

presentation of master's thesis

Chinese Typeface with *Italic* Function

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Introduction of Italic Type

Italic type Roman type

Italic type is a cursive typeface based on calligraphic handwriting.

- ❖ *Slanted*
- ❖ Different glyphs
(e.g. *a a, f f*)
- ❖ Narrow

Current Usage of Italic Type

The use of *italic type* and **bold type** is mutually different. Italic type is usually used to:

- ❖ Names of ships, publishers, books, albums, etc.
e.g. I wrote an article in the *Cell*.
- ❖ Scientific names, symbols
e.g. *Cosmos bipinnatus*; $x = 2$
- ❖ Quotation
- ❖ Foreign language
e.g. A splendid *coq au vin* was served
- ❖ ...

Current Chinese Typography

Original text

Smith wasn't the *only* guilty party. It is true.

Current Chinese Typography

Original text

Smith wasn't the *only* guilty party. It is true.

Options in Chinese

Converted Results

Bold

史密斯并不是**唯一**的犯人，真的。

Emphasis mark

史密斯并不是唯一的犯人，真的。
• •

Underline

史密斯并不是唯一的犯人，真的。

Fake italic type

史密斯并不是*唯*一的犯人，真的。

Plain text

史密斯并不是唯一的犯人，真的。

Other typeface

史密斯并不是唯一的犯人，真的。

Shortcomings of Fake Italic Type

A fake italic type is a sloped typeface automatically generated by software.

unchanged character frame



geometrically slanted



Current Chinese Typography

Original text

Smith wasn't the *only* guilty party. It is true.

Options in Chinese

Converted Results

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史密斯并不是**唯**一的犯人，真的。

Previous Attempts

愛のあるユニークで豊かな
愛のあるユニークで豊かな書体

ナカミンダ B-S (BNMD-S)

愛のあるユニークで豊かな
愛のあるユニークで豊かな書体

ナカミンダ B-I (BNMD-I)

ナカミンダ B-S 横組印字例
ナカミンダ B-S (BNMD-S) 200-1) 30H 通り
裕福な家にしかテレビがなかった頃、街の電気屋さんの前には英雄力道山の空手チョップを見ようと黒山の人集り。とんま天狗やデン助は、知らない人がいない

ナカミンダ B-I 横組印字例
ナカミンダ B-I (BNMD-I) 200-1) 30H 通り
裕福な家にしかテレビがなかった頃、街の電気屋さんの前には英雄力道山の空手チョップを見ようと黒山の人集り。とんま天狗やデン助は、知らない人がいない

E209-44, E209-45 印字例
E209-44 180-1) 20H 通り
Phototypesetting system are fully line-upped available for Chinese kan-jl, either traditional or simplified, or Han-kie language.

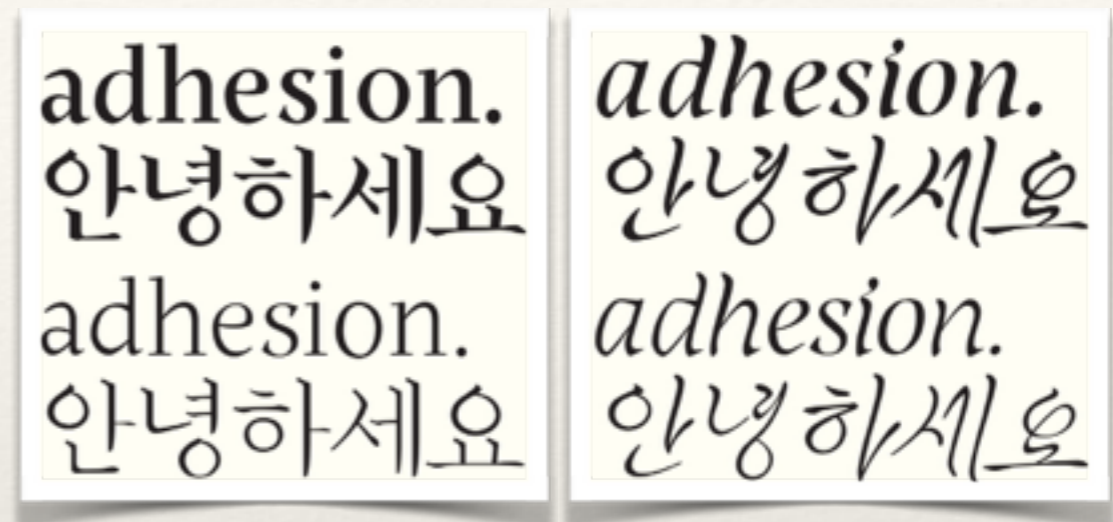
E209-45 180-1) 20H 通り
Phototypesetting system are fully line-upped available for Chinese kan-jl, either traditional or simplified, or Han-kie language.

ナカミンダ B-S (BNMD-S)
ナカミンダ B-I (BNMD-I)
ナカミンダ B-S, B-I ともに、パゾ用の以下の文字構成です。

- メインプレート (1枚)
- 3級部 (7枚)
- 記号 (2枚)
- 正字 (3枚)
- 汎用外字 (2枚)
- E 欧文 (1枚)

新発売!!

ナカミン by 中村征宏 (Japan) in 1992



Saja by Aaron Bell (USA) in 2012



Graduation Portfolio
by Calvin Kwok (Hong kong) in 2013

Research Settings

- ❖ Text type is Ming
- ❖ Horizontal text direction.
- ❖ Simplified Chinese characters


Content of this Research



**investigation of
typeface's
impression**

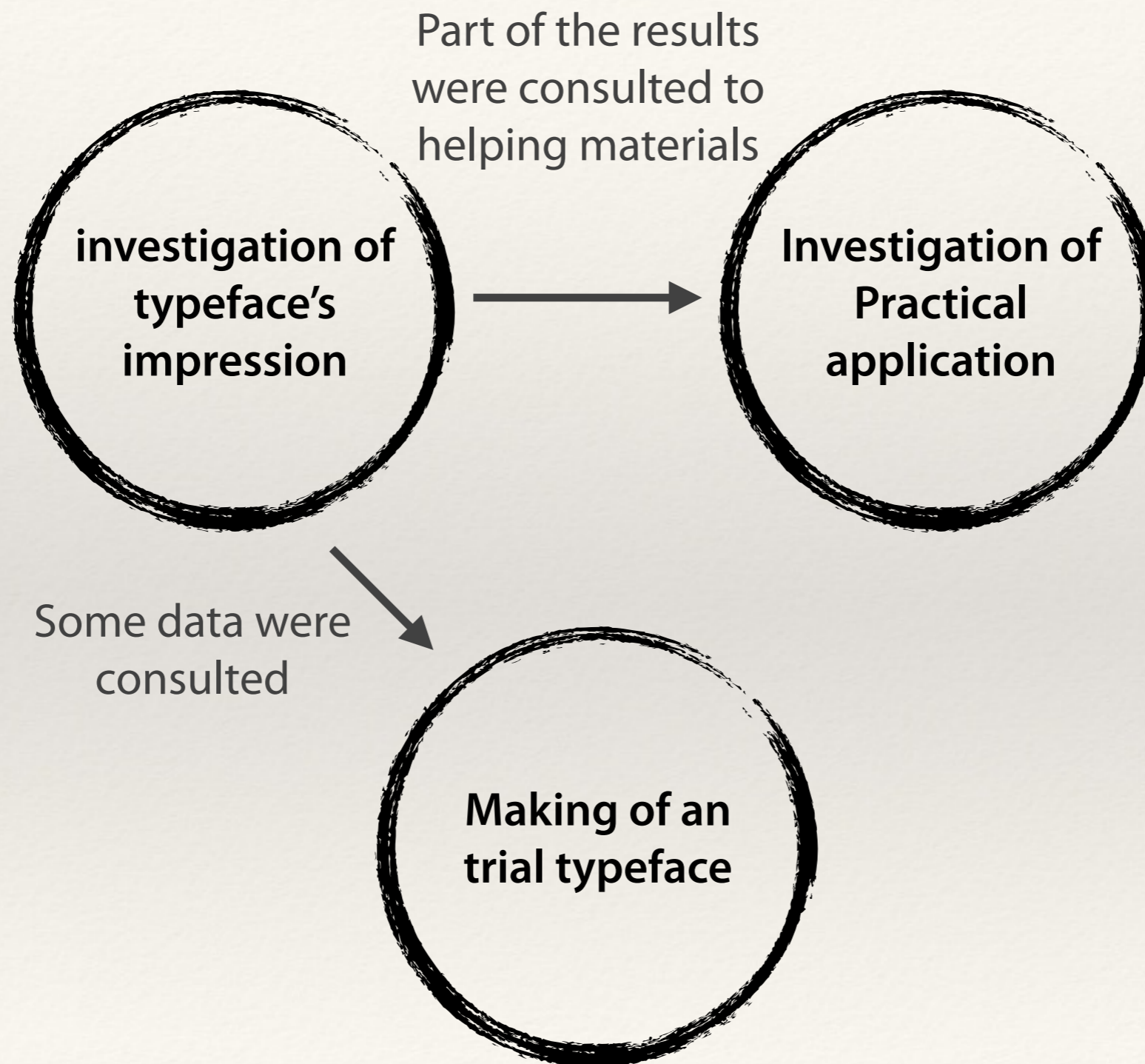


**Investigation of
Practical
application**

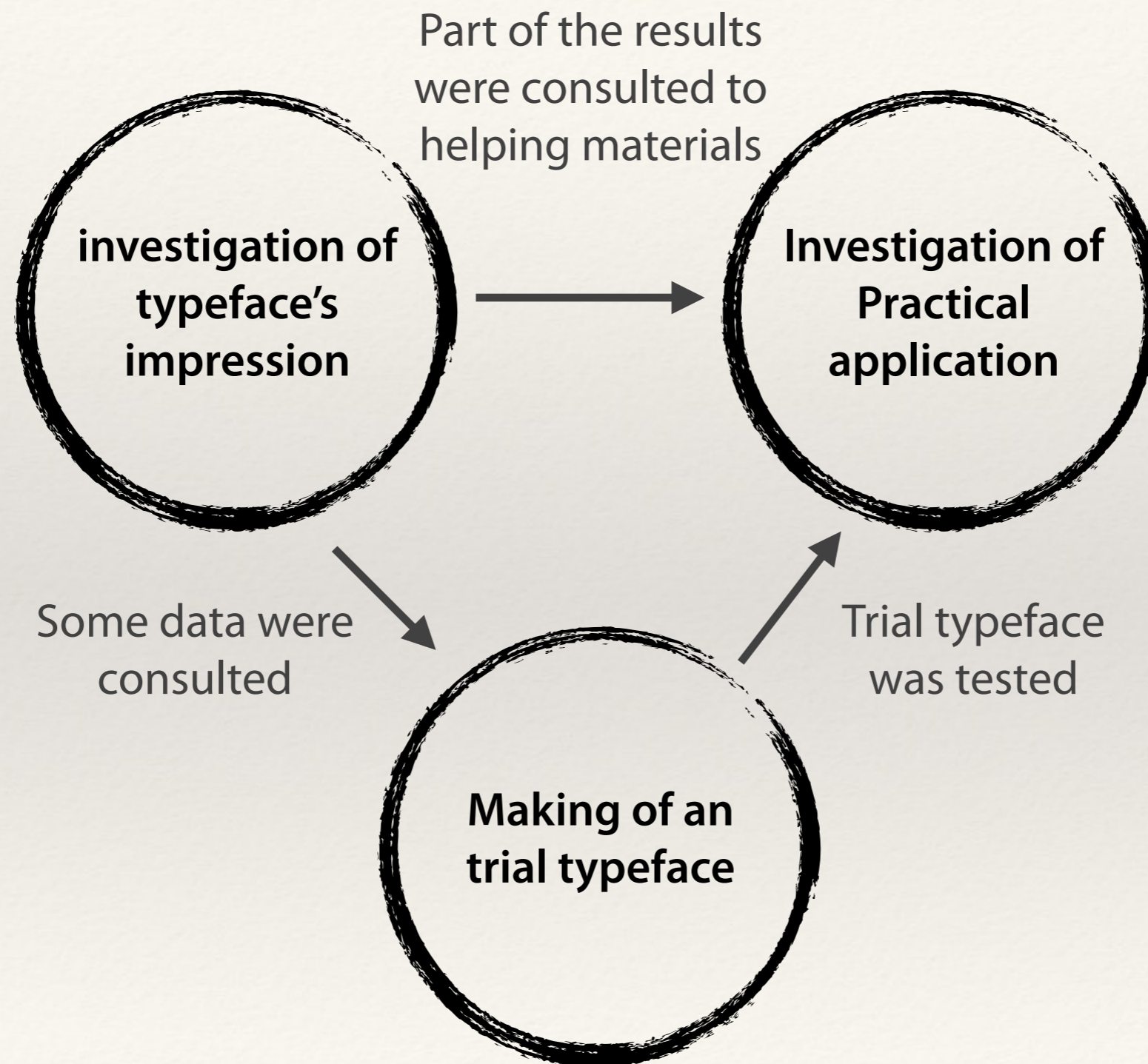


**Making of an
trial typeface**

Content of this Research



Content of this Research



Impression Research of Chinese and Latin-script Typefaces

- ❖ SD method was used
- ❖ Preparation:
 - ❖ Material typefaces (Chinese)
 - ❖ Material typefaces (Latin-script)
 - ❖ Impression terms

