An Analysis of Design Elements of Cardinal Directions

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Abstract: The purpose of this paper is to investigate a well define graphic design elements in cardinal direction in our life. Cardinal direction of 388 samples that consist of function design elements and aesthetic design elements were collected used in practical sign planning and classified systematically as their shapes and directions. As the result, we have found difference from character information and design element as analysis of direction and shape of direction, respectively. To design a simple and easy recognition direction, we should well consider character information and design element.

Key words: Cardinal direction, Profiling, Design element

1. Introduction

It is difficult for those who visit a place for the first time to know the way without using cardinal direction [1]. If you want to find the path, it is necessary to confirm the points of the compass. Although cardinal direction signs are displayed on guide signs and maps, there is no research on this aspect. Designers are presently designing cardinal direction signs in their own ways. So it is impossible to know whether the designs are easy to understand or not. In this paper, the analyses of the cardinal direction used in our life were introduced and standardized. In addition, the new design concepts of cardinal direction signs are proposed.

So, it is the primary goals of this study are as follows**;**

(1) It collected survey on inside of life commonly used cardinal direction and that is to distinguish by the difference in their shapes.
(2) Investigate the design elements required for the cardinal direction design.
(3) Actually, the 388 samples of cardinal direction were divided into four groups according to design elements.

So, this paper will make a report of 388 samples of cardinal direction shape, which is based on data compiled by image samples and to resolve a cardinal direction shape into its design elements.

2. Research Method and analysis

This study adopts the method and compares with way cardinal directions design within each beverage type. Because it is drawn by design elements to shapes cardinal direction have not been cleared up the points.

First, we have collected a lot of cardinal direction from the signs on street sign, in magazines, through internet image search and that is unlimited to Japan, used throughout the worlds of a year (2011~2012year). We collected

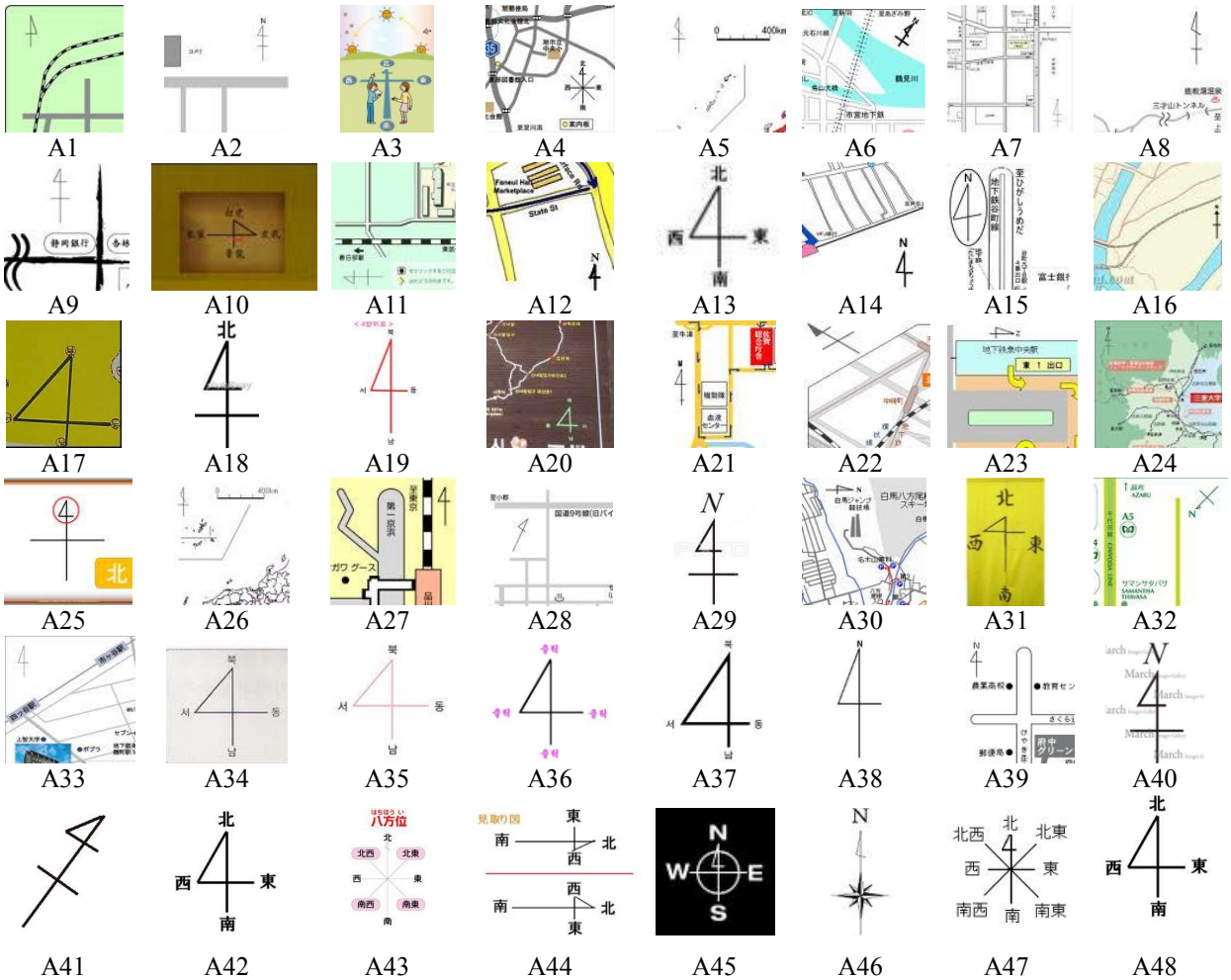
388 samples (Fig. 2,3,4,5). The totals 388 samples were used to distinguish species according to each shape. Cardinal directions shape can be roughly categorized into four types. It is to be classified into the 388 samples of cardinal direction. Then we have analyzed the 388 samples of cardinal direction and found it four type of design (Fig. 1).

