, 1, 16
891	3, 1, 1, 16, 8, 16, 2, 5, 5, 1, 16, 3, 3, 5, 1, 16, 3, 3	1, 8, 15, 1, 15, 1, 15, 3, 5, 5, 3, 13,
	3, 2, 5, 3, 13,	
	3, 3, 16, 2, 1, 14, 8, 5, 5, 1, 14, 1, 3, 5, 1, 14, 1, 3	3, 2
	5, 1, 15, 3,	3, 1, 14, 2, 3, 5, 8, 5, 1, 15, 3, 15, 1,
892	3, 1, 1, 16, 8, 16, 2, 5, 5, 5, 5, 5, 5	15, 1
3	3, 2, 16, 1, 14, 8, 5, 5, 5, 5, 3, 5, 5, 3	5, 1, 15, 1, 15, 5, 8, 5, 5, 2, 3, 5, 2,
	3, 15, 1	2, 5, 5, 5, 8, 5, 1, 15, 3, 15, 1, 1, 15,
893	3, 1, 1, 16, 8, 16, 2, 5, 5, 1, 16, 3, 5, 1, 16, 3	1, 8, 15, 1, 15, 1, 15, 5, 15, 3, 5, 2,
	3, 5, 2, 3	3, 1, 2, 5, 8, 5, 1, 15, 3, 15, 1, 1, 15,
	3, 3, 16, 2, 1, 14, 8, 5, 5, 1, 14, 1, 5, 1, 14, 1	3, 10, 15, 2, 3
3, 15, 1		3, 2, 3, 15, 10
894	3, 10, 2, 16, 3	8, 5, 15, 1, 15, 3, 13, 3, 5, 5, 5, 5, 1,
	3, 3, 16, 10, 2	5, 5, 5, 1, 13, 3, 1, 13, 3
895	3, 3, 14, 3, 14, 1, 14, 1, 1, 5, 16, 3, 8, 2, 5, 5, 5, 5,	2, 5, 8, 5, 5, 3, 15, 5, 1, 15, 1, 14, 1,
13, 3, 1, 13, 3,	16, 3, 8, 2, 5, 5, 5	15, 1, 14, 1, 14, 3, 3, 3
	3, 5, 16, 2, 16, 1, 3, 14, 8, 5, 5, 5, 3, 14, 1, 3, 14,	7, 10, 5, 13, 3
14, 3, 3, 5, 1,	14, 3, 5, 1, 13, 3, 14, 1, 1	5, 7, 14, 3, 10
896	10, 3, 16, 7, 5, 16	7, 10, 15, 8, 5, 5, 8, 2, 2, 3, 2, 2, 3
	10, 3, 16, 5, 16, 7	2, 7, 5, 5, 3, 15, 10, 2, 8, 8, 2, 8, 8
897	8, 2, 8, 10, 3, 7, 16, 2, 5, 5, 2, 5, 5	6, 1, 15, 8, 15, 3, 15, 5, 3, 5, 3, 4,
	3, 2, 16, 2, 8, 8, 10, 7, 5, 5, 7, 5, 5	16, 2
898	3, 8, 16, 2, 4, 5, 13, 5, 13, 6, 16, 3, 16, 1, 14, 3, 6,	4, 6, 14, 3, 15, 1, 3, 2, 15, 5, 16, 8,
16, 2, 5, 3, 4,	16, 3, 16, 1, 14, 3	16, 8, 5, 16, 3, 15
	3, 2, 16, 4, 16, 8, 5, 13, 5, 13, 6, 14, 3, 14, 3, 1, 6,	5, 8, 15, 10, 15, 5, 5, 2, 16, 2, 3, 2,
5, 16, 3, 15, 5,	14, 3, 14, 3, 1	5, 2, 15, 5, 8, 2, 5, 16, 3, 15, 10, 3,
899	3, 10, 8, 16, 2, 2, 5, 13, 5, 5, 16, 5, 5, 16	7, 3, 15, 7, 1, 13, 5, 13, 2
3	3, 2, 16, 5, 16, 8, 5, 10, 5, 2, 13, 5, 2, 13	5, 7, 14, 2, 7, 1, 15, 3, 15
15, 10		8, 5, 15, 5, 1, 13, 3, 16, 2, 2, 2
900	3, 7, 16, 2, 1, 16, 7, 5, 16	2, 5, 8, 3, 15, 1, 16, 2, 15, 5, 5
	3, 2, 16, 5, 16, 7, 7, 1, 14	1, 5, 15, 5, 15, 5, 15, 10, 16, 2, 16,
901	2, 5, 8, 16, 2, 1, 16, 3, 13, 5, 5	10, 1, 16, 3, 5, 15, 2, 5, 16, 5, 16, 5,
	2, 2, 16, 8, 5, 1, 14, 3, 13, 5, 5	1, 8, 15, 5, 15, 5, 15, 5, 2, 16, 2,
902	2, 5, 5, 13, 5, 13, 3, 16, 10, 1, 13, 1, 13	2, 2, 16, 2, 16, 3, 13, 2, 16, 2
3, 3	5, 3, 16, 5, 16, 5, 16, 1, 16, 10, 13, 2, 13, 2, 13	3, 1, 14, 2, 15, 5, 8, 2, 5, 16, 5, 15,
	16	5, 15, 2, 2, 5, 16
903	2, 2, 14, 5, 13, 5, 2, 16, 8, 13, 2, 5, 13, 5, 3, 16, 1,	
16, 3, 13, 2, 16,	14, 2, 5, 13, 5, 3, 16, 1, 14	
	5, 5, 16, 2, 16, 3, 16, 8, 5, 5, 2, 13, 2, 13, 2, 13, 1,	
2, 2, 5, 16, 5, 16,	16, 5, 2, 13, 2, 13, 2, 13, 1, 16	

904	8, 2, 5, 6, 8, 13, 2, 5, 13, 5, 13, 5, 13, 5, 13 2, 2	6, 8, 15, 8, 16, 5, 5, 16, 5, 16, 2, 2, 2, 2, 16, 8, 8, 5, 5, 5, 6, 13, 5, 6, 13
5, 8	1, 5, 16, 1, 16, 3, 13, 4, 16, 2, 14, 5, 5, 5, 5 5, 4	2, 1, 15, 5, 15, 1, 15, 3, 16, 5, 5, 4, 1, 5, 16, 1, 16, 4, 16, 3, 13, 2, 14
905	1, 5, 16, 1, 16, 4, 16, 3, 5, 5, 2, 5, 2 15, 5, 15, 1, 15	4, 2, 14, 5, 5, 3, 15, 1, 16, 5, 15, 1, 2, 1, 15, 5, 15, 1, 15, 3, 16, 4, 13
906	1, 5, 16, 1, 16, 3, 13, 4, 16, 2, 14 1, 5, 16, 1, 16, 4, 16, 3, 13, 2, 14	4, 2, 14, 3, 15, 1, 16, 5, 15, 1, 15
907	2, 2, 14, 5, 5, 2, 16, 2, 14, 2, 14, 1, 16, 3, 16, 5, 13, 2, 13, 2, 3, 1, 1, 3, 5, 2, 14, 1, 16, 3, 16, 5, 13, 1, 3, 5 2	2, 5, 15, 5, 15, 5, 1, 13, 5, 15, 3, 15, 13, 2, 2, 3, 15, 2, 13, 2, 3, 1, 13, 2, 2, 5, 2, 3, 15, 2, 1, 5, 16, 1, 15, 3,
908	5, 2, 16, 5, 2, 1, 14, 5, 16, 3, 16, 2, 2, 13, 5, 3, 16, 15, 5, 15, 2, 2, 5, 1, 2, 3, 16, 2, 2, 13, 5, 3, 16, 1, 2	5, 16, 1, 15, 3, 15, 5, 15, 2, 2, 5 2, 5, 15, 5, 15, 5, 1, 13, 2, 3, 2, 2, 3,
909	2, 2, 14, 5, 5, 2, 16, 3, 14, 2, 14, 2, 5, 2, 14, 2, 5 2, 2	2, 5, 2, 3, 15, 1, 16, 5, 15, 2, 2, 5, 2, 6, 5, 15, 3, 15, 1, 15, 1, 15, 8, 5, 16,
910	5, 2, 16, 5, 2, 3, 14, 1, 2, 5, 2, 2, 5, 2 2, 5	5, 16, 5, 16, 1, 13, 2 6, 2, 15, 5, 16, 8, 5, 16, 5, 15, 1, 15,
911	1, 5, 16, 1, 16, 3, 14, 5, 8, 16, 2, 6, 5, 13, 5, 13, 2, 5, 16, 1, 13, 2, 6, 5, 13, 5, 13 1, 5, 16, 1, 16, 5, 16, 2, 16, 8, 5, 5, 6, 13, 3, 14, 5, 3, 14, 5, 15, 1, 5, 6, 13, 3, 14	15, 1, 15, 3, 14, 5, 15, 1, 15 6, 5, 15, 1, 15, 3, 16, 4, 16 4, 6, 14, 3, 16, 5, 16, 1, 15 6, 3, 15, 8, 8, 5, 5, 1, 13, 3, 16, 2, 5,
912	4, 1, 14, 5, 13, 6, 16, 3, 13 5, 4, 13, 3, 14, 1, 14, 6, 13	16, 5, 1, 13, 3, 16, 2, 5, 5, 5, 8, 16,
913	3, 8, 16, 2, 5, 5, 6, 2, 8, 16, 8, 5, 13, 1, 16, 3, 13, 5, 5, 5, 8, 16, 8, 8, 16, 5, 13, 2, 8, 16, 8, 5, 13, 1, 16, 3, 13, 5, 5, 5 5, 2	6, 5, 15, 8, 2, 5, 16, 5, 8, 3, 15, 1, 2, 15, 5, 5, 8, 3, 15, 1, 16, 5, 15, 8, 3, 15 6, 10, 15, 8, 16, 8, 5, 16, 5, 16, 5, 5, 16, 5, 16, 2, 2, 3
10	3, 2, 16, 8, 16, 8, 16, 5, 5, 13, 5, 5, 13, 5, 5, 13, 5, 5, 16, 5, 15, 8, 5, 16, 2, 5, 8, 1, 14, 5, 13, 5, 5, 13, 5, 5, 2, 5, 3, 13, 5 5, 16, 2, 15, 8,	6, 2, 15, 5, 16, 8, 5, 16, 2, 15, 5, 16, 15, 10, 5, 16, 8, 16, 5, 16, 3, 15, 10 6, 10, 15, 8, 5, 16, 5, 16, 2, 3, 3 6, 2, 15, 5, 16, 8, 5, 16, 3, 15, 10,