Materials (Chinese)

English Name	Japanese Name	Branches
Clerical script	隸書体	
Regular script	楷書体	瘦金体 清朝体 魏体 顏體 歐体 柳体
Cursive script	草書体	
Semi-cursive script	行書体	
<i>Ming</i>	明朝体	清刻本
Imitation Song	宋朝体	聚珍仿宋
<i>Heiti</i> (Sans-serif)	ゴシック体	姚体

Materials (Latin-script)

Nationality	England	France	German
Roman types	Caslon	Didot	Palatino
Italic types	<i>Caslon italic</i>	<i>Didot italic</i>	<i>Palatino italic</i>

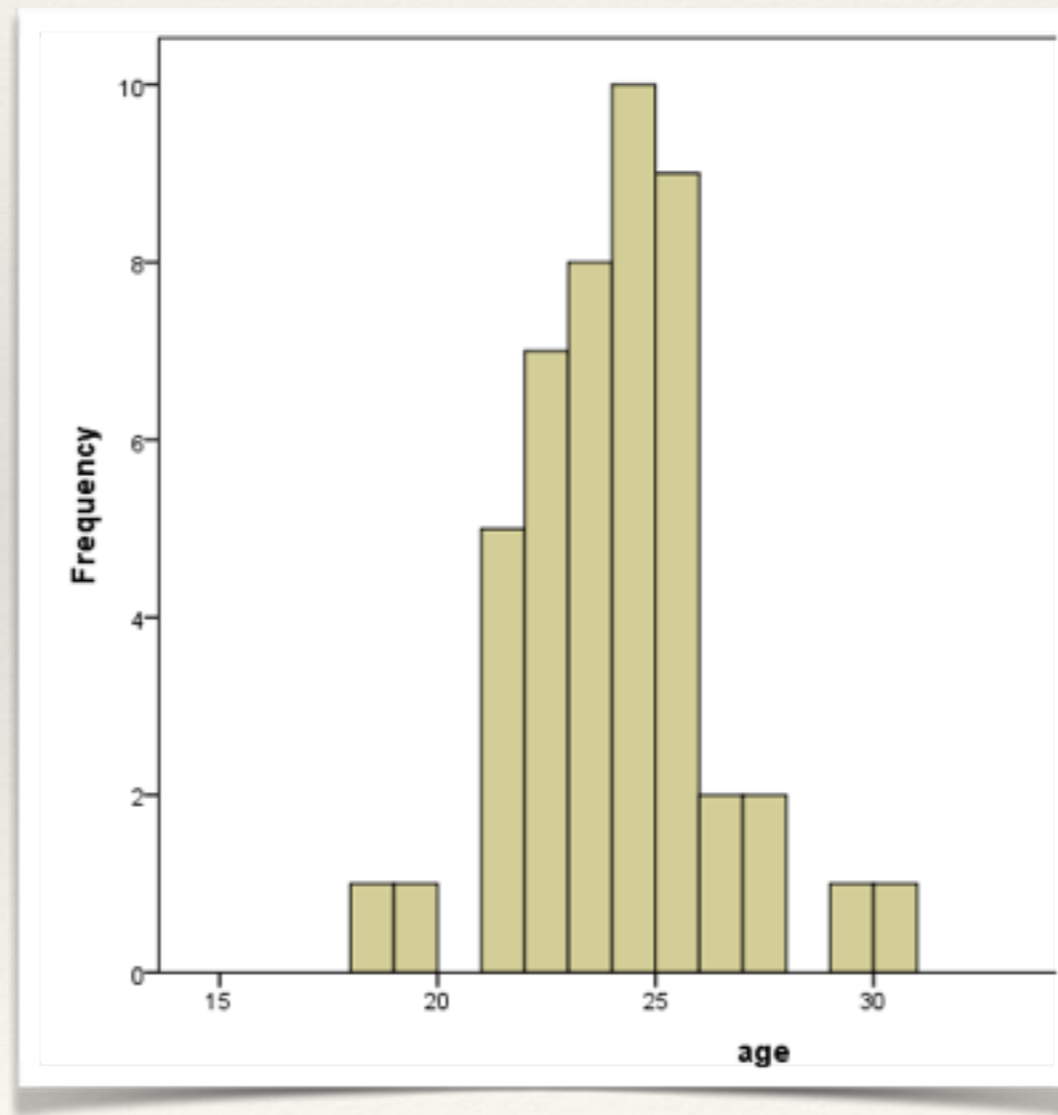
Impression terms

After consulting former researches and performing pre-test finally these 14 pairs of terms were used:

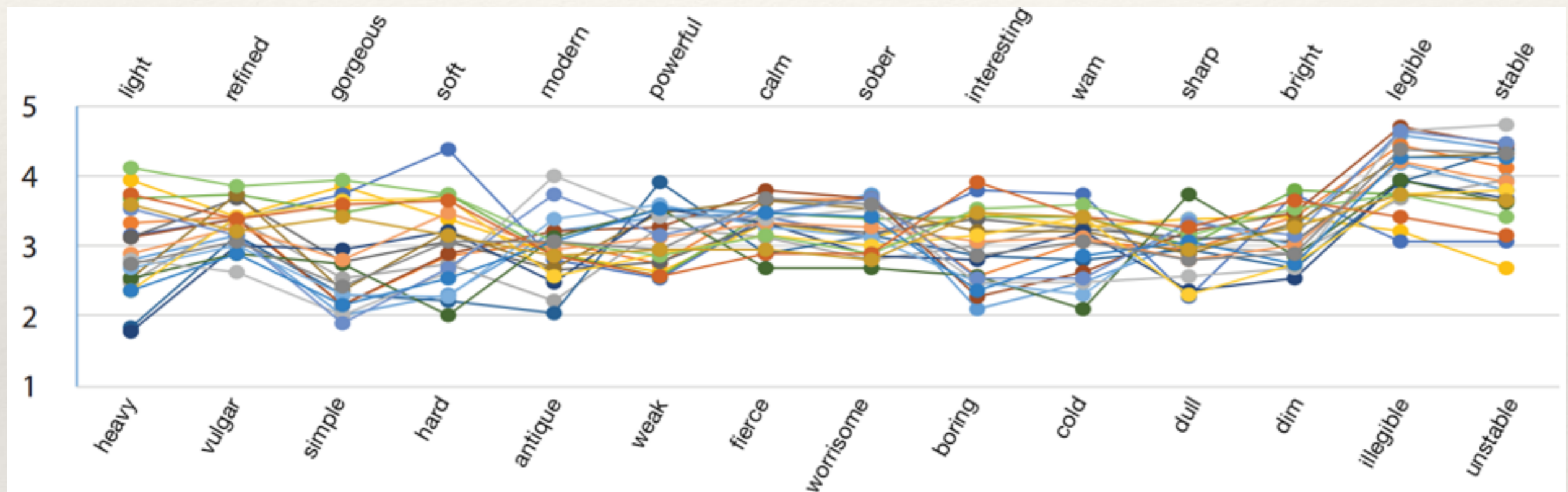
<i>heavy</i>	← 1 2 3 4 5 →	<i>light</i>
<i>vulgar</i>	← 1 2 3 4 5 →	<i>refined</i>
<i>simple</i>	← 1 2 3 4 5 →	<i>gorgeous</i>
<i>hard</i>	← 1 2 3 4 5 →	<i>soft</i>
<i>antique</i>	← 1 2 3 4 5 →	<i>modern</i>
<i>weak</i>	← 1 2 3 4 5 →	<i>powerful</i>
<i>fierce</i>	← 1 2 3 4 5 →	<i>calm</i>
<i>worrisome</i>	← 1 2 3 4 5 →	<i>sober</i>
<i>boring</i>	← 1 2 3 4 5 →	<i>interesting</i>
<i>cold</i>	← 1 2 3 4 5 →	<i>warm</i>
<i>dull</i>	← 1 2 3 4 5 →	<i>sharp</i>
<i>dim</i>	← 1 2 3 4 5 →	<i>bright</i>
<i>illegible</i>	← 1 2 3 4 5 →	<i>legible</i>
<i>unstable</i>	← 1 2 3 4 5 →	<i>stable</i>

Subjects

Subjects were all Chinese including 31 men and 17 women aged between 19 and 30 at an average age of 23.

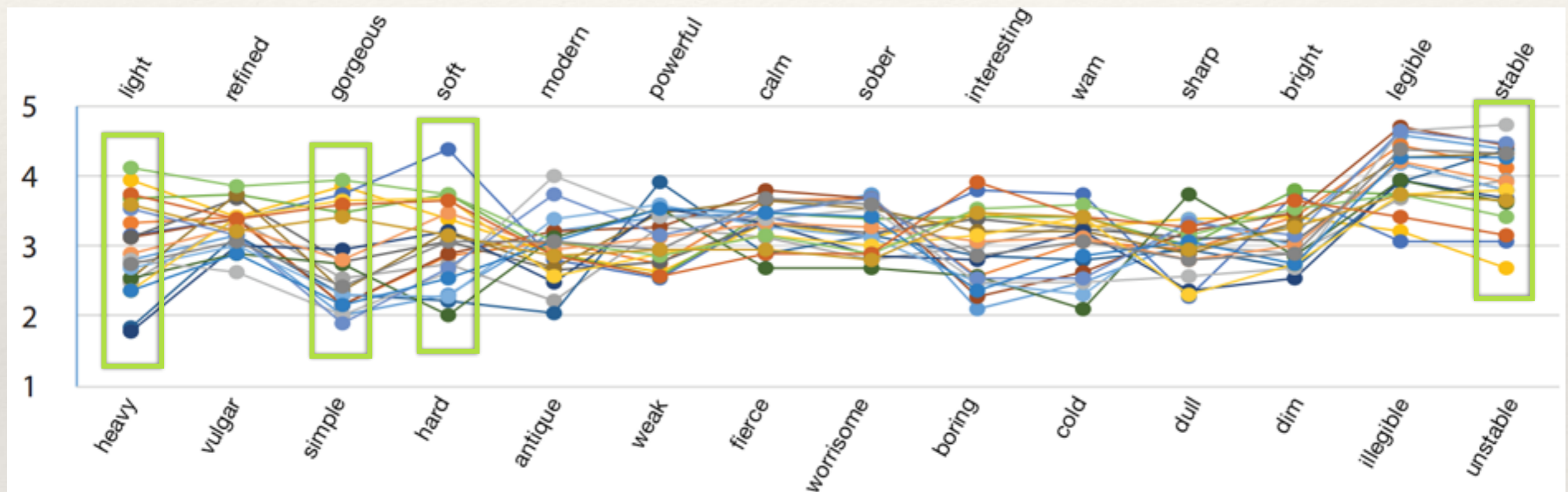


Results - Overall



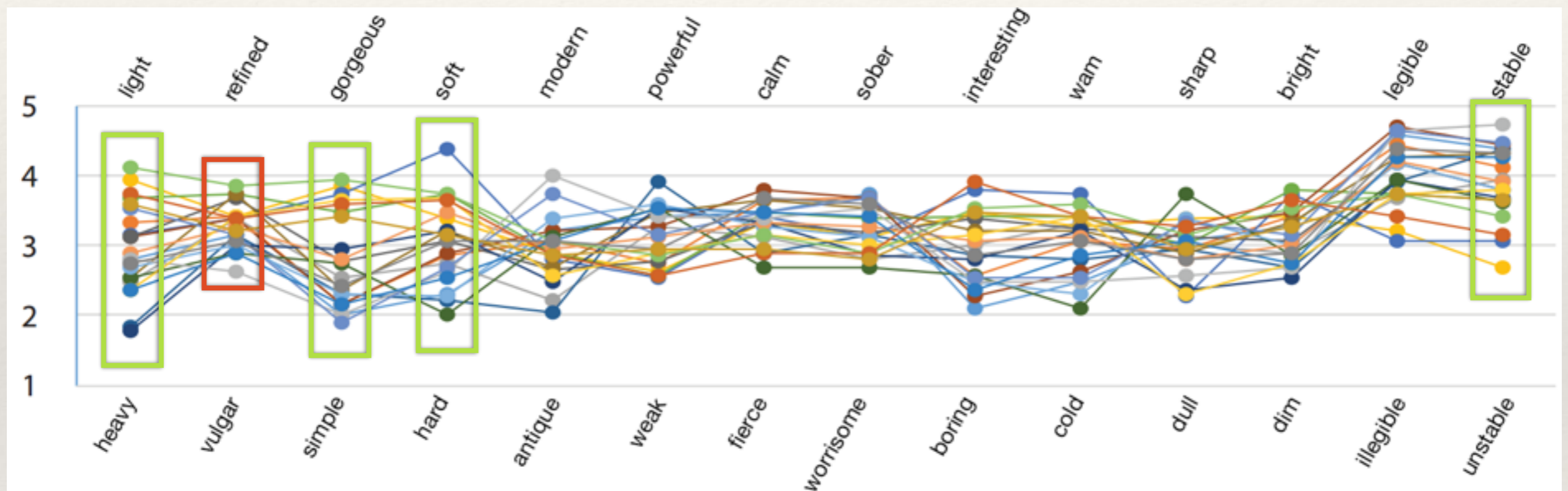
- ❖ Four impressions that were easy to convey (green)
- ❖ “*Vulgar/refined*” is hard to convey (red)
- ❖ Three relatively stand-out types (black)