At first the design elements were grouping into four groups. Then the four groups could be classified in about the four categories, (a) shape of 4 appearance (b) 1-point arrow shape (c) 4-point compass rose, (d) 8-point compass rose. Table 1 has shown character information and design elements in information needed to know the alignment cardinal direction. Character information included four types such as north, north south, north south east and west and non-character information. Design elements were classified into black and white, multicolor, face, straight line, curve line, diagonal line, broken line, triangle, circle, square and the shape of diamond [2].

Fig. 1 cardinal directions were classified into four types

(a) shape of 4 appearance	(b) 1-point arrow shape	(c) 4-point compass rose	(d) 8-point compass rose
			

Fig. 2 (a) 49 samples of shape of 4 appearance



A49

Fig.3 (b) 104 of samples 1-point arrow shape

B1 B2 B3 B4 B5 B6 B7 B8

B9 B10 B11 B12 B13 B14 B15 B16

B17 B18 B19 B20 B21 B22 B23 B24

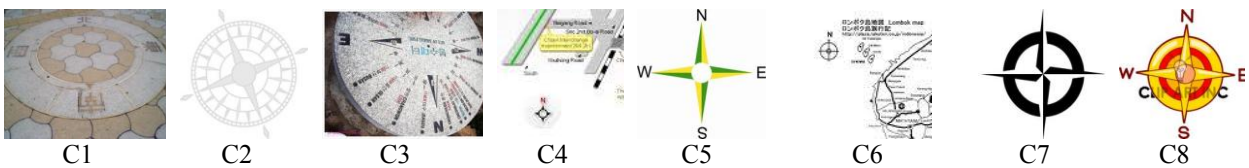
B73 B74 B75 B76 B77 B78 B79 B80

B81 B82 B83 B84 B85 B86 B87 B88

B89 B90 B91 B92 B93 B94 B95 B96

B97 B98 B99 B100 B101 B102 B103 B104

Fig.4 (c) 25 samples of 4-point compass rose



C1 C2 C3 C4 C5 C6 C7 C8

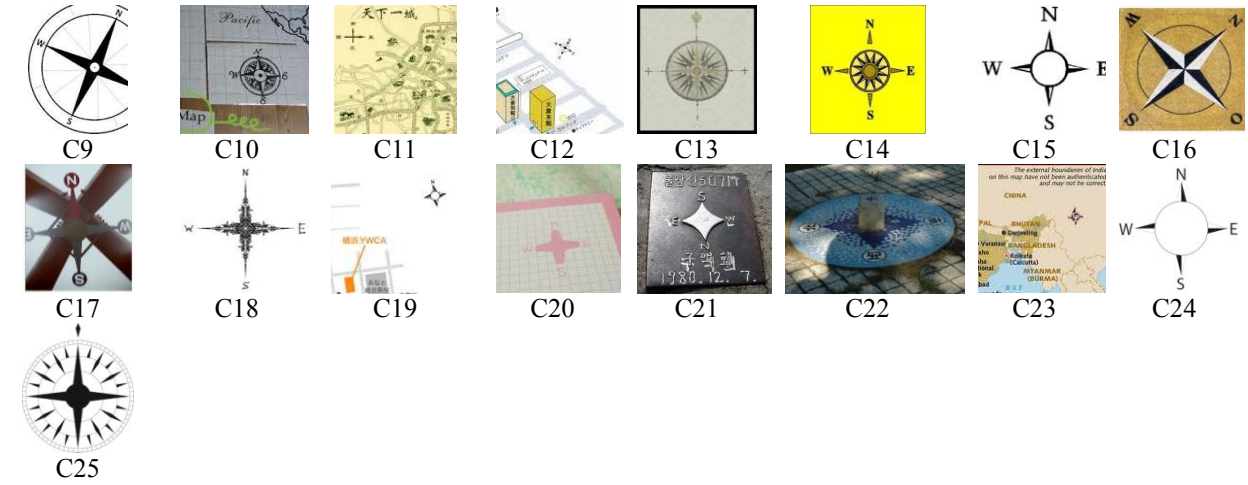
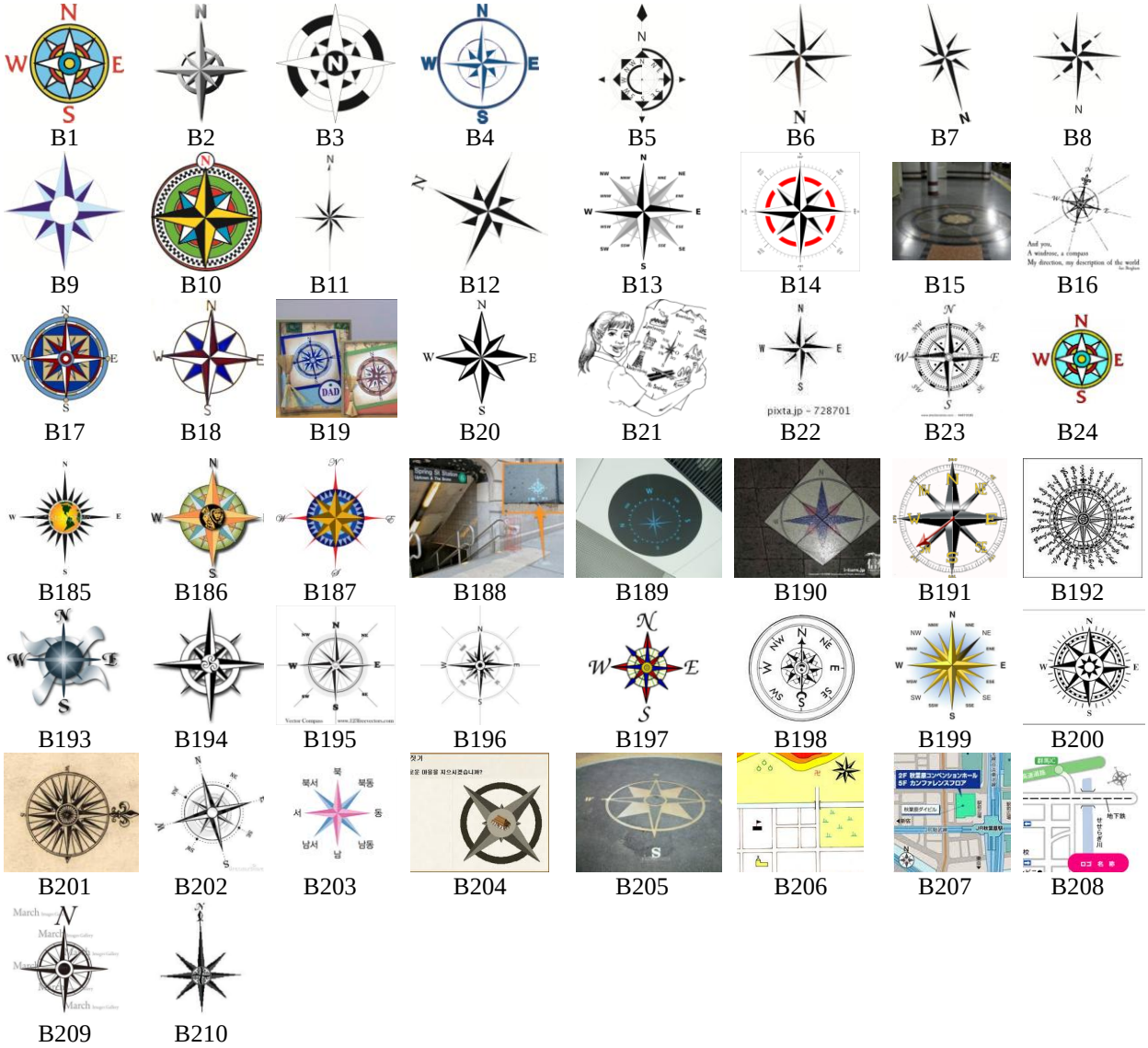