Figure 20 is a diagram of the first 42 characters of the phonetic Japanese called Hiragana. The resolving of these characters is summarized in the following Table 23. In Table 23 the first numeral is the reference number from Figure 20 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as

in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

5

Table 23: Japanese Hiragana characters

No.	Top	Right
16.	Left	Bottom
1001	6, 5, 13, 9, 13, 7, 3, 13 5, 9, 16, 3, 6, 13, 7	7, 5, 15, 6, 16, 3, 16, 9 9, 7, 3, 6, 16, 5, 16
1002	6, 1, 14 6, 1, 14	1, 6, 13 6, 1, 14
1003	1, 7, 16 1, 7, 16	7, 1, 15 7, 1, 15
1004	1, 10, 16, 3, 6 1, 10, 16, 3, 6	6, 1, 15, 10, 3 10, 6, 14, 3, 1, 15
1005	4, 1, 14, 5, 13, 7, 13 5, 4, 13, 7, 13, 1, 14	7, 1, 15, 4, 16, 5, 16 4, 7, 16, 5, 16, 1, 14
1006	3, 1, 14, 7, 13 7, 3, 13, 1, 14	1, 7, 13, 3, 16 3, 7, 16, 1, 14
1007	3, 1, 14, 1, 14, 1, 16, 7, 13 7, 3, 13, 1, 14, 1, 16, 1, 14	1, 1, 15, 1, 13, 7, 13, 3, 16 3, 7, 16, 1, 14, 1, 15, 1, 14
1008	1, 5, 13, 5, 13, 9 5, 5, 16, 9, 16, 1, 13	9, 5, 15, 5, 15, 1, 16 9, 1, 5, 16, 5, 16
1009	1, 1, 14, 1, 14, 5, 13, 5, 13, 9 16	9, 1, 15, 5, 15, 5, 15, 1, 13, 3, 16
	5, 5, 16, 9, 16, 1, 13, 1, 14, 1, 14	9, 1, 5, 16, 5, 16, 1, 15, 1, 14
1010	3, 1 3, 1	1, 3 1, 3
1011	3, 1, 14, 1, 14, 1 3, 1, 1, 14, 1, 14	1, 1, 13, 1, 13, 3, 13 1, 3, 1, 15, 1, 14
1012	6, 4, 14, 5, 13 6, 5, 14, 4, 13	5, 4, 16, 6 6, 4, 5, 16
1013	6, 4, 14, 1, 14, 1, 14, 5, 13 6, 5, 14, 4, 13, 1, 14, 1, 14	5, 1, 15, 1, 13, 4, 16, 6, 13 6, 4, 5, 16, 1, 15, 1, 14
1014	10, 6, 16 10, 6, 16	6, 10, 15 6, 10, 16
1015	10, 1, 14, 1, 14, 6, 16 10, 6, 16, 1, 14, 1, 14	6, 1, 15, 10, 15, 1, 13 6, 10, 16, 1, 15, 1, 14
1016	1, 5, 13, 9 5, 9, 16, 1	9, 5, 15, 1, 16 9, 1, 5, 16
1017	1, 1, 14, 1, 14, 5, 13, 9 5, 9, 16, 1, 13, 1, 14, 1, 14	9, 1, 15, 5, 15, 1, 16, 1, 13 9, 1, 5, 16, 1, 15, 1, 14
1018	6 6	6 6
1019	6, 1, 14, 1, 14 6, 1, 14, 1, 14	6, 1, 15, 1, 13 6, 1, 15, 1, 14
1020	4, 5, 13, 9, 7, 13	5, 7, 13, 6, 16, 9

	5, 9, 16, 7, 4, 13	7, 9, 4, 16, 5, 16
1021	4, 1, 14, 1, 14, 5, 13, 9, 7, 13 5, 9, 16, 7, 4, 13, 1, 14, 1, 14	5, 1, 15, 1, 13, 7, 13, 6, 16, 9 7, 9, 4, 16, 5, 16, 1, 15, 1, 14
1022	6, 4, 14, 5, 13 5, 6, 13, 4, 13	6, 5, 16, 4, 16 6, 4, 15, 5, 16
1023	6, 4, 14, 1, 14, 1, 14, 5, 13 5, 6, 13, 4, 13, 1, 14, 1, 14	6, 1, 15, 5, 16, 1, 13, 4, 16 6, 4, 15, 5, 16, 1, 15, 1, 14
1024	10, 9 10, 9	9, 10 9, 10
1025	10, 1, 14, 1, 14, 9 10, 9, 1, 14, 1, 14	9, 1, 15, 10, 13, 1 9, 10, 1, 15, 1, 14
1026	3, 5, 13, 10, 16, 6, 16 5, 3, 13, 10, 14, 6, 16	6, 10, 15, 5, 13, 3, 16 3, 6, 14, 10, 15, 5, 16
1027	3, 1, 14, 1, 14, 5, 13, 10, 16, 6, 16 3, 16	6, 1, 15, 10, 15, 1, 13, 5, 13, 3, 6, 14, 10, 15, 5, 16, 1, 15,
1, 14	5, 3, 13, 10, 14, 6, 16, 1, 14, 1, 14	
1028	6, 5, 13, 7 5, 6, 13, 7	7, 5, 15, 6, 16 7, 6, 5, 16
1029	6, 1, 14, 1, 14, 5, 13, 7 5, 6, 13, 7, 1, 14, 1, 14	7, 1, 15, 1, 13, 5, 13, 3, 16 7, 6, 5, 16, 1, 15, 1, 14
1030	7 7	7 7
1031	7, 1, 14, 1, 14 7, 1, 14, 1, 14	7, 1, 15, 1, 13 7, 1, 15, 1, 14
1032	9 9	9 9
1033	9, 1, 14, 1, 14 9, 1, 14, 1, 14	1, 1, 13, 9, 13 9, 1, 15, 1, 14
1034	1, 9 1, 9	9, 1 9, 1
1035	1, 1, 14, 1, 14, 9 1, 9, 1, 14, 1, 14	9, 1, 15, 1, 13, 1 9, 1, 1, 15, 1, 14
1036	3, 1, 14, 5, 13, 4, 16, 9, 1, 13 5, 3, 13, 9, 14, 6, 1, 13, 1, 14	1, 1, 15, 4, 16, 9, 5, 13, 3, 16 9, 1, 4, 16, 3, 15, 5, 16, 1, 14
1037	6, 10, 14, 6, 16 6, 10, 14, 6, 16	6, 10, 15, 6, 13 6, 6, 14, 10, 15
1038	1, 3, 13, 9, 13, 7, 9, 1, 13 1, 9, 13, 3, 13, 7, 9, 1, 13	1, 7, 16, 9, 3, 16, 1, 16, 9, 16 9, 9, 14, 3, 7, 16, 1, 16, 1, 16
1039	4, 10, 13, 7, 13, 9, 1, 13 10, 4, 13, 7, 13, 9, 1, 13	1, 7, 16, 9, 4, 16, 10, 16 4, 9, 14, 7, 16, 1, 16, 10, 16
1040	9, 7, 3 9, 3, 7	7, 3, 9 9, 7, 3
1041	6, 4, 14, 5, 13, 9, 1, 13 6, 5, 14, 9, 16, 4, 13, 1, 13	1, 5, 15, 4, 16, 9, 6, 13 6, 9, 14, 1, 4, 16, 5, 16
1042	6, 4, 14, 1, 14, 1, 14, 5, 13, 9, 1, 13 13, 6	1, 1, 15, 5, 15, 1, 13, 4, 16, 9, 6, 9, 14, 1, 4, 16, 5, 16, 1, 15,
	6, 5, 14, 9, 16, 4, 13, 1, 13, 1, 14, 1, 14	1, 14

Figure 21 is a diagram of the last 35 characters of the phonetic Japanese called Hiragana. The resolving of these characters is summarized in the following Table 24. In Table 24 the first numeral is the reference number from Figure 21 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as

in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

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Table 24: Japanese Hiragana characters