Results - Overall



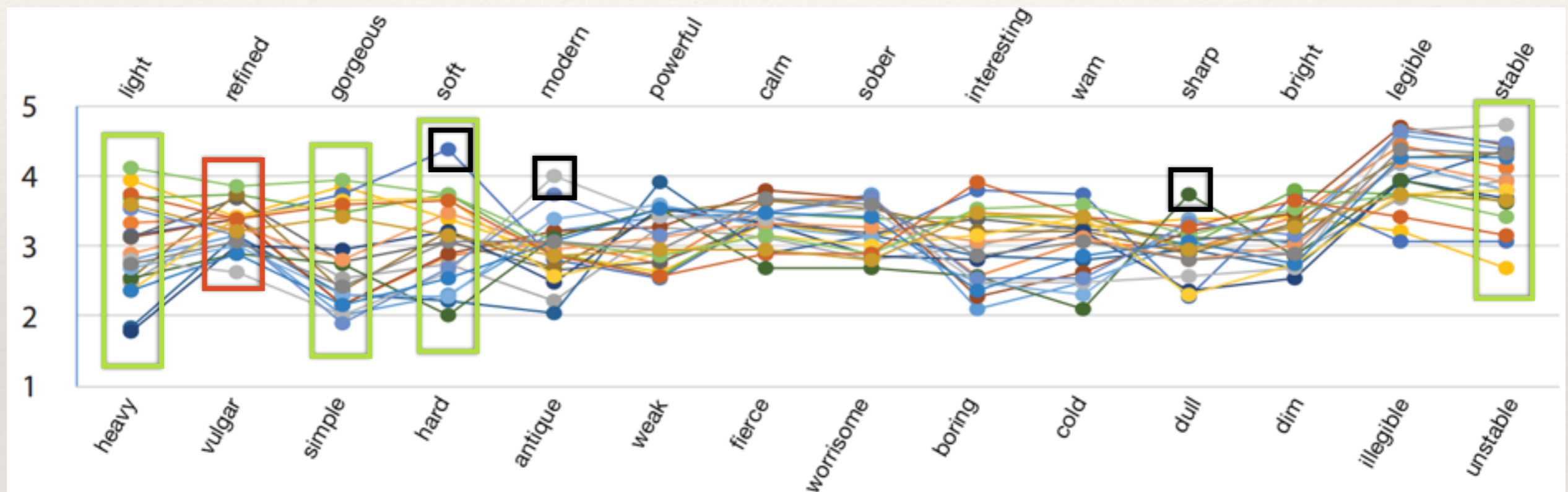
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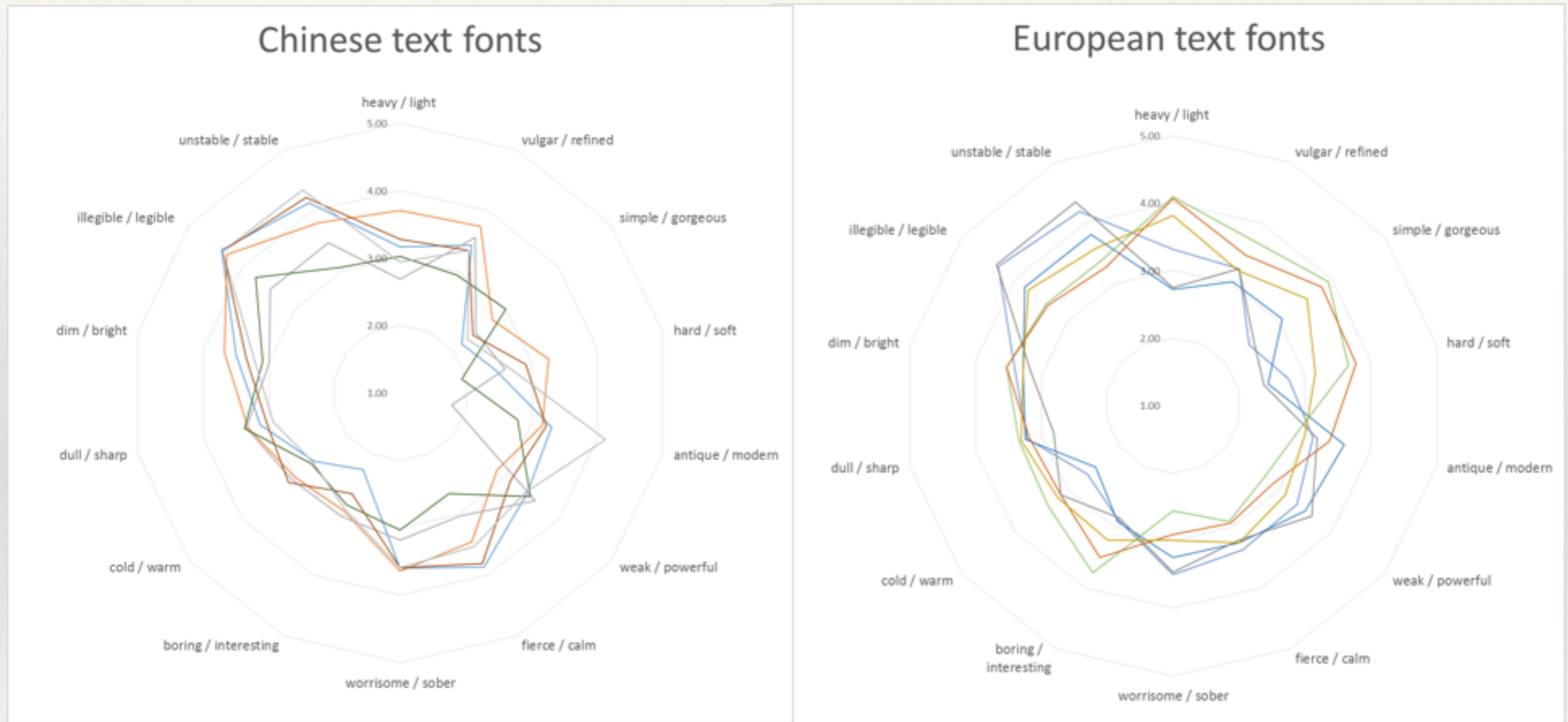
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Results - Overall

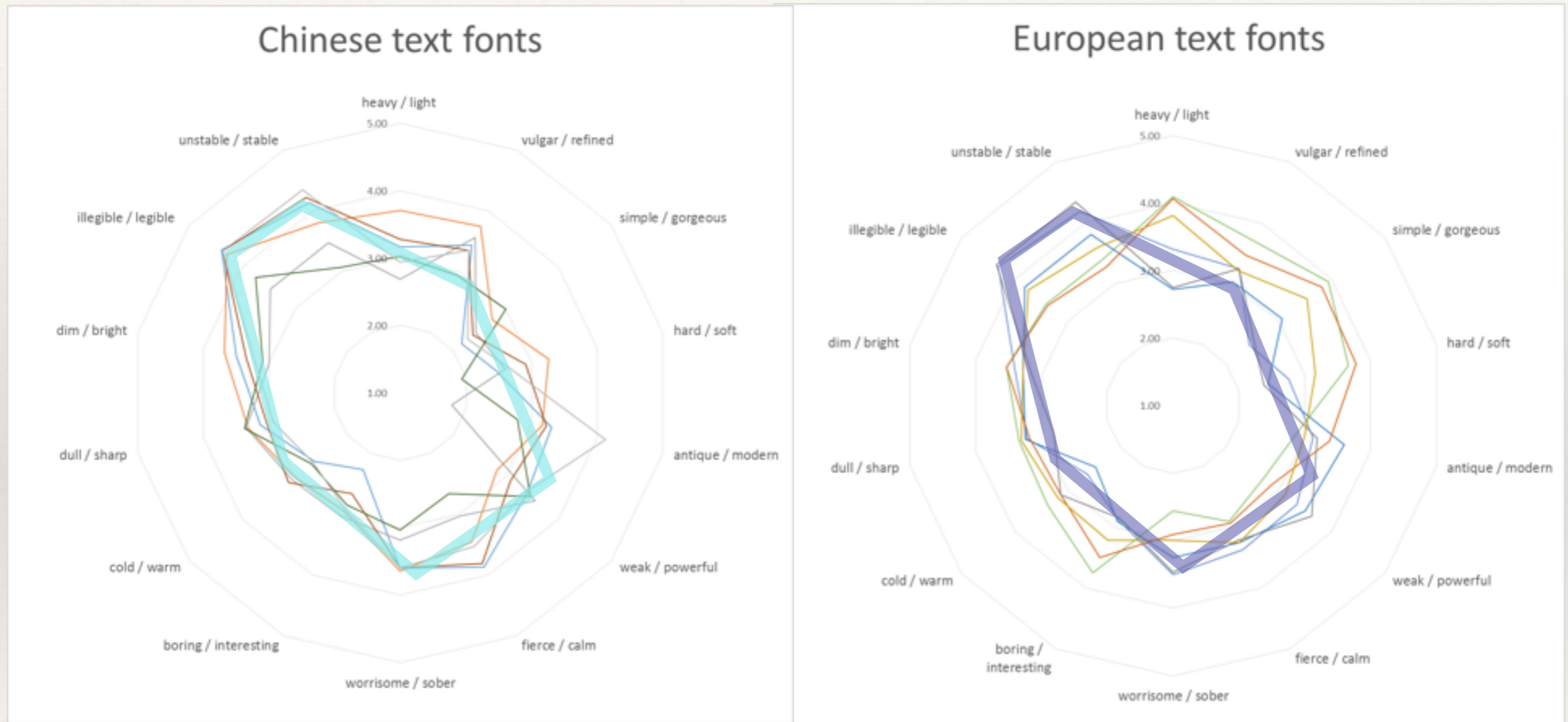


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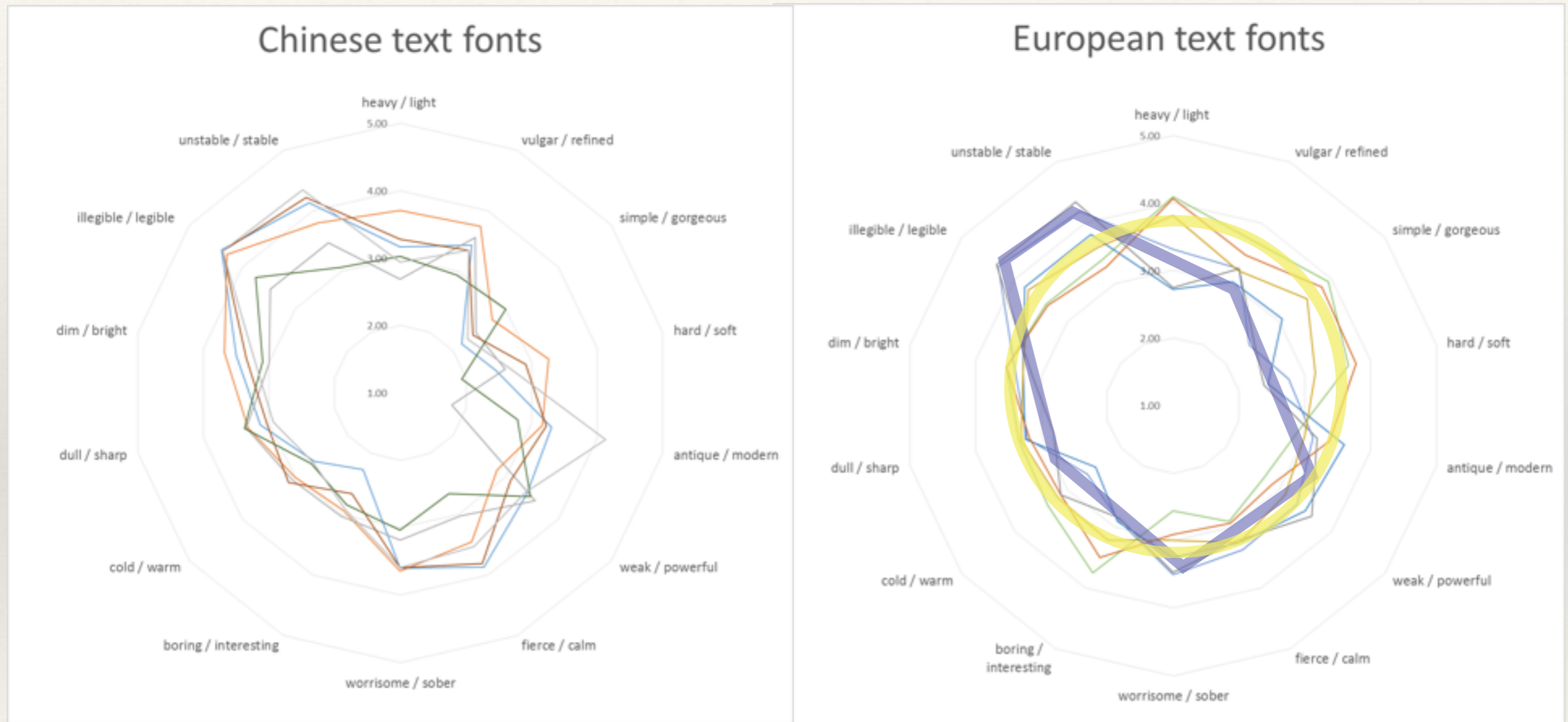
Results (Chinese v.s. Latin)