Fig.5 (d) 210 samples of 8-point compass rose



3. Result

3.1 Cardinal direction used our life

The actual cardinal direction used in many ways in our daily life. We get one's bearings by using a compass building and we can use map to figure out location and area of the region. Then the points of the compass generally mark on a map. There may be some confusion if there are no simple designs. And there are the points to be specially considered.

Cardinal direction shape is made up of several design elements. There are many things to be considered when choose a cardinal direction design. But what we need any design elements is not clear yet.

Table 1. Functional design element (Character information)

Sample	Non-	North	North/South	North/South/West/East
4shape	12/49	17/49	0/49	16/49
1-point arrow shape	3/104	85/104	1/104	12/104
4-point compass rose	6/25	2/25	1/25	16/25
8-point compass rose	31/210	32/210	0/210	147/210

※Number of samples apply to check / Number of samples

Table2. Aesthetic design element

Sample	Black white	Color	surface	Line	Curve Line	Diagonal Line	Broken Line	Triangle	Circle	Square	Diamond	Symmetry	Asymmetric
(a)4shape(49)	45	4	2	49	0	48	0	48	2	0	0	0	49
(b)Arrow shape(104)	80	24	80	88	0	4	0	63	78	1	9	21	83
(c)Four way(25)	20	5	22	12	0	18	0	18	21	0	6	24	1
(d)Eight way(210)	138	72	200	178	10	183	15	202	189	4	91	210	0
sum	283	105	304	327	10	253	15	331	290	4	105	255	133

3.2 Visual elements of cardinal direction

Cardinal direction is the communication function between the pedestrian and directional signs. In addition it is composed of three parts; shape (direction), character information and exterior graphic design (color, line, figure).

(a)Functional design element (Character information); there is no character information, north direction, north and south direction, any of the four principal compass directions (north south east and west direction)

(b)Aesthetic design element: black and white, multicolor, face, straight line, curve line, diagonal line, broken line, triangle, circle, square, diamond, symmetry, asymmetric

In common use functional design element (character information) is different from each shape (Table1). (a) The 4shape is made up of black line. Shape the upper and lower are asymmetrical. In addition, the character information was written in north direction or north south east and west direction. (b) The 1-point arrow shape is marked as the north direction. It has the shape of an arrow points to the north. The arrow shape is triangular and has a flat side and asymmetric. (c) The 4-point compass roses is marked a north south east and west (N,S,W,E), triangle with angles of difference at 90° . The 4-points have bilateral symmetry. (d) The 8-point compass roses use the four cardinal directions (N,S,W,E) plus the four inter- cardinal point (NE,SE,SW,NW). They mainly use black and white instead of colorful.

4. Conclusions

Through this research, we analyzed the number of 388 compasses as collected for depending on the direction shapes and design elements. The design elements were grouped into 4 groups. Then the 4 groups could be classified in the about, 1) 4shape 2) 1-point arrow shape 3) 4-point compass rose 4) 8-point compass rose. Based on results of the analysis, we study is the design elements of cardinal direction. We have found that cardinal direction is composed of function design elements and aesthetic design elements.

The design element of cardinal direction is different depending on the direction and shape. Also character information depends on what direction of the arrow pointed. The result of the analysis the design elements are as follows. Design elements varies from 1-point arrow shape to 8-point compass rose, depending on experience. The design elements of the character information should be the critical design elements, especially to fit the shape of each cardinal direction. Most pedestrian get a bearings by using a compass and find the way to the destination. So, it will get more easily for designers to design.

In this time Research concerning design elements is still in early stages, future progress in this study will hopefully get improved methods of cardinal direction design.

References

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