No.	Top	Right
17.		
	Left	Bottom
1043	6, 4, 14, 11, 14, 5, 13, 9, 1, 13 6, 5, 14, 9, 16, 4, 13, 1, 13, 11	1, 11, 15, 5, 15, 4, 16, 9, 6, 13 6, 9, 14, 1, 4, 16, 5, 16, 11, 14
1044	9, 4, 1 9, 4, 1	1, 4, 9 9, 4, 1
1045	9, 1, 14, 1, 14, 4, 1 9, 4, 1, 1, 14, 1, 14	1, 1, 15, 1, 13, 4, 9 9, 4, 1, 1, 15, 1, 14
1046	9, 11, 14, 4, 1 9, 4, 1, 11, 14	1, 11, 15, 4, 9 9, 4, 1, 11, 15
1047	1, 7, 16, 3, 16, 1, 14 1, 3, 16, 7, 14, 1, 14	1, 1, 15, 7, 13, 3, 13 3, 7, 14, 1, 14, 1, 15
1048	1, 1, 14, 1, 14, 7, 16, 3, 16, 1, 14 13 1, 3, 16, 7, 14, 1, 14, 1, 14, 1, 16	1, 1, 15, 1, 13, 7, 13, 1, 13, 3, 13 3, 7, 14, 1, 14, 1, 15, 1, 14, 1,
1049	1, 11, 14, 7, 16, 3, 16, 1, 14 1, 3, 16, 7, 14, 11, 14, 1, 16	1, 11, 15, 7, 13, 1, 13, 3, 13 3, 7, 14, 1, 14, 1, 15, 11, 14
1050	3, 1 3, 1	1, 3 3, 1
1051	3, 1, 14, 1, 14, 1 3, 1, 1, 14, 1, 14	1, 1, 15, 1, 13, 3 3, 1, 1, 15, 1, 14
1052	3, 11, 14, 1 3, 1, 11, 14	1, 11, 15, 3 3, 1, 11, 15
1053	6, 5, 14, 4, 5, 13, 9, 1, 13 6, 5, 14, 5, 16, 9, 16, 4, 13, 1, 13	1, 5, 15, 5, 15, 4, 16, 9, 6, 13 6, 9, 14, 1, 4, 16, 5, 16, 5
1054	6, 5, 14, 1, 14, 1, 14, 4, 5, 13, 9, 1, 13 16, 9, 6, 13 6, 5, 14, 5, 16, 9, 16, 4, 13, 1, 13, 1, 14, 1, 14 15, 1, 14	1, 1, 15, 5, 15, 5, 15, 1, 13, 4, 16, 9, 6, 13 6, 9, 14, 1, 4, 16, 5, 16, 5, 1, 15, 1, 14
1055	6, 5, 14, 11, 14, 4, 5, 13, 9, 1, 13 9, 6, 13 6, 5, 14, 5, 16, 9, 16, 4, 13, 1, 13, 1, 14, 1, 14	1, 11, 15, 5, 15, 5, 15, 4, 16, 9, 6, 13 6, 9, 14, 1, 4, 16, 5, 16, 5, 11, 14
1056	4, 5, 13, 5, 13, 9, 1, 13 5, 5, 16, 9, 16, 4, 13, 1, 13	1, 5, 15, 5, 15, 4, 16, 9 9, 1, 4, 16, 5, 16, 5, 16
1057	7, 9, 1, 13, 3, 13 7, 9, 1, 13, 3, 13	1, 3, 16, 7, 16, 9 9, 3, 14, 7, 16, 1, 16
1058	4, 5, 13, 9, 9, 13 5, 9, 16, 4, 13, 9, 13	9, 5, 15, 4, 16, 9 9, 9, 4, 16, 5, 16
1059	1, 3, 13, 9, 13, 7 1, 9, 13, 3, 13, 7	7, 3, 16, 1, 16, 9, 16 9, 7, 3, 16, 1, 16

1060	6, 5, 13, 5, 13 5, 5, 13, 6, 13	6, 5, 16, 5, 16 6, 5, 16, 5, 16
1061	1, 1, 14, 7, 13 1, 7, 13, 1, 14	7, 1, 15, 1, 16 1, 7, 16, 1, 15
1062	6, 4, 14, 7, 13 6, 7, 4, 13	7, 4, 16, 6 6, 4, 14, 7, 16
1063	4, 5, 9, 1, 13 9, 4, 1, 13, 5	1, 5, 15, 4, 16, 9 9, 1, 4, 16, 5
1064	1, 6, 16, 7 1, 6, 16, 7	7, 1, 15, 6 7, 6, 1, 15
1065	6, 4, 14 6, 4, 14	4, 6, 13 4, 6, 15
1066	10, 7, 9, 1 10, 9, 16, 7, 1	7, 10, 1, 9 9, 7, 1, 10
1067	4, 10, 13, 3, 13, 6 10, 4, 13, 3, 13, 6	6, 3, 4, 16, 10, 16 4, 6, 14, 3, 16, 10, 16
1068	10, 7 10, 7	7, 10 7, 10
1069	4, 10, 13, 7, 13 10, 4, 13, 7, 13	7, 4, 16, 10, 16 4, 7, 16, 10, 16
1070	7, 9, 7, 13, 9, 1 7, 9, 7, 13, 9, 1	7, 1, 9, 7, 16, 9 9, 9, 14, 7, 16, 7, 16, 1
1071	10, 7, 9, 1, 3, 11, 11 10, 9, 16, 3, 7, 1, 11, 11	11, 7, 15, 10, 11, 3, 1, 9 3, 11, 14, 11, 9, 7, 1, 10
1072	3, 5, 13, 8, 9, 13 5, 3, 13, 8, 9, 13	9, 8, 16, 5, 15, 3, 16 9, 8, 16, 3, 5, 16
1073	3, 11, 4 3, 11, 4	4, 11, 3 3, 4, 14, 11
1074	1, 1, 14, 1, 14, 7, 16 1, 7, 16, 1, 14, 1, 14	7, 1, 15, 1, 13, 1, 13 7, 1, 15, 1, 14, 1, 14
1075	1, 1, 14 1, 1, 14	1, 1, 13 1, 1, 14
1076	11 11	11 11
1077	1, 3 1, 3	3, 1 3, 1

Figure 22 is a diagram of the first 35 characters of the Arabic alphabet.

The resolving of these characters is summarized in the following Table 25. In Table 25 the first numeral is the reference number from Figure 22 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The 5 third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 25: Arabic alphabet

No.	Top	Right
18.	Left	Bottom
1101	9, 3 9, 3	3, 9 3, 9
1102	1, 6, 2, 16 3, 2, 16, 6	2, 6, 15, 3 2, 3, 15, 6
1103	9, 3, 2, 16 9, 2, 16, 3	2, 3, 15, 9 2, 3, 15, 9
1104	9, 3, 9, 16, 7 9, 9, 16, 3, 7	7, 3, 15, 9, 9 7, 9, 3, 15, 9
1105	2, 9, 16, 3 2, 9, 16, 3	3, 2, 15, 9 3, 9, 2, 15
1106	9, 3, 9, 16, 6, 16, 7 9, 6, 16, 3, 7, 9	7, 9, 6, 13, 3, 9 6, 7, 9, 3, 15, 9
1107	2 2	2 2
1108	6, 4, 11, 16 6, 11, 16, 4	11, 4, 15, 6 11, 6, 15, 4
1109	11, 11, 14, 7, 16, 6 11, 6, 16, 11, 14, 7	7, 11, 15, 6, 11, 13 6, 7, 11, 15, 11, 14
1110	11, 11, 14, 6, 16, 4 11, 6, 16, 11, 14, 4	4, 11, 15, 6, 11, 13 6, 4, 11, 15, 11, 14
1111	11, 11, 16, 11, 14, 6, 16, 4 11, 11, 16, 6, 16, 11, 14, 4	4, 11, 15, 11, 15, 6, 11, 13 6, 4, 11, 15, 11, 14, 11, 15
1112	9, 11, 14 9, 11, 14	9, 11, 15 9, 11, 14
1113	9 9	9 9
1114	11, 9, 16 11, 9, 16	9, 11, 15 9, 11, 15
1115	7 7	7 7
1116	11, 7, 16 11, 7, 16	7, 11, 15 7, 11, 15
1117	4 4	4 4
1118	11, 4, 16 11, 4, 16	4, 11, 15 4, 11, 15
1119	6, 6, 14, 6, 14, 4, 14, 4, 4 6, 4, 6, 4, 6, 4	4, 6, 4, 6, 4, 6 6, 4, 6, 6, 14, 4, 4
1120	11, 11, 16, 11, 14, 6, 16, 6, 6, 4, 4, 4 6, 4, 6 11, 11, 16, 6, 16, 4, 6, 14, 11, 4, 6, 4 14, 11, 15	4, 11, 15, 11, 15, 6, 4, 11, 13, 6, 4, 6, 6, 14, 4, 4, 11, 15, 11,
1121	7, 6, 16, 4, 6 6, 4, 6, 7	7, 6, 4, 6 6, 4, 6, 7
1122	11, 7, 16, 6, 16, 4, 6 11, 6, 16, 4, 6, 7	7, 11, 15, 6, 4, 6 6, 4, 6, 7, 15, 11
1123	2, 7 7, 2	7, 2 7, 2

1124	2, 11, 14, 7 7, 2, 11, 14	7, 11, 15, 2 7, 2, 11, 15
1125	9, 9 9, 9	9, 9 9, 9
1126	11, 9, 16, 9 11, 9, 16, 9	9, 11, 15, 9 9, 9, 11, 15
1127	5 5	5 5
1128	11, 9, 16, 7, 6 11, 6, 16, 7, 9	7, 11, 15, 9, 6 6, 7, 9, 11, 15
1129	11, 11, 14, 9, 16, 7, 6 11, 6, 16, 9, 11, 14, 7	7, 11, 15, 9, 11, 13, 6 6, 7, 9, 11, 15, 11, 14
1130	9, 4, 14, 7 7, 4, 16, 7	4, 7, 13, 9 4, 7, 15, 9
1131	4, 6 6, 4	4, 6 6, 4
1132	7, 9 7, 9	9, 7 9, 7
1133	11, 6, 16, 4 11, 6, 16, 4	4, 11, 15, 6 6, 4, 11, 15
1134	7, 6 6, 7	7, 6 6, 7
1135	9, 7 7, 9	7, 9 7, 9

Figure 23 is a diagram of the last 13 characters of the Arabic alphabet. The resolving of these characters is summarized in the following Table 26. In Table 26 the first numeral is the reference number from Figure 23 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 26: Arabic alphabet

No.	Top	Right
19.	Left	Bottom
1136	9, 6, 16, 7 6, 7, 9	7, 9, 6 6, 7, 9
1137	9, 6, 16, 7, 11, 16, 11, 14 6, 11, 16, 7, 11, 14, 9	11, 7, 15, 9, 11, 13, 6 11, 11, 14, 6, 15, 7, 9
1138	3, 3, 16 3, 3, 16	3, 3, 15 3, 3, 15
1139	3, 3, 16 3, 3, 16	3, 3, 15 3, 3, 15

1140	3 3	3 3
1141	9, 7, 13 7, 9, 13	9, 7, 16 7, 9, 16
1142	3 3	3 3
1143	6, 6, 14, 4, 4 6, 4, 6, 4	4, 6, 4, 6 6, 6, 14, 4, 4
1144	11 11	11 11
1145	6, 4, 11, 16, 11, 14, 11, 16 6, 11, 16, 11, 16, 4, 11, 14	11, 11, 15, 4, 15, 11, 13, 6 11, 11, 15, 11, 14, 6, 15, 4
1146	9, 11, 14, 11, 14, 11, 16 9, 11, 14, 11, 16, 11, 14	9, 11, 15, 11, 15, 11, 13 9, 11, 14, 11, 15, 11, 14
1147	11, 11, 16, 11, 14, 4, 16 11, 11, 16, 4, 16, 11, 14	4, 11, 15, 11, 15, 11, 13 4, 11, 15, 11, 14, 11, 15
1148	3, 3, 16, 7 3, 7, 16, 3	3, 3, 15, 7 7, 3, 3, 15