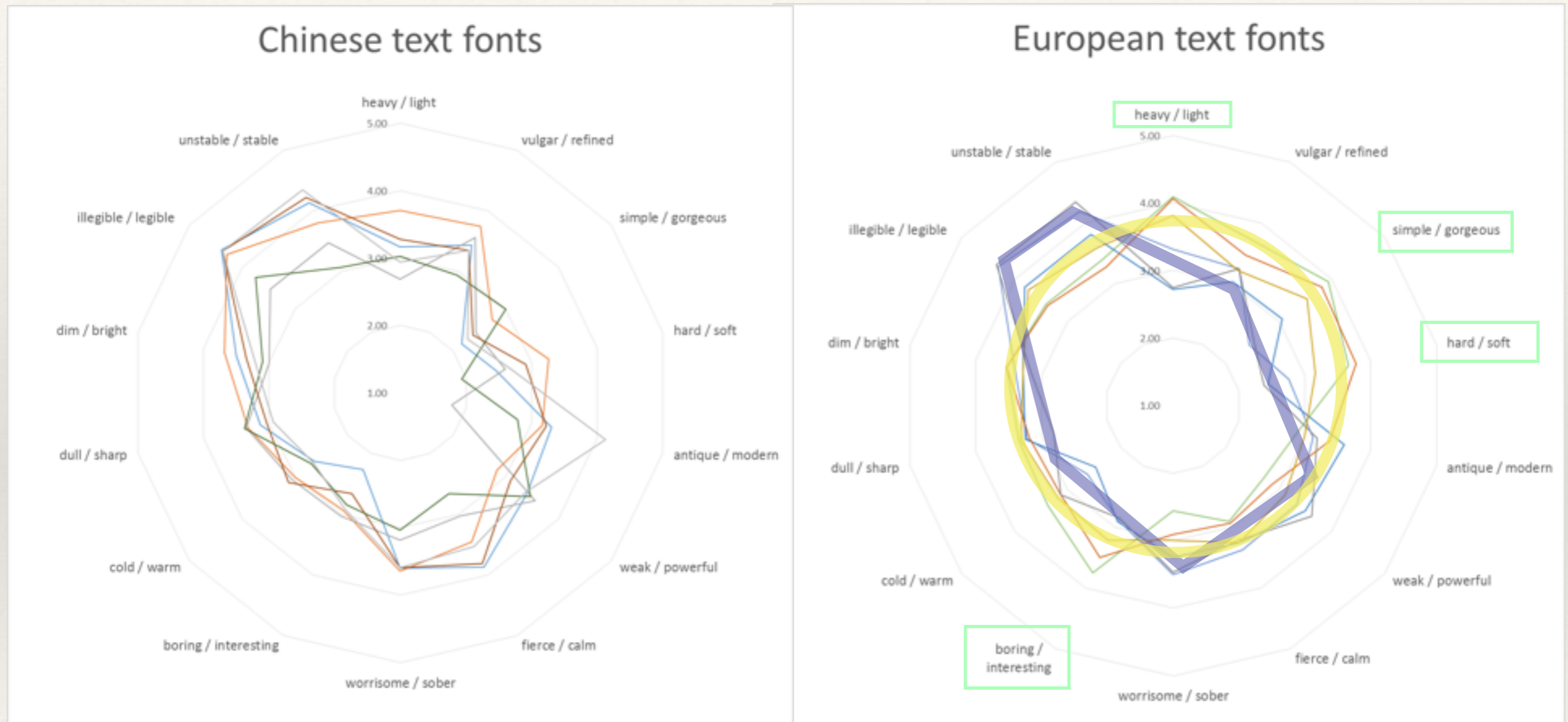
Results (Chinese v.s. Latin)



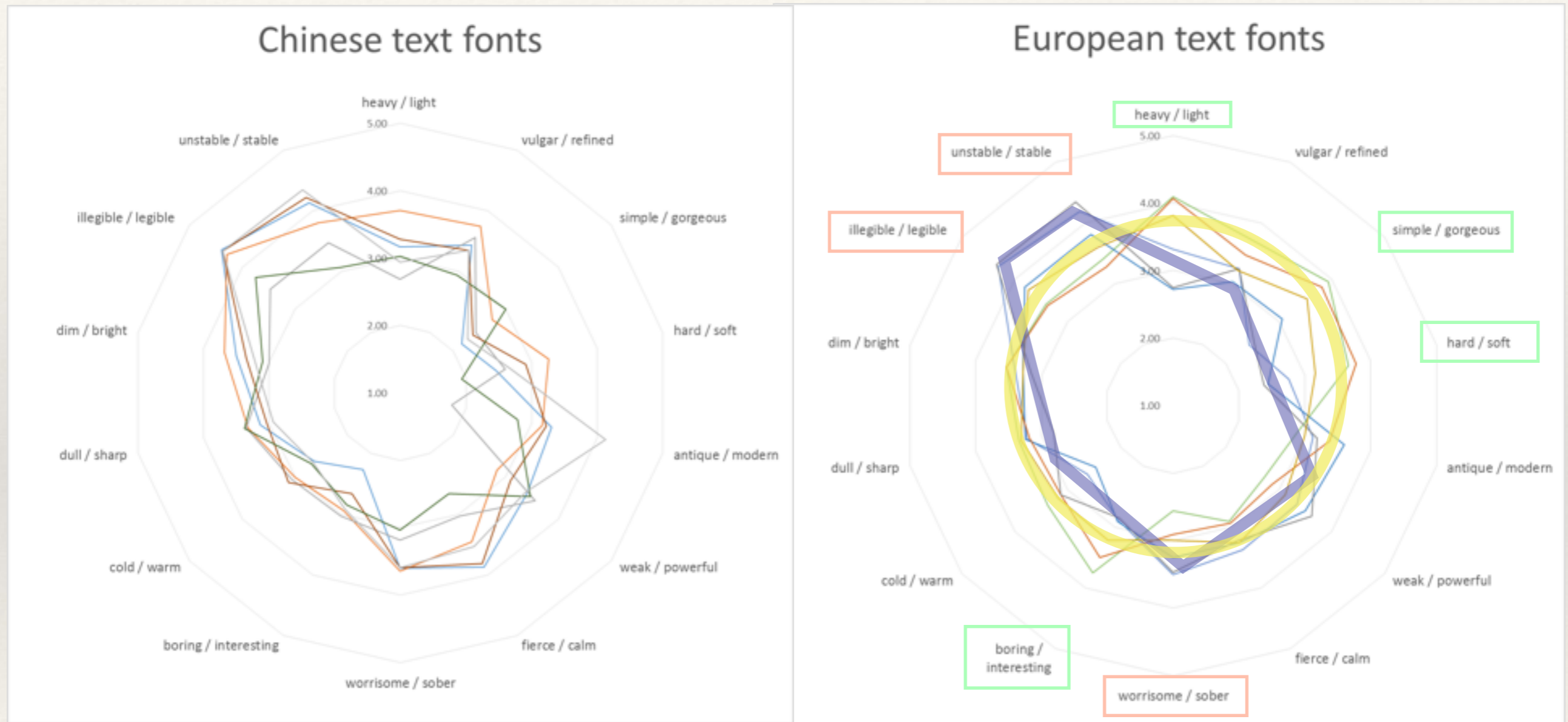
Results (Chinese v.s. Latin)



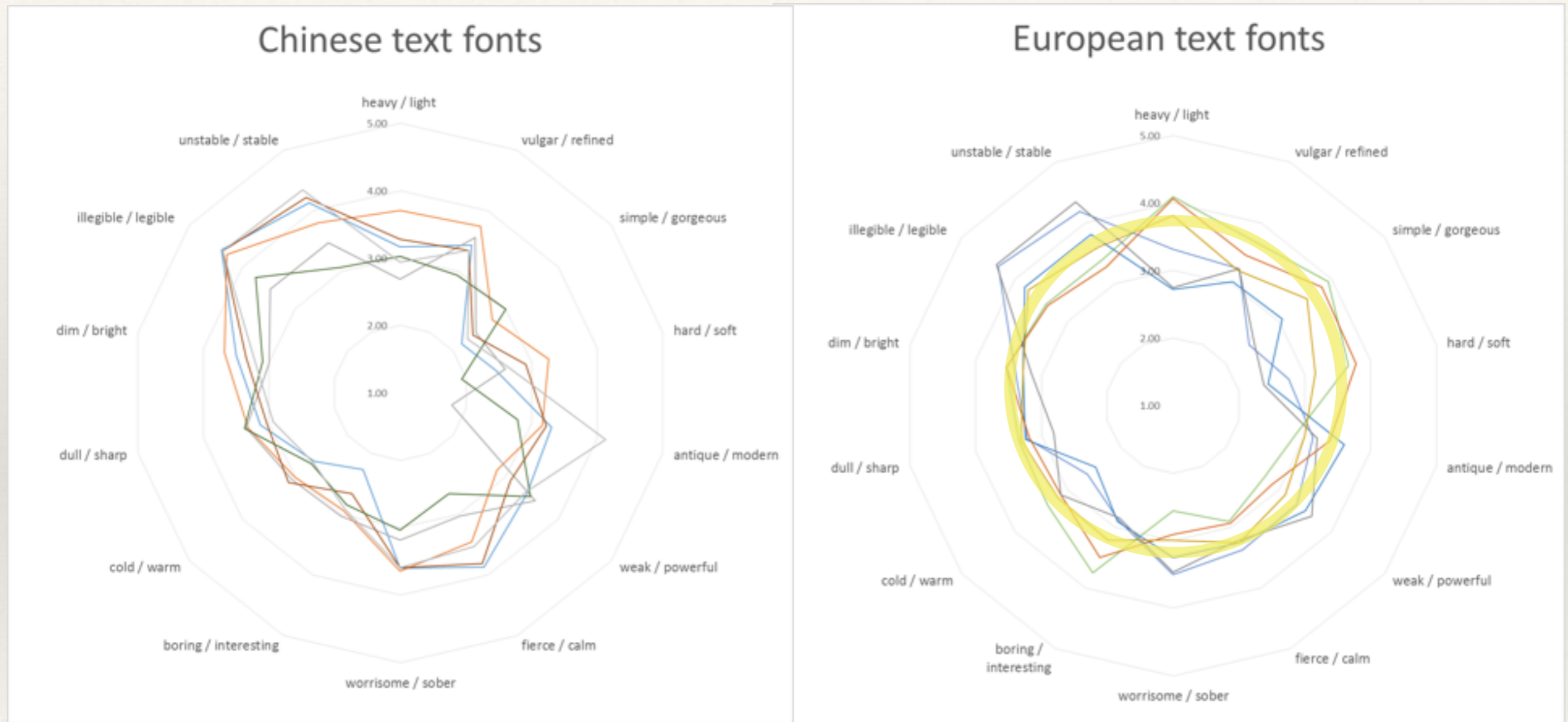
Results (Chinese v.s. Latin)



Results (Chinese v.s. Latin)



Results (Chinese v.s. Latin)



3 typefaces resembled western italic types in impression:

