

# Red and Blue – abstract and cultural issues

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## Red and Blue – fundamental colors?



According to Berlin and Kay's famous research "Basic color terms, their universality and evolution,"

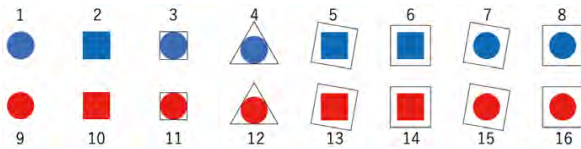
Fundamental color terms appear in the following order, commonly in the world: black and white -> red -> green or yellow -> green and yellow -> blue -> brown -> ...

However, in Japanese language, the four fundamental color terms are traditionally SHIRO (white), KURO (black), AKA (red), and AO (blue).

This is mentioned "exceptional" in that book.

## Abstract issue

We investigated the effect of the shape of color swatches and surrounding geometrical shapes to the impressions of red and blue.



Passionate – calm impressions (%)

	1	2	3	4	5	6	7	8
1. Very passionate	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0
2. Rather passionate	2.6	5.3	7.9	7.9	2.6	2.6	5.3	2.6
3. Neither	26.3	15.8	31.6	26.3	28.9	13.2	42.1	18.4
4. Rather calm	52.6	36.8	50.0	55.3	55.3	44.7	50.0	57.9
5. Very calm	18.4	39.9	10.5	10.5	13.2	39.9	2.6	21.1

Dynamic – static impressions (%)

	1	2	3	4	5	6	7	8
1. Very dynamic	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0
2. Rather dynamic	2.6	0.0	5.3	13.2	31.6	0.0	21.1	2.6
3. Neither	26.3	15.8	28.9	26.3	18.4	10.5	39.9	13.2
4. Rather static	36.8	34.2	47.4	47.4	39.9	42.1	34.2	66.8
5. Very static	34.2	50.0	18.4	13.2	2.6	47.4	5.3	18.4

(38 respondents)

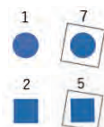
### Blue is static, red is passionate?

When the color swatches are enclosed by upright squares (Nos. 1 - 8 in blue, Nos. 9 - 16 in red), the percentages of "very static" for blue and "very passionate" for red are suppressed.

The significance of the difference between "color swatch only" and "enclosed by tilted square" is evaluated by Friedman's test.

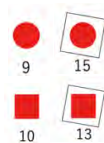
### For blue:

The significant differences are detected between the pairs Nos. 1 - 7 and Nos. 2-5, for both of "passionate – calm" and "dynamic – static" at the 5% significant level.



### For red:

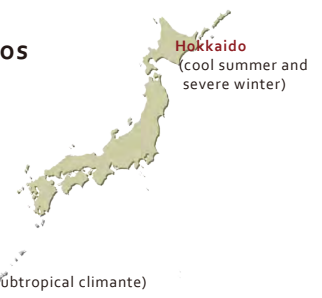
The significant differences are detected between the pair Nos. 9 - 15 for "passionate – calm" and No. 10 - 13 for "dynamic – static" at the 5% significant level.



## Cultural issue

We surveyed preferences in red and blue for kimonos in Hokkaido.

Japan (Thanks to www.chiri.com)



We already surveyed preferences in red for kimonos in Okinawa [2], 2014.

Female / male kimono color samples, 18 variations of red and 18 variation of blues, were presented. The respondents answered three most preferred ones for each combination of female/male – red/blue.

### Color samples of Japanese traditional variations of red / blue

No.	Name	L*	a*	b*	No.	Name	L*	a*	b*
1	Red	50	35	13	1	Blue (靑色)	30	-4	42
2	Turkey red	41	42	14	2	Blue (靑色)	36	10	46
3	Red (赤)	55	18	10	3	Blue (靑色)	31	-5	32
4	Wine red	53	36	12	4	Blue (靑色)	32	-14	31
5	Orange red	42	43	23	5	Blue (靑色)	43	-1	31
6	Brown red	32	28	12	6	Blue (靑色)	34	-9	24
7	AKA (赤)	43	43	17	7	Blue (靑色)	36	-12	19
8	Red (赤)	54	44	10	8	Blue (靑色)	38	14	45
9	Orange	44	44	14	9	Blue (靑色)	41	-29	28
10	Red (赤)	42	51	13	10	Blue (靑色)	41	-1	41
11	Orange	42	53	17	11	Blue (靑色)	39	-3	35
12	Blue (靑色)	54	18	10	12	Blue (靑色)	31	-30	22
13	Shuho (緋)	45	53	24	13	Blue (靑色)	51	-5	44
14	Orange (赤)	51	39	13	14	Blue (靑色)	30	-20	35
15	Blue (靑色)	30	42	36	15	Blue (靑色)	51	-5	47
16	Blue (靑色)	45	34	29	16	Blue (靑色)	30	1	39
17	Blue (靑色)	40	18	19	17	Blue (靑色)	36	4	39
18	Blue (靑色)	45	55	23	18	Blue (靑色)	30	3	26

The respondents were 80 university students, 31 males and 49 females, living and studying in Hokkaido.

### The most preferred ones in Hokkaido

Respondents	Illustrations			
	woman - reds	woman - blues	man - reds	man - blues
All	Shinshu (No. 14)	Aiwo (No. 1)	Agate (No. 1)	Koiai (No. 11)
women	Shinshu (No. 14)	Tetsunando (No. 6)	Agate (No. 1)	Iron blue (No. 16)
men	Shuho (No. 11)	Byakugun (No. 3)	Agate (No. 1)	Koiai (No. 11)
		Asagiwo (No. 12)	Persian red (No. 6)	

Preferences in Hokkaido have calm tones, low chroma and brightness, while brilliant red of higher chroma and brightness were preferred in Okinawa [2].



(This poster is available via this QR code.)

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