Figure 24 is a diagram of the 41 characters of the Hebrew alphabet. The resolving of these characters is summarized in the following Table 27. In Table 27 the first numeral is the reference number from Figure 24 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 27: Hebrew alphabet

No.	Top		Right
	Left	Bottom	
20.			
1201	1, 1, 14, 3, 9, 7 1, 9, 7, 3, 1		1, 1, 15, 3, 7, 13, 9 7, 1, 14, 9, 3, 1
1202	8, 5 8, 5		5, 8 5, 8
1203	9, 3 9, 3		9, 3 3, 9
1204	5, 2 5, 2		2, 5 2, 5
1205	5, 2, 2, 15 5, 2, 16, 2		2, 5, 2, 13 2, 2, 14, 5
1206	8 8		8 8
1207	1, 2 1, 2		2, 1 2, 1

1208	5, 2, 2 5, 2, 2	2, 5, 2 2, 2, 5
1209	1, 7, 14, 6 1, 6, 7	7, 6, 1 6, 7, 1
1210	7 7	7 7
1211	8 8	8 8
1212	7 7	7 7
1213	7, 7 7, 7	7, 7 7, 7
1214	8, 2, 5 8, 2, 5	5, 8, 2 5, 2, 8
1215	1, 7, 3 1, 3, 7	7, 3, 13, 1 3, 7, 14, 1
1216	1, 2 1, 2	2, 1 2, 1
1217	1, 2, 5 1, 5, 16, 2	5, 2, 1 5, 2, 1
1218	7, 6 7, 6	7, 6 6, 7
1219	1, 1, 14, 2, 4 1, 4, 16, 2, 1	4, 1, 1, 13, 2 4, 2, 1, 1
1220	8, 6, 16 8, 6, 16	8, 6, 13 6, 8, 14
1221	7, 6, 16 7, 6, 16	7, 6, 13 7, 6, 15
1222	1, 1, 14, 2, 3 1, 2, 3, 1	3, 1, 2, 1 2, 3, 1, 1
1223	1, 1, 14, 7, 3 1, 7, 3, 1	7, 3, 1, 1 7, 3, 1, 1
1224	7, 2, 16 7, 2, 16	7, 2, 13 2, 7, 15
1225	8 8	8 8
1226	1, 1, 14, 1, 14, 6, 3, 4 1, 6, 3, 1, 4, 1	4, 1, 1, 13, 3, 6, 1 6, 4, 3, 1, 1, 1
1227	8, 4 8, 4	8, 4 4, 8
1228	11, 11, 16 11, 11, 16	11, 11, 15 11, 11, 15
1229	11, 11, 14, 11, 14, 11, 16, 11, 14 13	11, 11, 15, 11, 13, 11, 15, 11, 14
1230	11, 11, 16, 11, 14, 11, 16, 11, 14 11, 11, 16, 11, 14	11, 11, 14, 11, 15, 11, 14, 11, 11, 11, 15, 5, 13 5, 11, 14, 11, 15
1231	11, 11, 14, 2, 11, 14 5, 2, 11, 14, 11, 16	11, 11, 15, 5, 13, 2 2, 11, 14, 5, 11, 14
1232	11 11	11 11
1233	11, 11, 14 11, 11, 14	11, 11, 13 11, 11, 14
1234	11, 11, 14, 11, 16 11, 11, 16, 11, 14	11, 11, 15, 11, 13 11, 11, 15, 11, 14
1235	5	5

	5	5
1236	5, 2	5, 2
	5, 2	2, 5
1237	11, 11, 16, 11, 16	11, 11, 15, 11, 15, 15
	11, 11, 16, 11, 16	11, 11, 15, 11, 15, 15
1238	2	2
	2	2
1239	8, 8, 14	8, 8, 13
	8, 8, 14	8, 8, 14
1240	7, 8, 14	8, 7, 13
	7, 8, 14	7, 8, 14
1241	7, 7, 14	7, 7, 13
	7, 7, 14	7, 7, 14

Figure 25 is a diagram of the 35 characters of the Devanagari alphabet. The resolving of these characters is summarized in the following Table 28. In Table 28 the first numeral is the reference number from Figure 25 and the second column first line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 28: Devanagari characters

No.	Top	Right
21.	Left	Bottom
1301	7, 5, 14, 2, 7, 5 7, 7, 5, 5, 14, 2	5, 2, 5, 9, 9 7, 2, 14, 5, 7, 5
1302	7, 5, 14, 2, 2, 7, 5 7, 7, 5, 5, 14, 2, 2	5, 2, 2, 5, 9, 9 7, 2, 14, 2, 14, 5, 7, 5
1303	5, 2, 9, 7, 9, 1, 13 5, 9, 16, 9, 16, 1, 7, 13, 2	1, 5, 15, 7, 16, 9, 2, 9 9, 1, 7, 16, 9, 2, 5
1304	9, 5, 2, 9, 7, 9, 1, 13 5, 9, 16, 9, 16, 1, 7, 13, 9, 2	1, 5, 15, 9, 15, 7, 16, 9, 2, 9 9, 1, 7, 16, 9, 2, 5, 9
1305	5, 7, 7 5, 7, 16, 7	7, 5, 15, 7 7, 7, 5
1306	5, 7, 7, 9 5, 7, 16, 7, 9	7, 5, 15, 7, 7 7, 9, 7, 5
1307	5, 2, 11, 9, 14, 7, 13, 3, 9 5, 11, 16, 3, 2, 7, 9, 13, 9	9, 5, 15, 9, 7, 16, 2, 3, 11 3, 9, 14, 2, 9, 7, 16, 11, 5
1308	5, 2, 9, 7, 9 5, 9, 16, 7, 2, 9	9, 5, 15, 7, 2, 9 9, 9, 14, 7, 2, 5
1309	6, 4, 5, 16, 6, 4 6, 5, 16, 4, 6, 4	6, 4, 15, 5, 15, 4, 6 6, 4, 15, 5, 6, 15, 4
1310	6, 8, 5, 6, 4	6, 5, 4, 8, 6

	6, 5, 16, 8, 6, 4	6, 4, 15, 5, 8, 6
1311	5, 6, 4	6, 5, 4
	5, 6, 4	6, 4, 15, 5
1312	1, 5, 6, 4	6, 5, 4, 1
	1, 5, 6, 4	6, 4, 15, 5, 1
1313	6, 4, 7, 16, 5, 14, 2, 2, 7, 5	5, 4, 15, 2, 6, 2, 5, 9, 9
	6, 7, 16, 4, 7, 5, 5, 2, 2	7, 2, 14, 2, 14, 5, 7, 5, 15, 6, 4
1314	6, 8, 7, 16, 5, 2, 2, 7, 5	5, 8, 2, 2, 6, 5, 9, 9
	7, 7, 5, 6, 14, 5, 16, 8, 6, 4	7, 2, 14, 2, 14, 5, 7, 5, 8, 6
1315	1, 7, 5, 16, 2, 2, 7, 5	5, 1, 2, 2, 5, 9, 9
	7, 7, 5, 5, 14, 1, 2, 2	7, 2, 14, 2, 14, 5, 7, 5, 1
1316	1, 1, 7, 5, 16, 2, 2, 7, 5	5, 1, 2, 1, 2, 5, 9, 9
	7, 7, 5, 5, 14, 1, 1, 2, 2	7, 2, 14, 2, 14, 5, 7, 5, 1, 1
1317	5, 2, 9, 8, 13	8, 5, 15, 2, 16, 9
	5, 9, 16, 8, 2, 13	2, 8, 16, 9, 5
1318	5, 4, 2, 9, 6	5, 2, 6, 9, 4
	5, 6, 16, 4, 9, 2	6, 2, 4, 9, 5
1319	5, 4, 2	5, 2, 4
	5, 4, 2	2, 4, 13, 5
1320	5, 9, 2, 9	5, 2, 9, 9
	5, 9, 16, 9, 2	2, 9, 9, 5
1321	5, 2, 9, 11, 14, 7	11, 5, 15, 7, 13, 9, 2
	5, 9, 16, 7, 2, 11, 14	7, 11, 14, 9, 2, 5
1322	5, 2, 5, 9	5, 2, 9, 5
	5, 5, 16, 9, 2	2, 9, 5, 5
1323	5, 2, 9, 9, 16, 7, 9, 8, 13	8, 5, 15, 9, 16, 2, 7, 5, 8
	5, 9, 16, 9, 7, 9, 2, 8, 13	9, 8, 14, 7, 16, 9, 9, 2, 5
1324	5, 2, 6, 16, 5, 14, 7	5, 2, 5, 7, 6
	5, 6, 16, 7, 5, 2	6, 2, 14, 7, 5, 5
1325	5, 2, 2, 9, 7, 9, 1, 13	5, 2, 9, 1, 13, 7, 2, 9
	5, 9, 16, 9, 16, 1, 7, 13, 2, 2	9, 2, 14, 1, 7, 16, 9, 2, 5
1326	5, 2, 7, 5, 16	5, 2, 5, 7
	5, 7, 16, 5, 2	7, 2, 14, 5, 5
1327	5, 2, 9	9, 5, 15, 2
	5, 9, 16, 2	9, 2, 5
1328	5, 2, 11	11, 5, 15, 2
	5, 11, 16, 2	11, 2, 5
1329	5, 2, 9, 7	7, 5, 15, 9, 2
	5, 9, 16, 7, 2	7, 9, 2, 5
1330	5, 2, 9, 9, 7	7, 5, 15, 9, 9, 2
	5, 9, 16, 9, 2, 7	9, 7, 9, 2, 5
1331	5, 6, 4, 2	5, 2, 4, 6
	5, 6, 4, 2	6, 2, 14, 4, 5
1332	5, 2, 9	5, 2, 9
	5, 9, 16, 2	9, 2, 5
1333	9, 5, 14, 7, 6, 4, 2	5, 2, 4, 6, 7, 9
	9, 6, 16, 7, 5, 14, 4, 2	2, 6, 14, 4, 7, 9, 5
1334	5, 2, 9, 9, 7, 13	9, 5, 15, 7, 16, 9, 2
	5, 9, 16, 9, 13, 7, 2	9, 7, 16, 9, 2, 5
1335	9, 5, 14, 7, 9, 2	5, 2, 9, 9, 7
	9, 9, 7, 5, 14, 2	9, 2, 9, 7, 5

Figure 26 is a diagram of the 28 characters of the Devanagari alphabet.