Semi-cursive

行书体

Wei Regular

魏体

Slender Gold

瘦金体

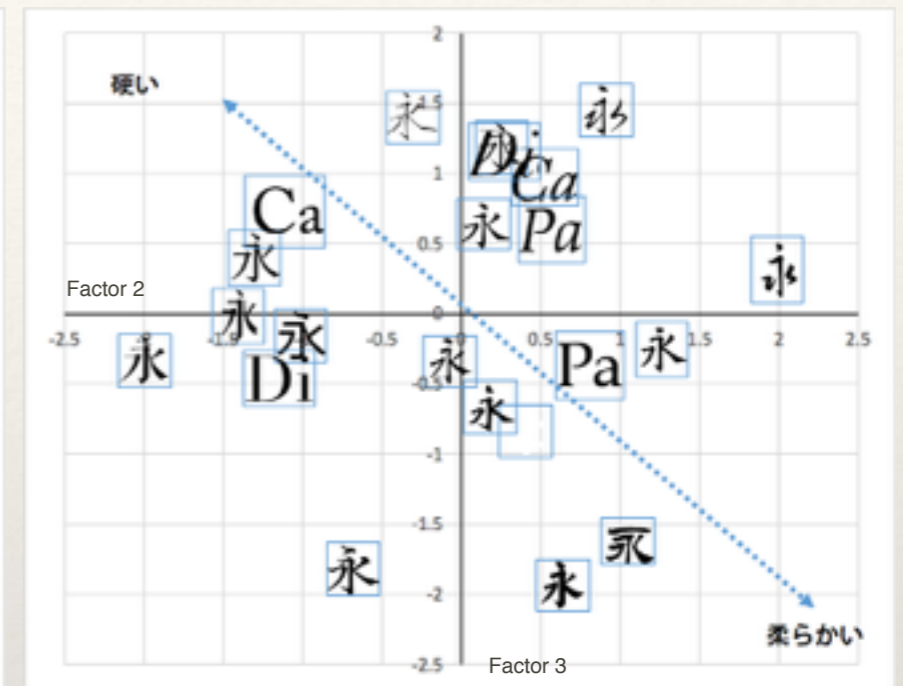
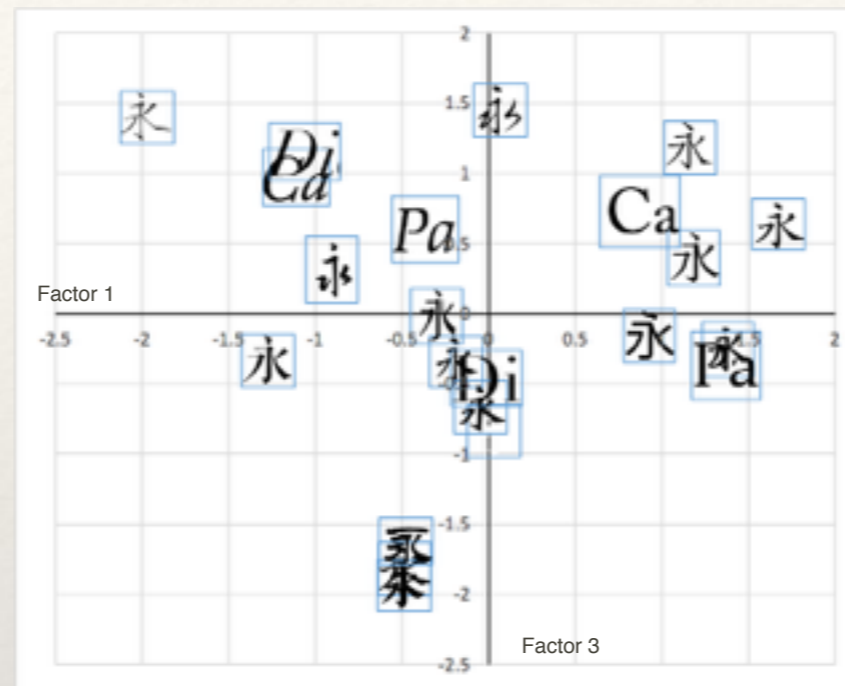
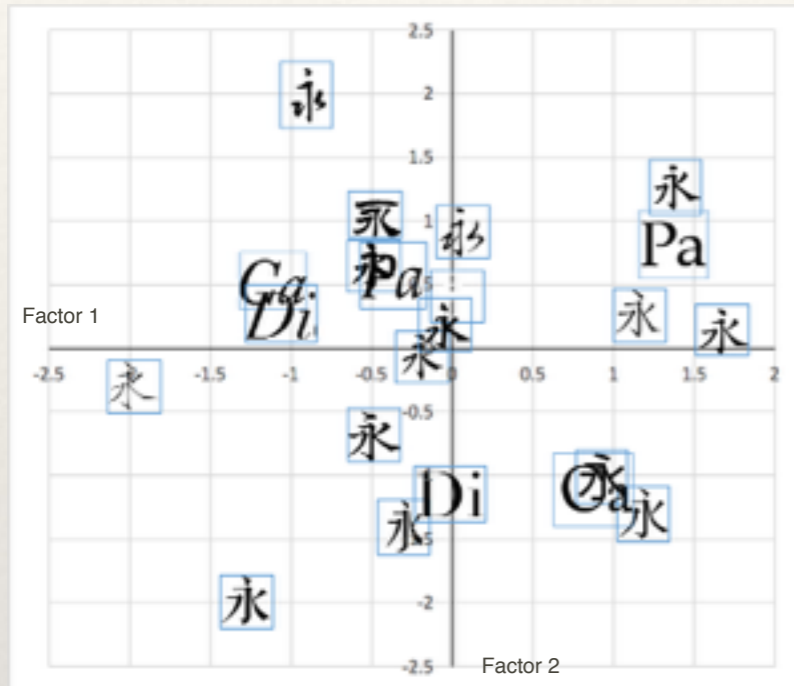
Factor Analysis

	factors		
	1	2	3
calm	.881	-.270	-.160
legible	.837	-.455	.086
gorgeous	-.794	.439	.346
interesting	-.602	.653	.189
warm	-.219	.963	.089
soft	-.239	.125	.942
bright	.084	.084	.975
modern	.316	-.551	-.685
refined	.118	.499	.551

3 factors can be interpreted as

- "simplicity and legibility" (32% contribution ratio)
- "tender movement" (27%)
- "sharp thin stroke" (26%).

Factor Scores



2 Tendencies:

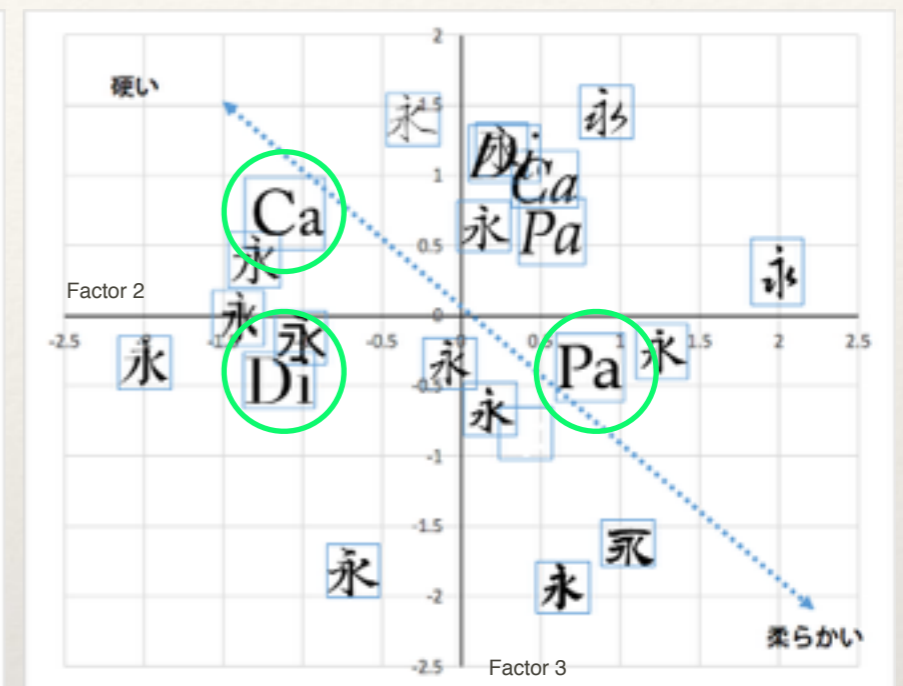
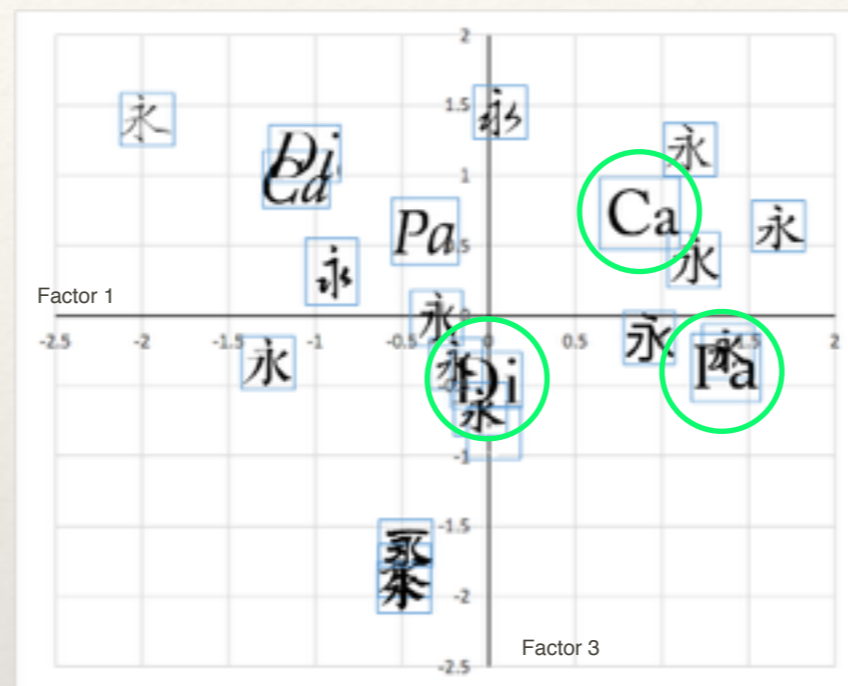
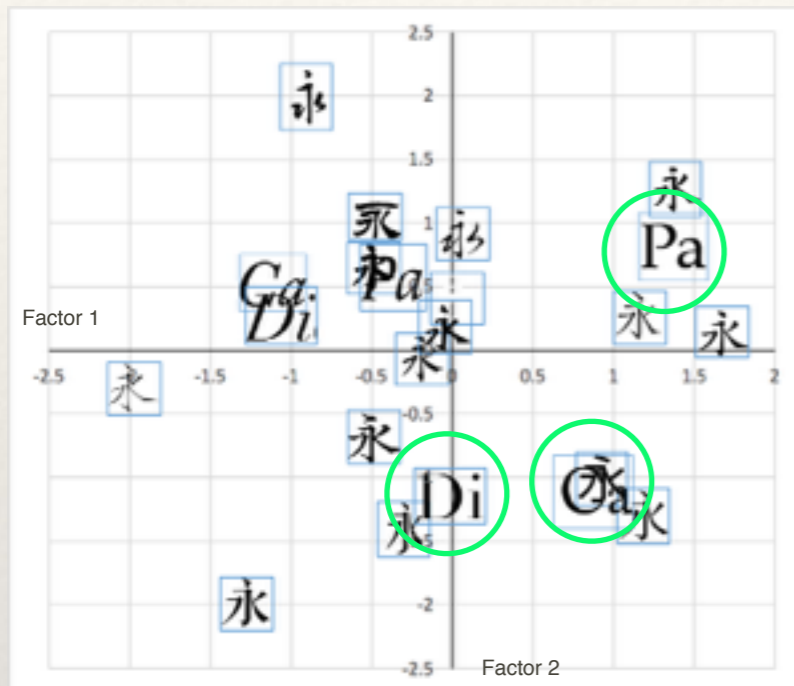
1. Italic type lacks large variation
2. Chinese typefaces close to italic type tend to have upwards slanted Horizontals (“一”)



Factors:

1. "simplicity and legibility"
2. "tender movement"
3. "sharp thin stroke"

Factor Scores



2 Tendencies:

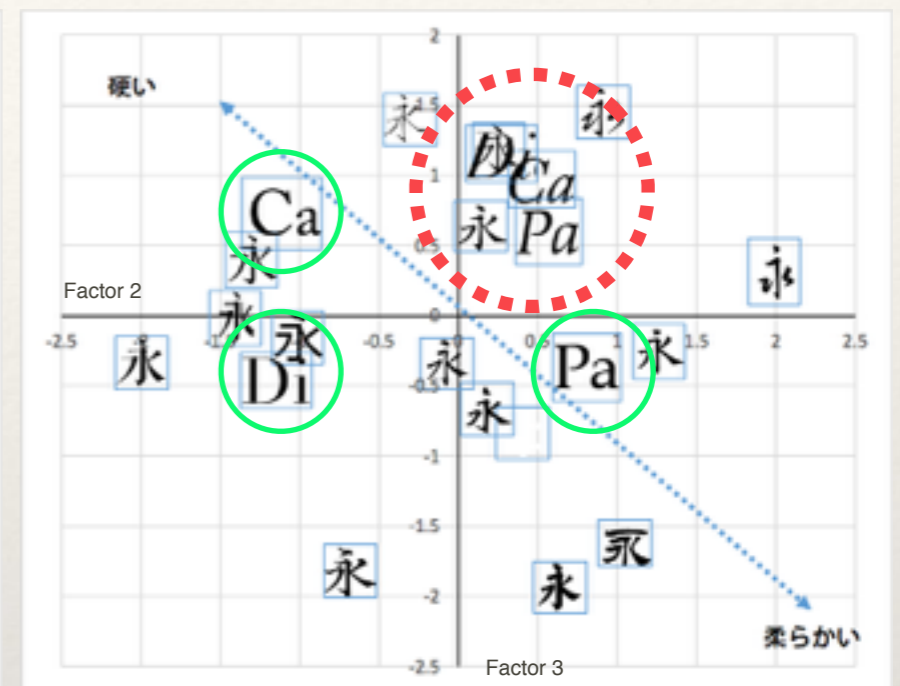
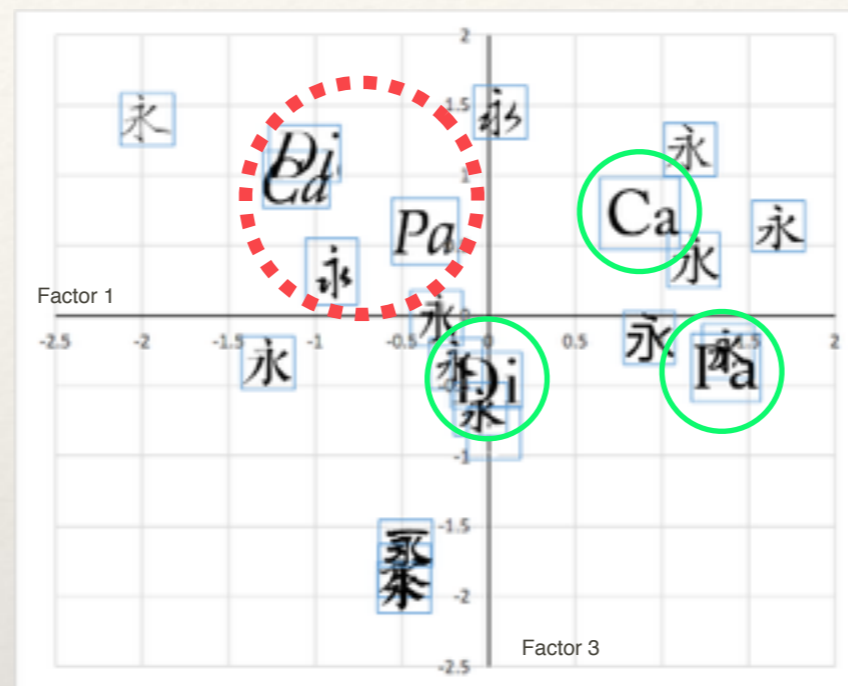
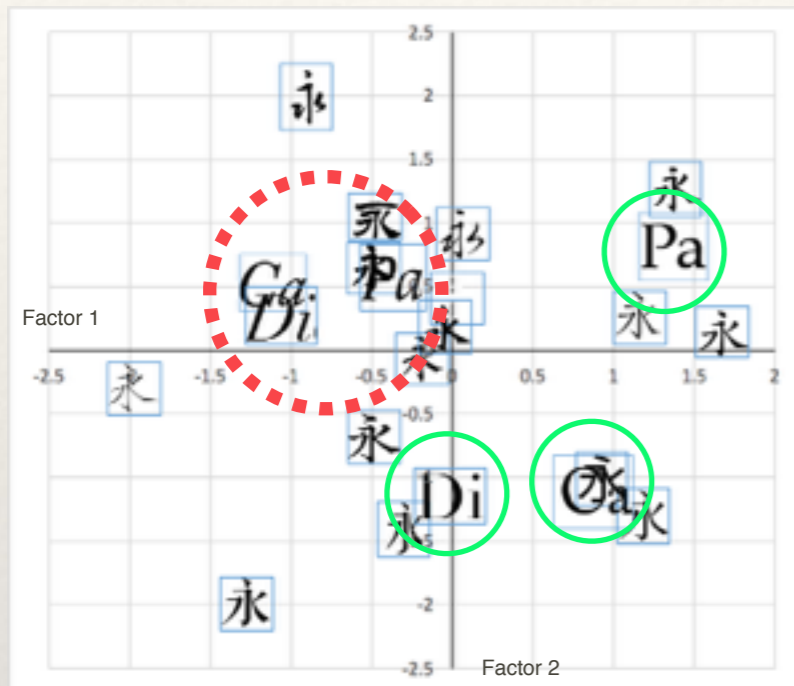
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Factors:

1. "simplicity and legibility"
2. "tender movement"
3. "sharp thin stroke"

Factor Scores



2 Tendencies:

1. Italic type lacks large variation
2. Chinese typefaces close to italic type tend to have upwards slanted Horizontals (“一”)



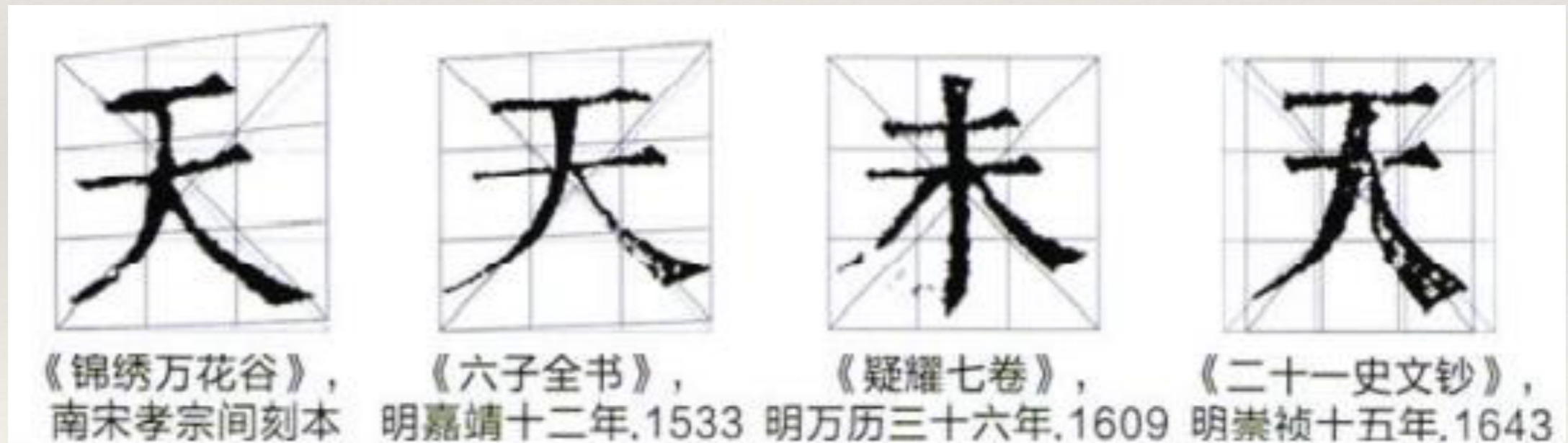
Factors:

1. "simplicity and legibility"
2. "tender movement"
3. "sharp thin stroke"

Design Concept of the Trial Typeface

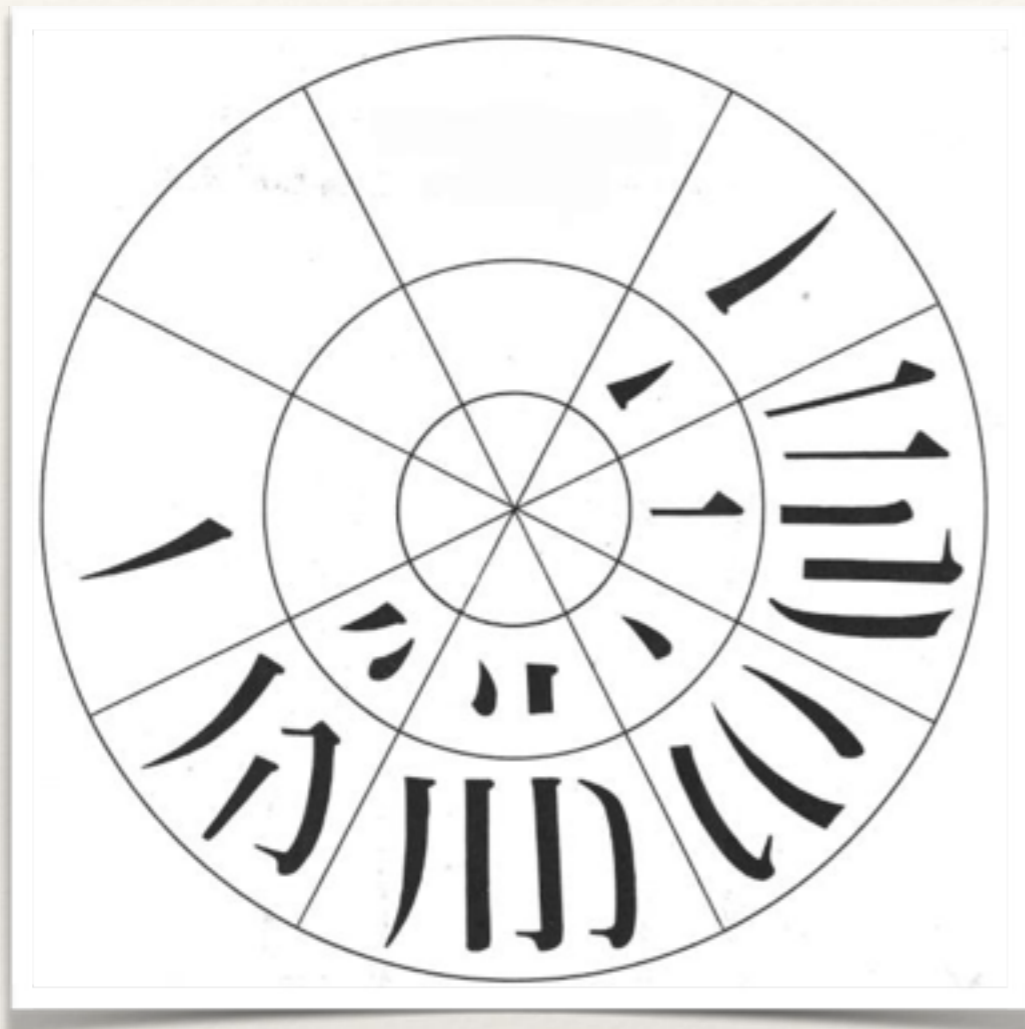
- ❖ To the contrary of *Ming* - more traditional and interesting
- ❖ Upwards slanting

the evolution of *Ming*



Wang, Wei: 中国传统印刷宋体字的演进特征探析, Beauty & Times, no. 07, pp. 55-58, 2013

Investigation of Slanting Chinese Character - the Direction of Strokes -

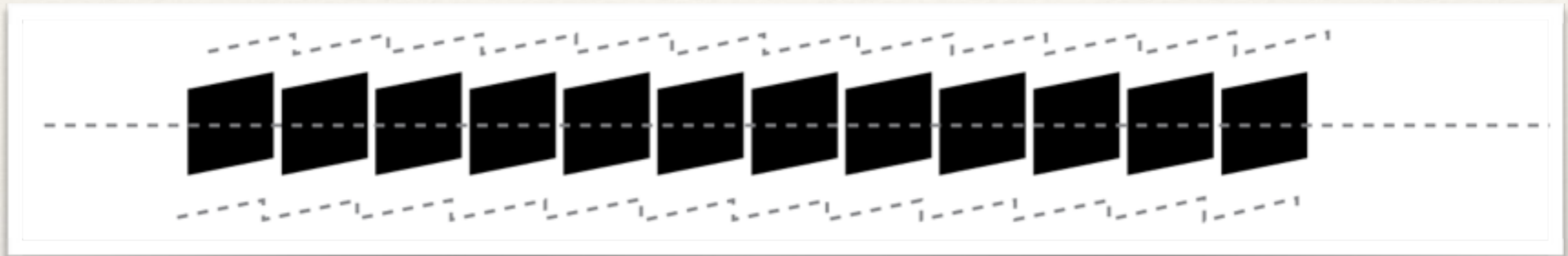


Sato, K., *Japanese idiomatic letter Kanji – design of Japanese letter, volume 6 -*, Maruzen Ltd., 1976, p.31

- ❖ When Horizontal (“一”) slants upwards, Rise (“㇇”) is the only stroke that will possibly confuse readers.