The resolving of these characters is summarized in the following Table 29. In Table 29 the first numeral is the reference number from Figure 26 and the second column first

line are the keystrokes on the Figure 1 keyboard with a top scan as in Figure 2. The third column first line are the keystrokes on the Figure 1 keyboard with a right scan as in Figure 5. The second column second line are the keystrokes on the Figure 1 keyboard with a left scan as in Figure 4. The third column second line are the
5 keystrokes on the Figure 1 keyboard with a bottom scan as in Figure 3.

Table 29: Devanagari characters

No.	Top	Right
22.	Left	Bottom
1336	5, 2, 5, 2 5, 2, 16, 5, 2	5, 2, 5, 2 2, 2, 14, 5, 5
1337	5, 2, 5, 2, 11, 16 5, 11, 16, 2, 16, 5, 2	11, 5, 15, 2, 5, 2 11, 2, 15, 2, 5, 5
1338	5, 6, 2 5, 6, 2	5, 2, 6 2, 6, 5
1339	5, 6, 2, 8, 13 5, 6, 8, 2, 13	8, 5, 15, 2, 16, 6 2, 8, 16, 6, 5
1340	5, 2, 9, 1 5, 9, 16, 1, 2	5, 2, 9, 1 2, 9, 1, 5
1341	9, 5, 14, 7, 5, 13, 2 9, 5, 16, 7, 13, 5, 14, 2	5, 2, 5, 7, 16, 9 2, 7, 14, 5, 16, 9, 5
1342	5, 4, 2, 5, 13 5, 4, 5, 13, 2	5, 2, 5, 4, 16 2, 4, 13, 5, 16, 5
1343	5, 7, 2, 6, 4 5, 6, 16, 7, 4, 2	5, 2, 4, 6, 7 2, 6, 14, 4, 7, 5
1344	5, 4, 1 5, 1, 16, 4	1, 5, 15, 4 1, 4, 5
1345	5, 4, 1, 11, 16 5, 11, 16, 1, 16, 4	11, 1, 15, 5, 15, 4 11, 1, 15, 4, 5
1346	5, 2, 9, 16, 3 5, 9, 16, 3, 2	5, 2, 3, 9 9, 2, 14, 3, 5
1347	5, 2, 9, 16, 7, 3 5, 9, 16, 3, 7, 2	7, 5, 15, 2, 3, 9 9, 7, 14, 3, 2, 5
1348	5, 2, 9, 16, 7, 3, 11, 16 5, 11, 16, 9, 16, 3, 7, 2	11, 7, 15, 5, 15, 2, 3, 9 11, 9, 15, 7, 14, 3, 2, 5
1349	5, 2, 9 5, 9, 16, 2	5, 2, 9 2, 9, 5
1350	5, 9, 7, 2, 9, 1, 13 5, 9, 16, 9, 1, 7, 13, 2	5, 2, 1, 7, 9, 9 1, 2, 14, 9, 7, 16, 9, 5
1351	5, 6, 1, 2 5, 6, 1, 2	5, 2, 6, 1 2, 6, 1, 5
1352	5, 4, 2, 5, 13, 1 5, 1, 16, 4, 5, 13, 2	5, 2, 5, 1, 4 1, 2, 14, 4, 5, 16, 5
1353	5, 2, 9, 9 5, 9, 16, 9, 2	9, 5, 15, 9, 2 9, 9, 2, 5
1354	5, 2, 9, 8, 13, 11, 16 5, 11, 16, 9, 16, 8, 2, 13	11, 8, 15, 5, 15, 2, 16, 9 11, 2, 15, 8, 16, 9, 5

1355	5, 4, 2, 9, 6, 11, 16 5, 11, 16, 6, 16, 4, 9, 2	11, 5, 15, 2, 6, 9, 4 11, 6, 15, 2, 4, 9, 5
1356	5, 4, 2, 11, 16 5, 11, 16, 4, 2	11, 5, 15, 2, 4 11, 2, 15, 4, 13, 5
1357	5, 2, 6, 16, 5, 14, 7, 11, 16 5, 11, 16, 6, 16, 7, 5, 2	11, 5, 15, 2, 5, 7, 6 11, 6, 15, 2, 14, 7, 5, 5
1358	5, 2, 9, 7, 11, 16 5, 11, 16, 9, 16, 7, 2	11, 7, 15, 5, 15, 9, 2 11, 7, 15, 9, 2, 5
1359	5, 2, 9, 9, 7, 11, 16 5, 11, 16, 9, 16, 9, 2, 7	11, 7, 15, 5, 15, 9, 9, 2 11, 9, 15, 7, 9, 2, 5
1360	5, 6, 2, 8, 13, 11, 16 5, 11, 16, 6, 8, 2, 13	11, 8, 15, 5, 15, 2, 16, 6 11, 2, 15, 8, 13, 6, 5
1361	5, 7, 2, 6, 4, 11, 16 5, 11, 16, 6, 16, 7, 4, 2	11, 5, 15, 2, 4, 6, 7 11, 2, 15, 6, 14, 4, 7, 5
1362	5, 2, 11, 16, 9, 14, 7, 13, 3, 9, 9 5, 11, 16, 3, 2, 7, 9, 13, 9, 9	9, 5, 15, 9, 9, 7, 16, 2, 3, 11 3, 9, 14, 2, 9, 9, 7, 16, 11, 5
1363	5, 2, 9, 7, 9, 9 5, 9, 16, 7, 2, 9, 9	9, 5, 15, 9, 7, 2, 9 9, 9, 14, 9, 7, 2, 5

The signal from the Figure 1 keyboard may be conveyed to an input device in several ways. The simplest way is to interpose a lookup table between the Figure 1 keyboard and the device. A lookup table is embodied in either a programmable Read Only Memory chip or in software. When a string of keystrokes is inputted into the lookup 5 table it returns the character associated with that string.

An equivalent to the lookup table may also be constructed by applying principles of Boolean algebra to the Tables above. The tables above can be reduced by such methods to a series of logical gates. While it is conceivable such gates could be hard wired into a logic network to give the desired output it is more likely that the gates would 10 be virtual and embodied in embedded software.

Figure 27 is a diagram of a second embodiment of the input device of the invention. Figure 27 illustrates a second virtual keyboard. Figure 27 is a reproduction of the screen on graphic user interface (GUI) device. In such devices a cursor is moved to different portions of a screen by an input device (not shown). The input devices usable 15 include mice, joysticks, game-pads, and arrow keys on an conventional 101 keyboard. When the cursor is moved to a position or hot spot on the screen and activated a signal is produced which the device recognizes as the symbol portrayed on the screen. Icons 1401-1412 are arranged in a circle on the screen. Icon 1401 corresponds to key 1 in Figure 1. Activation of icons 1401-1411 causes a reaction equivalent to pressing keys 1-11 in Figure 20 1. Opposite side icon 1412 shifts the display to the Figure 28 configuration.

In Figure 28 the icons 1501-1512 are equivalent to key 1-12 in the Figure 1 embodiments. For example, icon 1501 in Figure 28 is equivalent to key 1 in Figure 1. Icons 1501-1512 are arranged in a circle on the screen. Icons 1501-1512 are arranged in a circle on the screen. Icon 1501 corresponds to key 1 in Figure 1. Activation of icons 5 1501-1511 causes a reaction equivalent to pressing keys 1-11 in Figure 1. Opposite side icon 1512 shifts the display to the Figure 27 configuration.

Figure 29 is a functional block diagram of a computer system 2900 for practicing exemplary embodiments of the method and apparatus for input of alphanumeric data from a 12-key keypad. The system according to the present 10 invention contains a Central Processing Unit (CPU) 2901, a computer memory 2902, and input/output devices 2903. One skilled in the art will appreciate that the functions provided by the CPU 2901 may be implemented by any conventional processing device, such as a microprocessor, programmable controller, Programmable Logic Array (PLA), Digital Signal Processor (DSP), Application Specific Integrated Circuit (ASIC), 15 or the like. The present invention is not limited by the specific device selected to implement the function of the CPU 2901.

The memory 2902 comprises random access memory (RAM) 2904, a data read-only memory (ROM) 2905, and a program ROM 2906. The RAM 2904 is a read and write memory used for storing the status of dynamic variables used in the 20 execution of the program that is typically executed from the program ROM 2906. The data ROM 2905 contains data needed to implement the invention including tables containing stroke sequences of character sets according to various scanning algorithms. The program ROM 2906 contains a program for execution by the CPU 2901. For clarity, the data ROM 2905 and program ROM 2906 are illustrated in Figure 29 as 25 separate portions of the memory 2902 since each portion stores a different form of information. However, those skilled in the art will recognize that other memory configurations can be implemented with a single ROM portion. Furthermore, a portion of the RAM 2904 may be non-volatile RAM that can be used to implement part or all of the data ROM 2905 and program ROM 2906. One skilled in the art will also appreciate

that volatile memories may be substituted for nonvolatile memories as long as a means of programming the memory is provided.