Text Flow

Non-optimised upwards slanted text

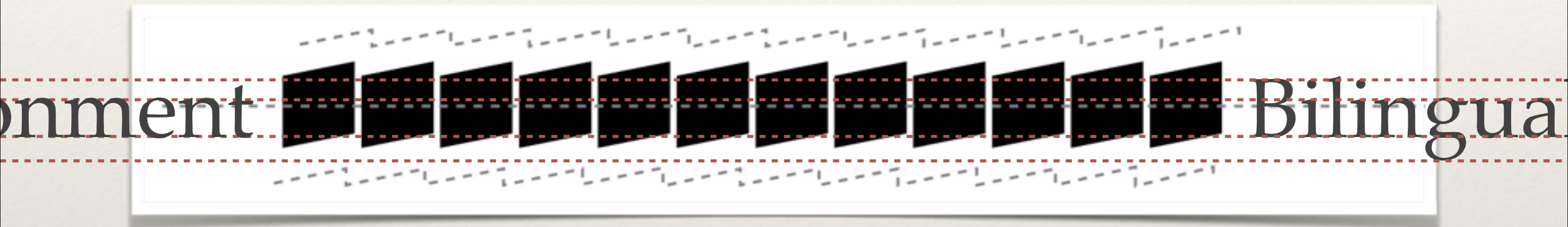


Goal

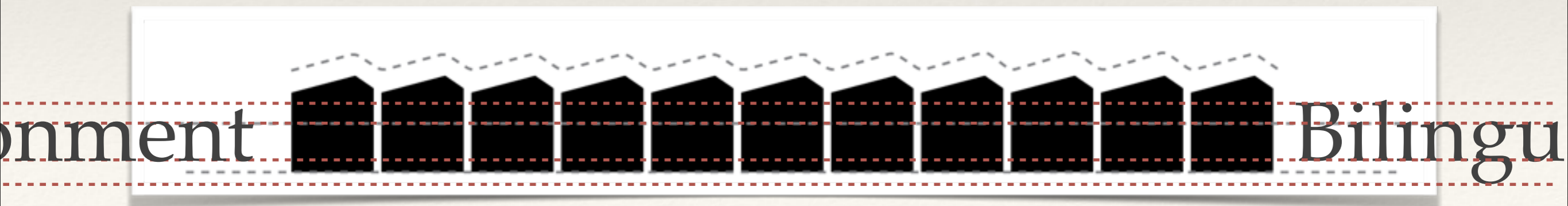


Text Flow

Non-optimised upwards slanted text

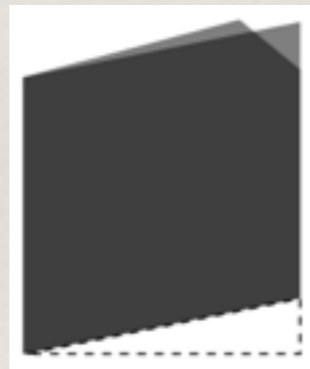
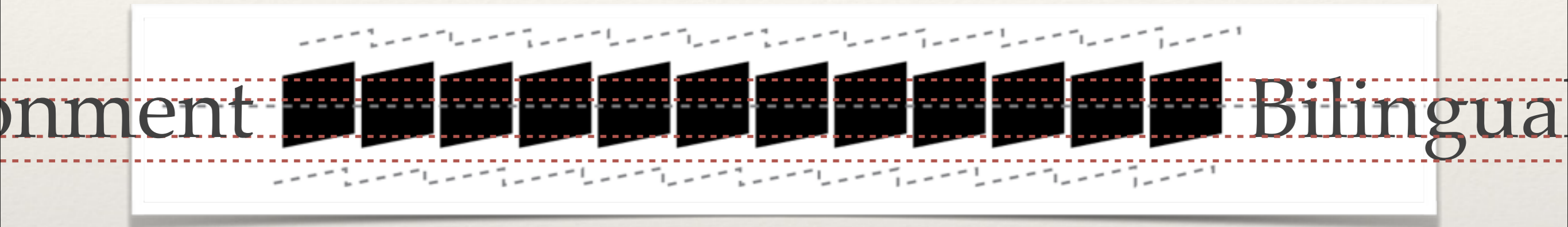