The input/output devices 2903 comprise a display 2907, a keypad 2908, an input port 2909 and output port 2910. The display 2907 may vary greatly in form
5 depending upon the application for which a particular implementation of the invention is desired. For many applications a liquid crystal display (LCD) will be suitable, although electroluminescent displays and LED displays may be used as well. For desktop applications, a CRT may be used. The keypad 2908 allows for tactile input of stroke sequences and mode commands. Figure 1 illustrates one embodiment of the
10 keypad 2908, such as may be used in a hand-held device or wireless communication device (*e.g.*, a cellular telephone). One skilled in the art will appreciate that real switches may be used or even virtual switches such as those displayed on a screen that are activated by means of a touch sensitive input device or a user-positionable cursor and selection device.

15 The input port 2909 and the output port 2910 may be implemented by any suitable bus or communication device. One skilled in the art will recognize that a wireless medium using bidirectional radio frequency communications, a bidirectional optical or infrared bus, or hardwired buses such as IEEE 1394, universal serial bus, and RS-232 buses may be used as well.

20 If implemented as a wireless communication device, such as a cellular telephone or personal digital assistant (PDA), the input port 2909 and output port 2910 may be implemented as a transmitter and receiver, respectively. Such implementation would permit “over-the-air” programming wherein the user can select one or more language character sets for downloading. Over-the-air programming is known in the art
25 and need not be described in detail herein. For example, the device may access a server via a computer network, such as the Internet, to download selected character sets or other data.

In a similar implementation, the system 2900 may be coupled to a computer network (*e.g.*, the Internet) via another computer, such as a personal computer
30 (PC). The computer system 2900 may be connected to a PC using a cable and

download data (*e.g.*, character sets) in a conventional manner using, by way of example, one of the communication technologies described above. Alternatively, the system 2900 could be coupled to the PC using wireless technology, such as Bluetooth wireless communications technology. The present invention is not limited by the manner in
5 which data, such as character sets, are provided to the system 2900.

In addition the system 2900 may contain removable media 2911 such as might be found in a memory cartridge, a diskette, or a smartcard. The removable media 2911 may be used to augment the memory 2902 provided the access time of the removable media 2911 does not appreciably degrade system performance. One skilled
10 in the art will appreciate that the CPU 2901 may copy the program from the removable media 2911 or the program ROM 2906 to the RAM 2904 for faster execution or other reasons. One skilled in the art will appreciate that the smartcard may contain information that is personal to the owner of the smartcard and may be used to inform a system according to the present invention to, for example, use a particular language
15 character set. For example, a plug-in module known as a subscriber identity module (SIM) is often used in cellular telephones. A SIM can be used in the system 2900 to provide data, such as character sets. The user can interchange SIMs to change character sets.

From the foregoing it will be appreciated that, although specific
20 embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

CLAIMS

I claim:

1. A method of programming arbitrary symbols into a text processing system, comprising:

for each symbol of a set of symbols to be used in the text processing system scanning each symbol of the set of symbols according to a first predetermined scan pattern such that when a stroke included in the symbol has been scanned, each scanned stroke is stored in a sequence, based on the first predetermined scan pattern, that is identified with the symbol;

placing a computer-readable list of the sets in a text processing system;
and

providing keys for the text processing system such that each symbol of the set of symbols may be retrieved by activating keys such that the sequence of activated keys represents a sequence of strokes that identify a particular symbol.

2. The method of claim 1, further comprising:

retrieving a desired symbol in response to user activation of keys that represent a sequence of strokes, based on the first predetermined scan pattern to thereby identify the desired symbol.

3. The method of claim 1 wherein the symbols are ideographs.

4. The method of claim 1 wherein the symbols are alphabetic characters.

5. The method of claim 1 wherein the symbols are phonetic symbols.

6. The method of any of the preceding claims 1-5 wherein the predetermined scan pattern entails scanning each symbol in rows from left to right so that each subsequent row is scanned below the previously scanned row .

7. The method of any of the preceding claims 1-5 wherein the predetermined scan pattern entails scanning each symbol in rows from left to right so that each subsequent row is scanned above the previously scanned row.

8. The method of any of the preceding claims 1-5 wherein the predetermined scan pattern entails scanning each symbol in columns from top to bottom so that each subsequent column is scanned to the right of the previously scanned column.

9. The method of any of the preceding claims 1-5 wherein the predetermined scan pattern entails scanning each symbol in columns from bottom to top so that each subsequent column is scanned to the left of the previously scanned column.

10. The method of any of the preceding claims 1 to 9, further comprising scanning each symbol of the set of symbols according to a second predetermined scan pattern different from the first predetermined scan pattern.

11. The method of claim 10, further comprising responding to user activation of keys that represent a sequence of strokes, based on either the first or second predetermined scan patterns to thereby identify the desired symbol.

12. An arbitrary symbol entry system comprising:
a keypad having keys that represent strokes included in a set of symbols;
a data structure comprising sequences of strokes for each symbol in the set of symbols wherein the sequences are determined by a first predetermined scan pattern applied to each symbol in the set of symbols; and

a symbol retriever that
accepts a keypad activation sequence from the keypad;
searches the data structure for sequences that match the entered
sequence; and
returns a symbol that is matched by the entered sequence of
strokes.

13. The system of claim 12 wherein the sequences of strokes
comprise digital representations of the strokes used to decompose each symbol.

14. The system of any of the preceding claims 12-13 wherein each of
the keys represents a different stroke included in the set of symbols.

15. The system any of the preceding of claims 12-14 wherein the
symbol retriever locates a desired symbol by matching the strokes represented by a
sequence of activated keys with a selected sequence of strokes stored in the data
structure.

16. The system of any of the preceding claims 12-15 wherein each of
the keypad keys depicts a printed symbology corresponding to a different stroke
included in the set of symbols, the data structure containing stroke sequences
corresponding to selected ones of the keypad keys.

17. The system of any of the preceding claims 12-16 wherein the
data structure contains a second sequence of strokes that references an identical symbol,
the second sequence of strokes being determined by a second predetermined scan
pattern different from the first predetermined scan pattern.

18. The system of any of the preceding claims 12-17 wherein the
keypad represents 11 different strokes.

19. The system of any of the preceding claims 12-18 wherein the keypad comprises keys for strokes and keys for functions.

20. The system of any of the preceding claims 12-19 wherein the keypad comprises:

a surface on the keypad;

a single printed symbology for each of the strokes included in the set of symbols such that each of the strokes included in the set of symbols is depicted circumferentially about a common origin on the surface; and

a sensor that detects the selection of one of the strokes depicted on the surface.

21. The system of any of the preceding claims 12-19 wherein the keypad comprises:

a plurality of keys arranged in a three by five matrix on the keypad;

a single printed symbology for each of the strokes included in the set of symbols being depicted on each of the keys; and

a sensor that detects the selection of one of the strokes depicted on the keys.

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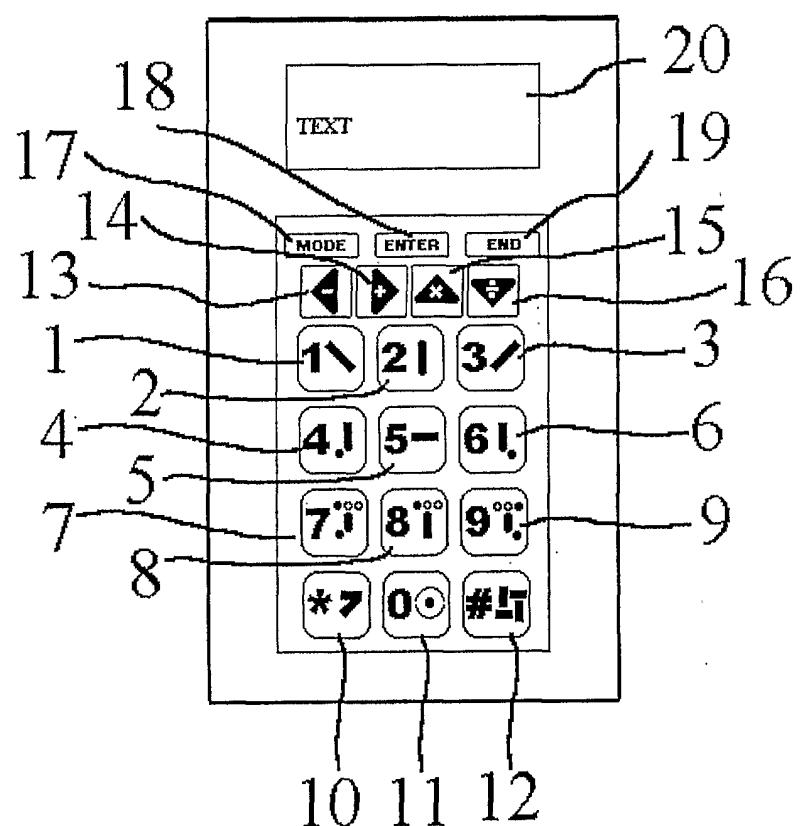
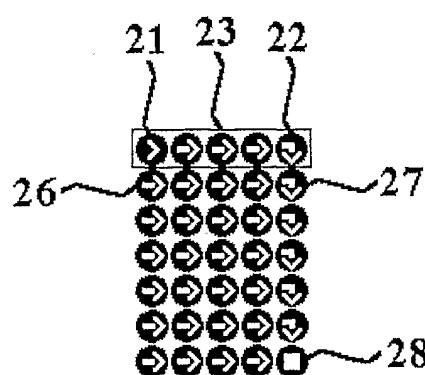
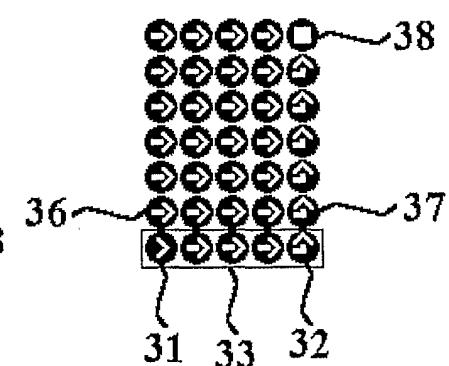
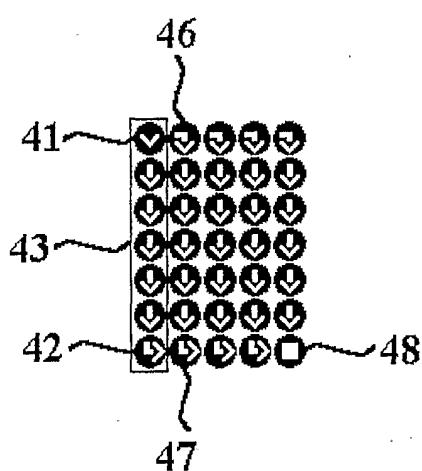
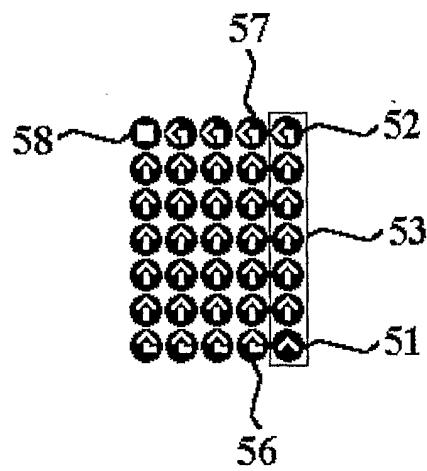


Figure 1

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**Figure 2****Figure 3****Figure 4****Figure 5**

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Figure 6

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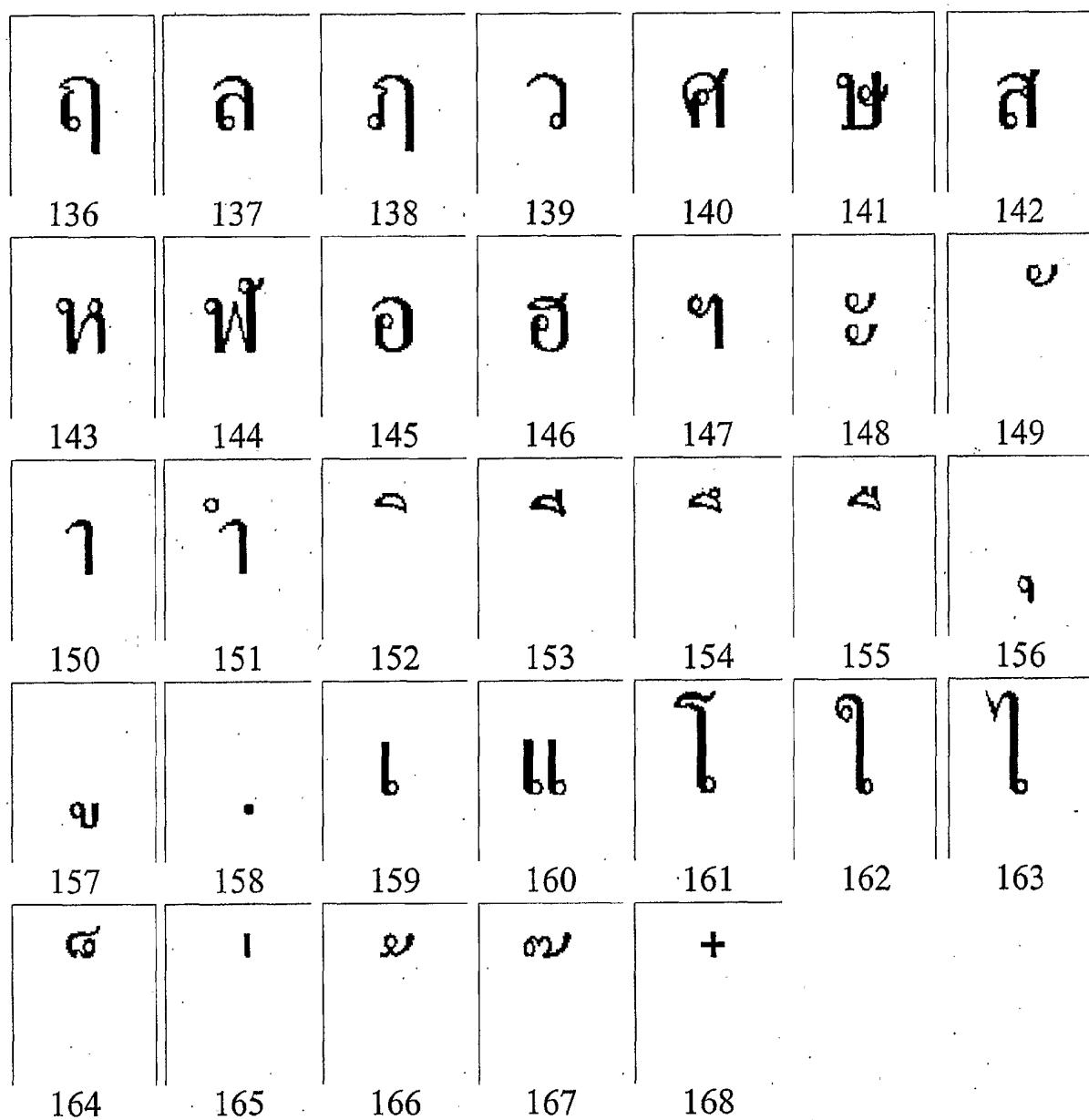


Figure 7

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Figure 8

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Figure 9

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ア	イ	ウ	エ	オ	カ	ガ
401	402	403	404	405	406	407
キ	ギ	ク	グ	ケ	ゲ	コ
408	409	410	411	412	413	414
ゴ	サ	ザ	シ	ジ	ス	ズ
415	416	417	418	419	420	421
セ	ゼ	ソ	ゾ	タ	ダ	チ
422	423	424	425	426	427	428
ヂ	ツ	ヅ	テ	デ	ト	ド
429	430	431	432	433	434	435
ナ	ニ	ヌ	ネ	ノ	ハ	バ
436	437	438	439	440	441	442

Figure 10

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パ	ヒ	ビ	ピ [。]	フ	ブ	ブ [。]
443	444	445	446	447	448	449
ヘ	ベ	ペ [。]	ホ	ボ	ボ [。]	マ
450	451	452	453	454	455	456
ミ	ム	メ	モ	ヤ	ユ	ヨ
457	458	459	460	461	462	463
ラ	リ	ル	レ	ロ	ワ	ヰ
464	465	466	467	468	469	470
エ	ヲ	ン	ヴ	ヴ	ヰ	ヱ
471	472	473	474	475	476	477
ヲ [。]	一	、				
478	479	480				

Figure 11

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Figure 12

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尤	尸	中	山	《	工	己
543	544	545	546	547	548	549
巾	干	幺	广	爻	升	弋
550	551	552	553	554	555	556
弓	三	彡	彳	心	戈	戶
557	558	559	560	561	562	563
手	支	支	文	斗	斤	方
564	565	566	567	568	569	570
无	日	曰	月	木	欠	止
571	572	573	574	575	576	577
歹	殳	母	比	毛	氏	气
578	579	580	581	582	583	584

Figure 13

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水	气	爪	父	爻	爿	片
585	586	587	588	589	590	591
牙	牛	犬	玄	玉	瓜	瓦
592	593	594	595	596	597	598
甘	生	用	田	疋	广	攴
599	600	601	602	603	604	605
白	皮	皿	目	矛	矢	石
606	607	608	609	610	611	612
示	肉	禾	穴	立	竹	米
613	614	615	616	617	618	619
糸	缶	网	羊	羽	老	而
620	621	622	623	624	625	626

Figure 14

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未	耳	聿	肉	臣	自	至
627	628	629	630	631	632	633
臼	舌	舛	舟	艮	色	艸
634	635	636	637	638	639	640
虍	虫	血	行	衣	丌	見
641	642	643	644	645	646	647
角	言	谷	豆	豕	豸	貝
648	649	650	651	652	653	654
赤	走	足	身	車	辛	辰
655	656	657	658	659	660	661
辵	邑	酉	采	里	金	長
662	663	664	665	666	667	668

Figure 15

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門	阜	隶	隹	雨	青	非
669	670	671	672	673	674	675
面	革	韋	圭	音	貞	風
676	677	678	679	680	681	682
飛	食	首	香	馬	骨	高
683	684	685	686	687	688	689
彫	鬥	鬯	鬲	鬼	魚	鳥
690	691	692	693	694	695	696
鹵	鹿	麥	麻	黃	黍	黑
697	698	699	700	701	702	703
黹	鼈	鼎	鼓	鼠	鼻	齊
704	705	706	707	708	709	710

Figure 16

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齒	龍	龜	龠			
711	712	713	714			
𠂇	厂	フ	乚	𠂔	彳	刀
801	802	803	804	805	806	807
几	𠂇	刂	卜	匚	𠂇	𠂇
808	809	810	811	812	813	814
兀	允	尤	允	巳	彖	互
815	816	817	818	819	820	821
三	卜	小	才	父	无	同
822	823	824	825	826	827	828
三	步	母	民	彑	氺	𠂇
829	830	831	832	833	834	835

Figure 17

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四	八	斗	生	犮	王	正
836	837	838	839	840	841	842
囂	示	宀	从	糸	纟	匚
843	844	845	846	847	848	849
夊	兀	皿	羣	羊	辛	步
850	851	852	853	854	855	856
弌	圭	月	臼	士	士	士
857	858	859	860	861	862	863
虎	衣	酉	酉	见	角	𠂇
864	865	866	867	868	869	870
讠	贝	足	车	辵	辵	辵
871	872	873	874	875	876	877

Figure 18

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阝	钅	長	𠂇	长	门	冒
878	879	880	881	882	883	884
雷	青	韦	页	飞	风	食
885	886	887	888	889	890	891
食	食	亾	首	马	骨	鬼
892	893	894	895	896	897	898
鱼	鸟	凶	麦	黄	黾	齐
899	900	901	902	903	904	905
齐	齒	齿	龜	龙	龜	龟
906	907	908	909	910	911	912
龟						
913						

Figure 19

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あ 1001	い 1002	う 1003	え 1004	お 1005	か 1006	が 1007
き 1008	ぎ 1009	く 1010	ぐ 1011	け 1012	げ 1013	こ 1014
ご 1015	さ 1016	ざ 1017	し 1018	じ 1019	す 1020	ず 1021
せ 1022	ぜ 1023	そ 1024	ぞ 1025	た 1026	だ 1027	ち 1028
ち 1029	つ 1030	づ 1031	て 1032	で 1033	と 1034	ど 1035
な 1036	に 1037	ぬ 1038	ね 1039	の 1040	は 1041	ば 1042

Figure 20

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ぱ	ひ	び	ぴ	ふ	ぶ	ぶ
1043	1044	1045	1046	1047	1048	1049
へ	べ	ペ	ほ	ぼ	ぽ	ま
1050	1051	1052	1053	1054	1055	1056
み	む	め	も	や	ゆ	よ
1057	1058	1059	1060	1061	1062	1063
ら	り	る	れ	ろ	わ	ゐ
1064	1065	1066	1067	1068	1069	1070
ゑ	を	ん	ゞ	ヽ	。	ゝ
1071	1072	1073	1074	1075	1076	1077

Figure 21

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۴	۵	۶	۷	۸	۹	۱
1101	1102	1103	1104	1105	1106	1107
ب	ة	ت	ث	ج	ح	خ
1108	1109	1110	1111	1112	1113	1114
د	ذ	ر	ز	س	ش	ص
1115	1116	1117	1118	1119	1120	1121
ض	ط	ظ	ع	غ	-	ف
1122	1123	1124	1125	1126	1127	1128
ق	ك	ل	م	ن	ه	و
1129	1130	1131	1132	1133	1134	1135

Figure 22

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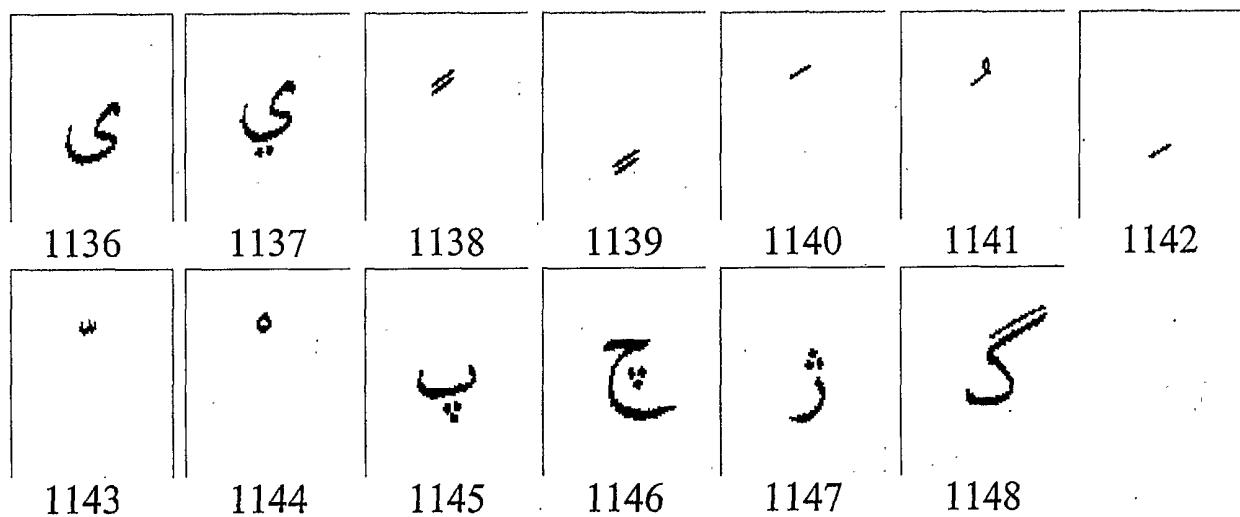


Figure 23

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Figure 24

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अ	आ	इ	ई	उ	ऊ	ऋ
1301	1302	1303	1304	1305	1306	1307
ए	ऐ	ऐ	ए	ऐ	ओ	ओ
1308	1309	1310	1311	1312	1313	1314
ओ	औ	क	ख	ग	घ	ঢ়
1315	1316	1317	1318	1319	1320	1321
চ	ছ	জ	ঝ	ঝ	ট	ঠ
1322	1323	1324	1325	1326	1327	1328
ড	ঢ	ণ	ত	থ	দ	ঘ
1329	1330	1331	1332	1333	1334	1335

Figure 25

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न	त	प	फ	ब	भ	म
1336	1337	1338	1339	1340	1341	1342
य	र	र्	ल	ळ	ळ्	व
1343	1344	1345	1346	1347	1348	1349
श	ष	स	ह	क्त	ख्	ग्न
1350	1351	1352	1353	1354	1355	1356
ज	ड	ढ्	ঁ	ঢ	ঢ্	ল্ড
1357	1358	1359	1360	1361	1362	1363

Figure 26

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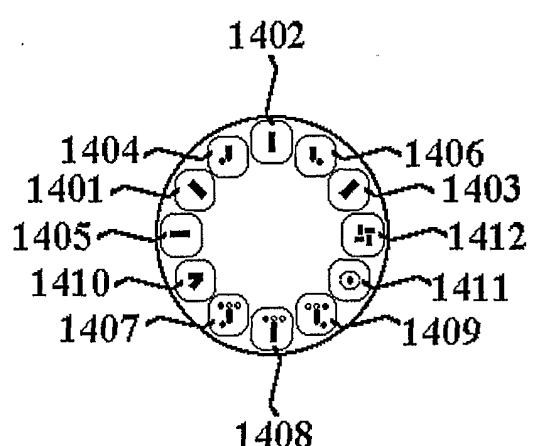


Figure 27

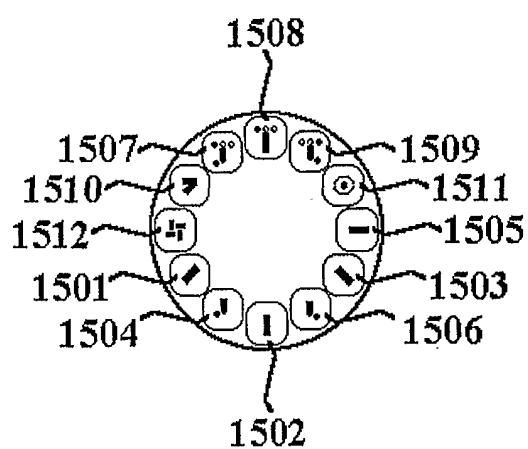


Figure 28

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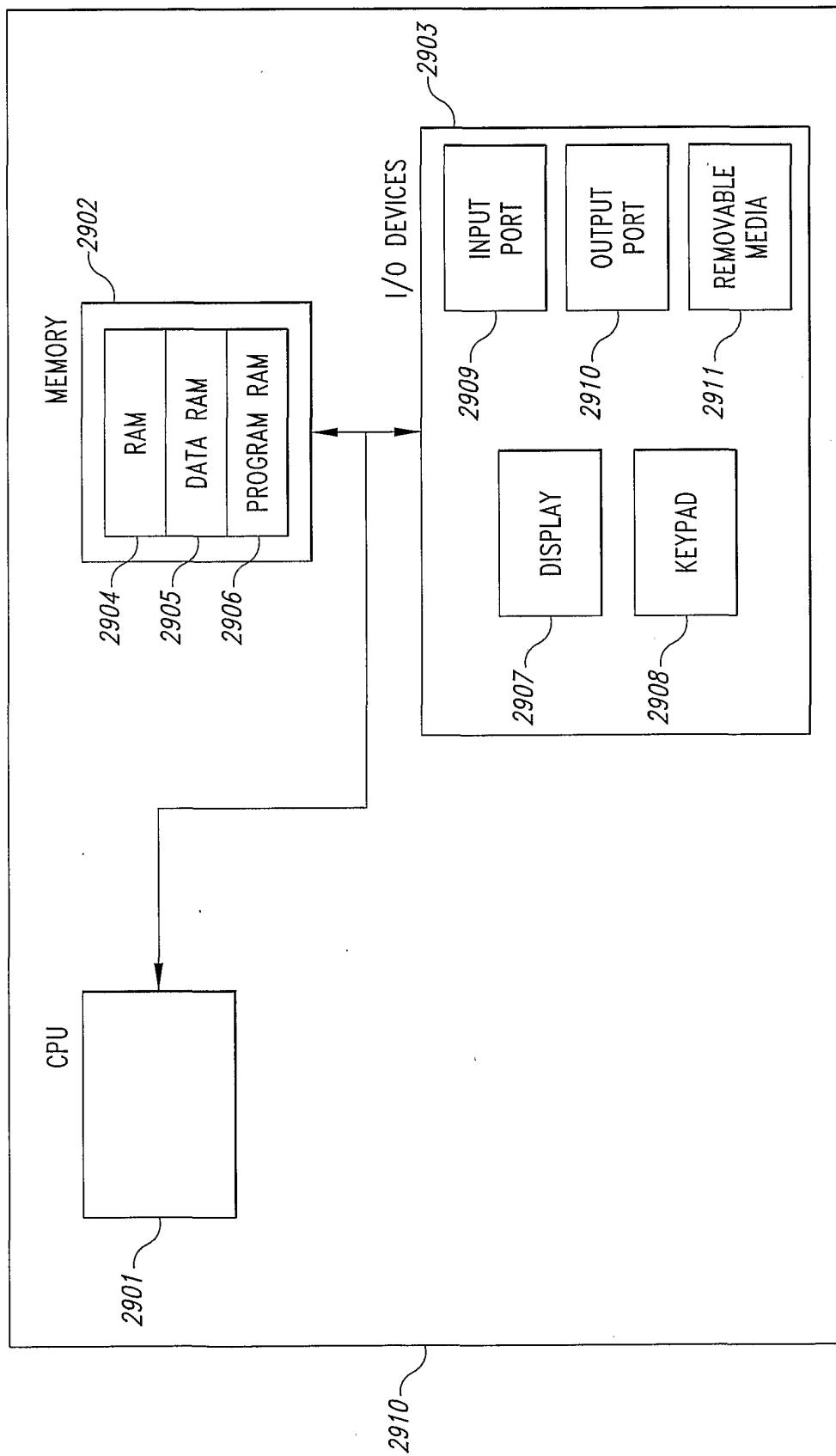


Fig. 29