↓ Goal

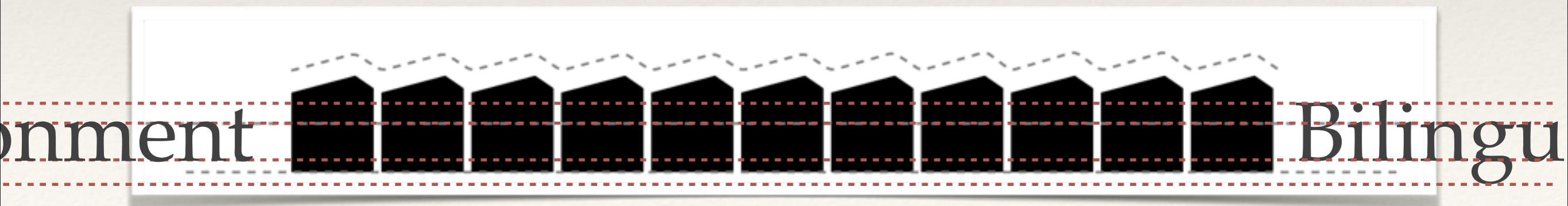


Text Flow

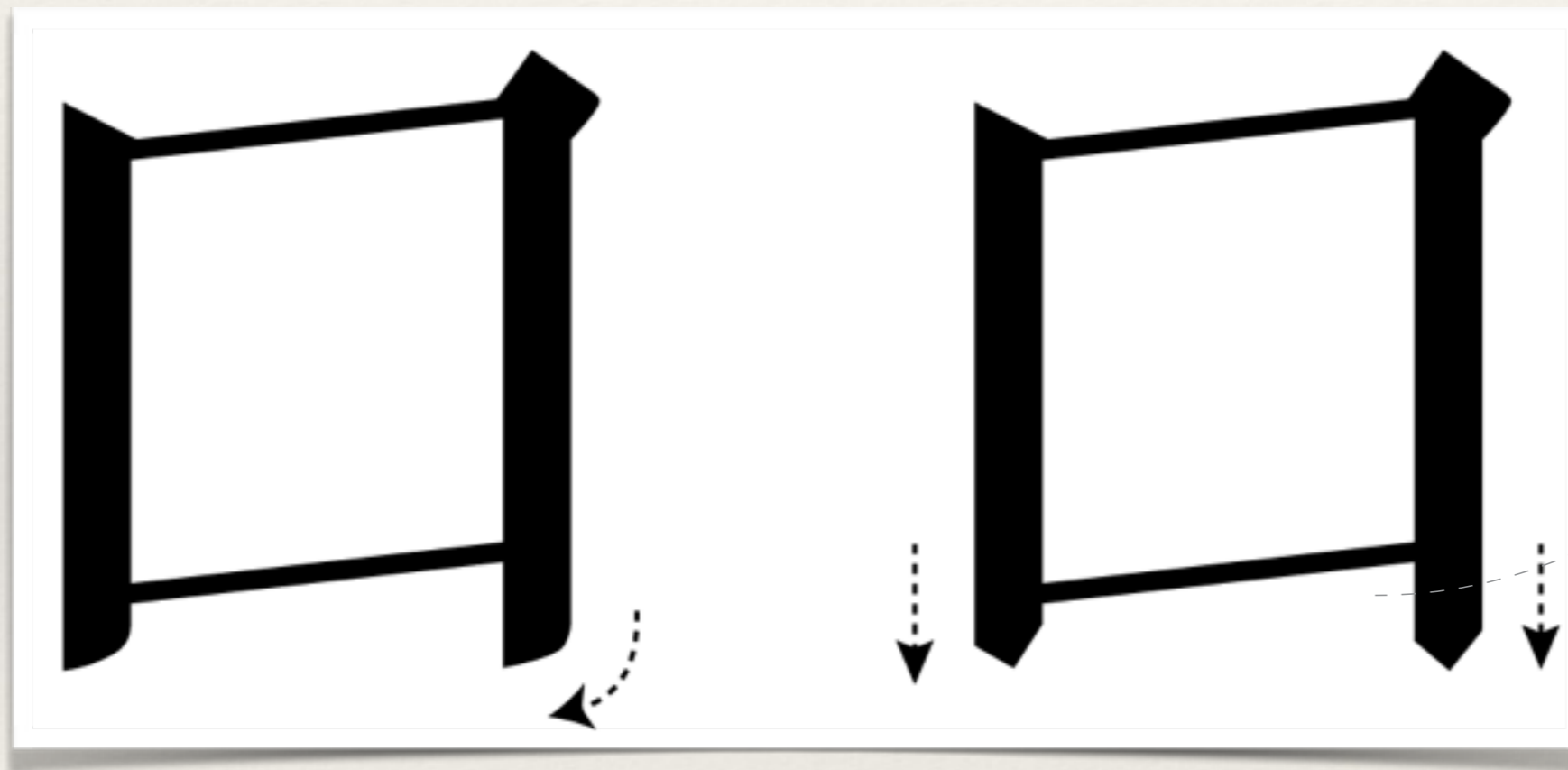
Non-optimised upwards slanted text



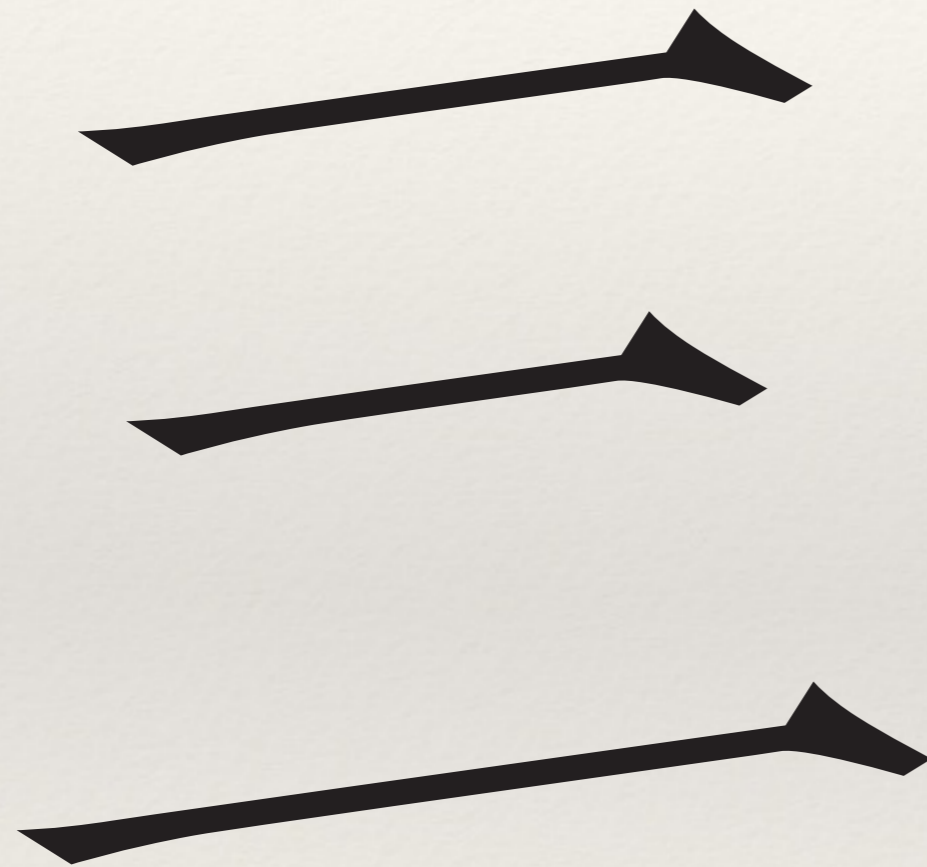
Goal



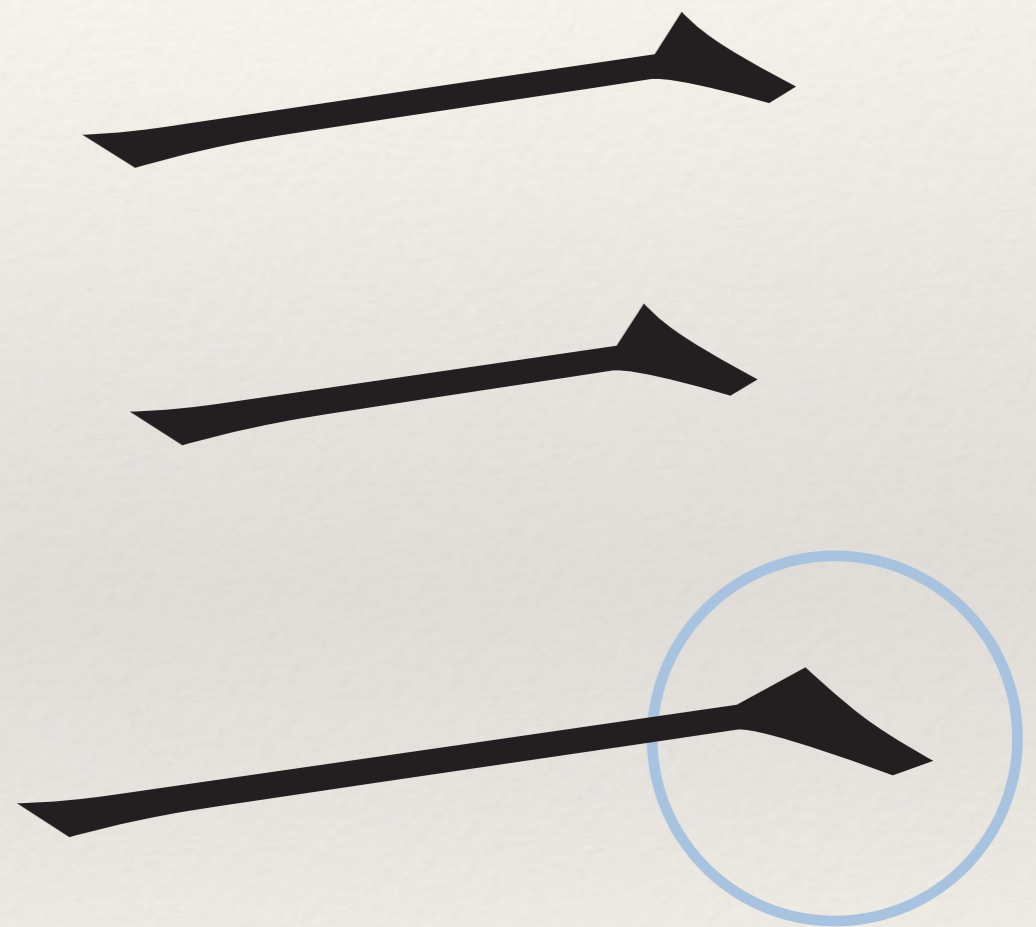
Adjustment - Vertical



Adjustment - Variation in Horizontal

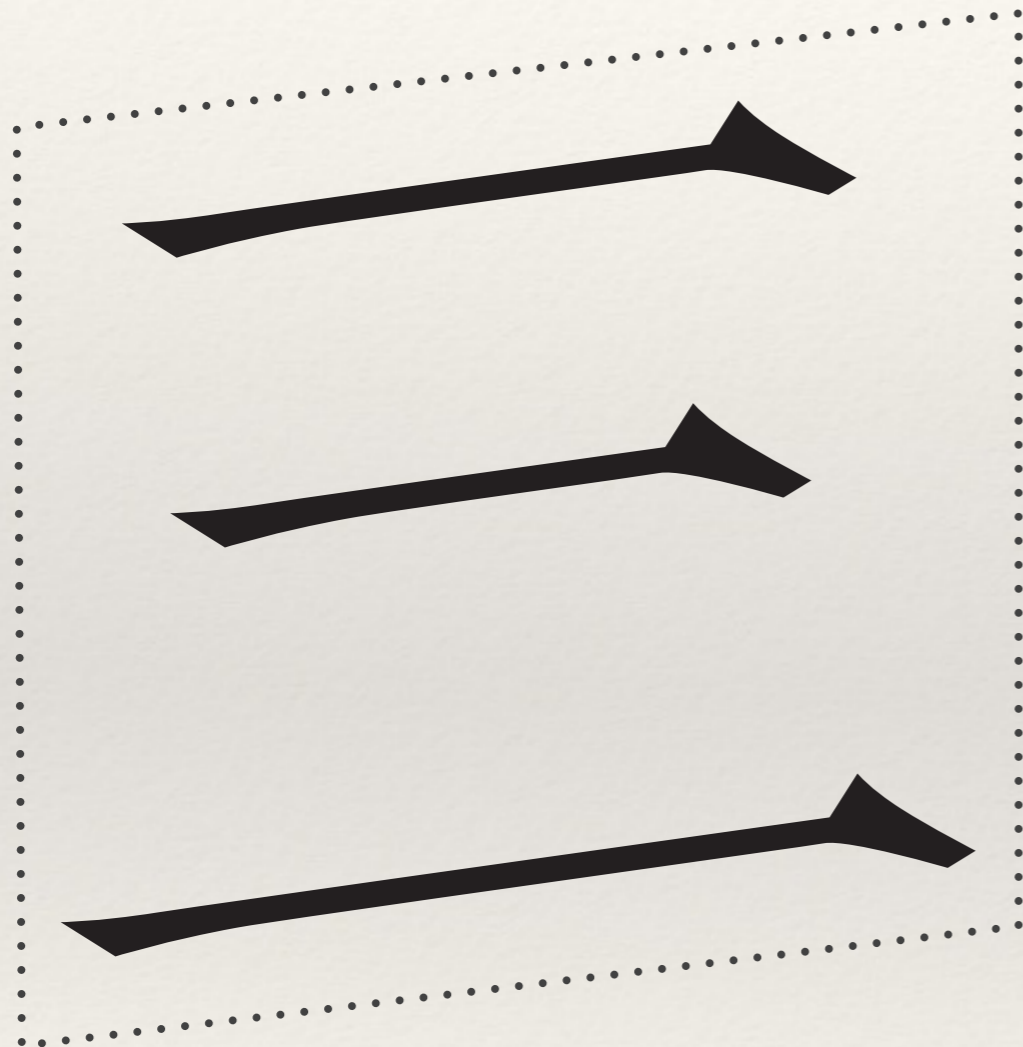


3 Horizontals with the same serif

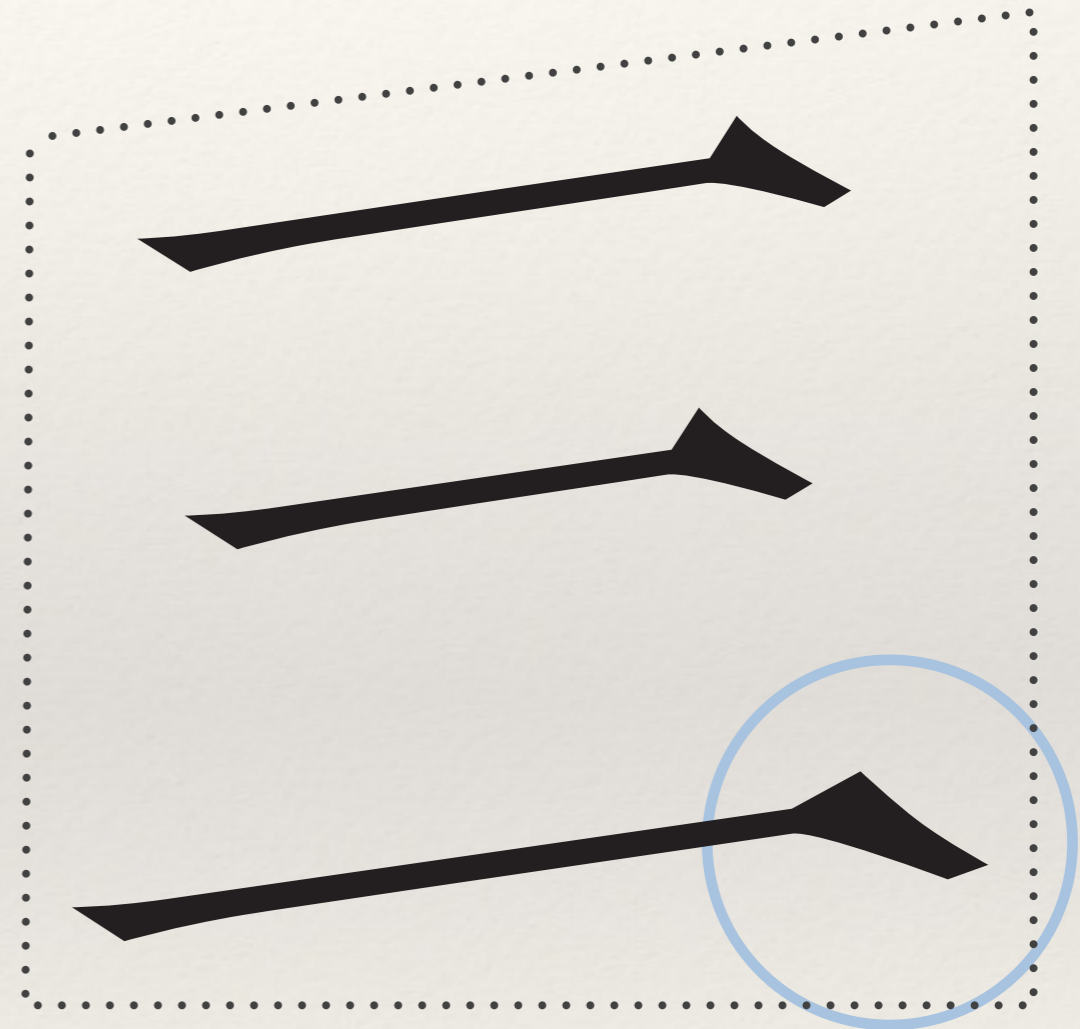


Different serif for long Horizontal
make the character more stable

Adjustment - Variation in Horizontal

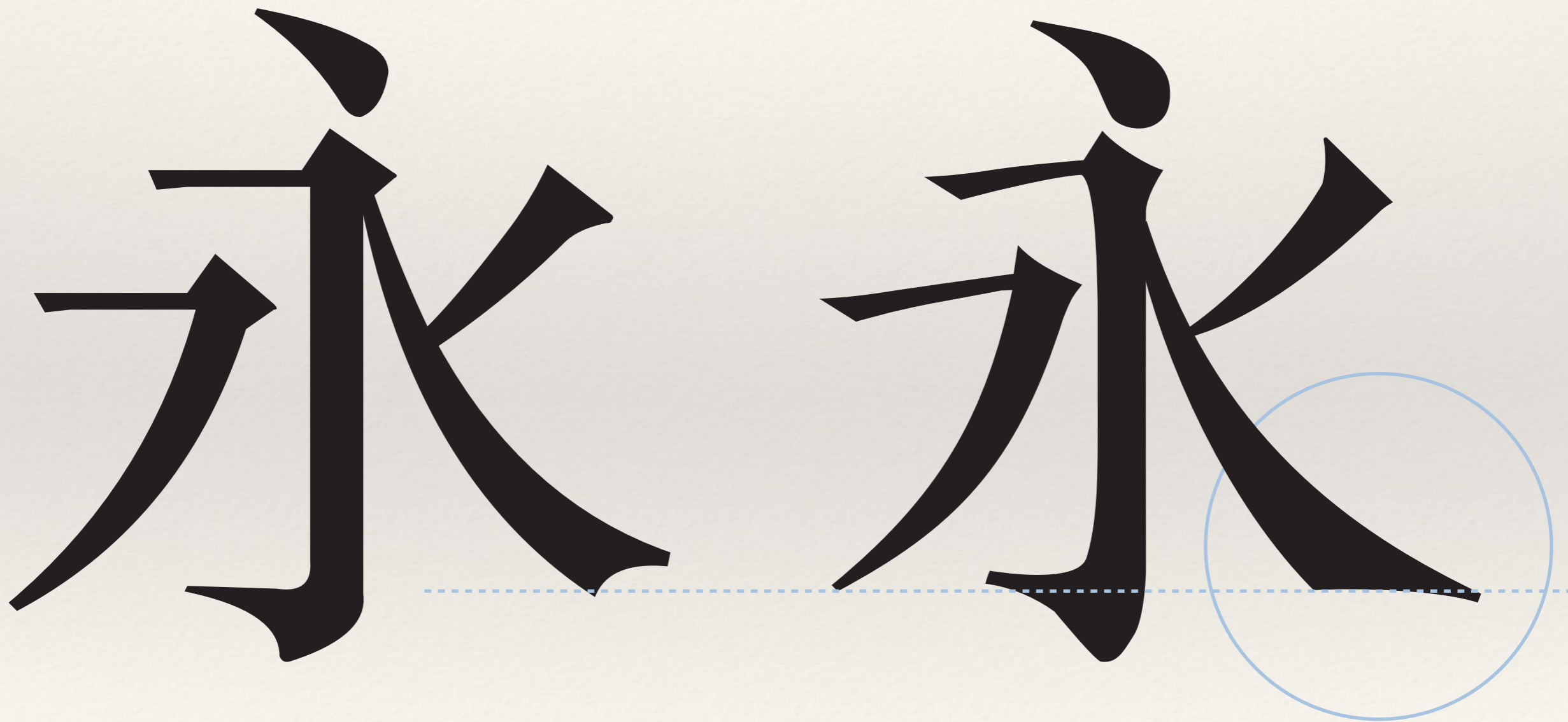


3 Horizontals with the same serif



Different serif for long Horizontal
make the character more stable

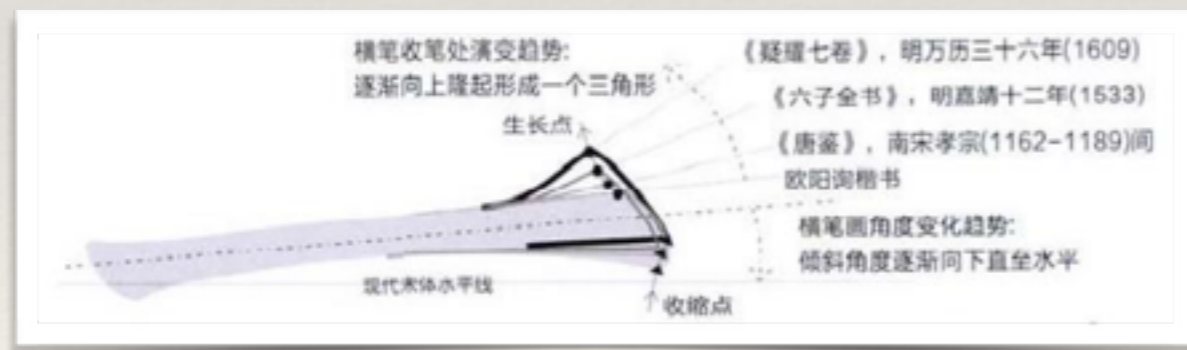
Adjustment - Press Down



More Humanity in Strokes



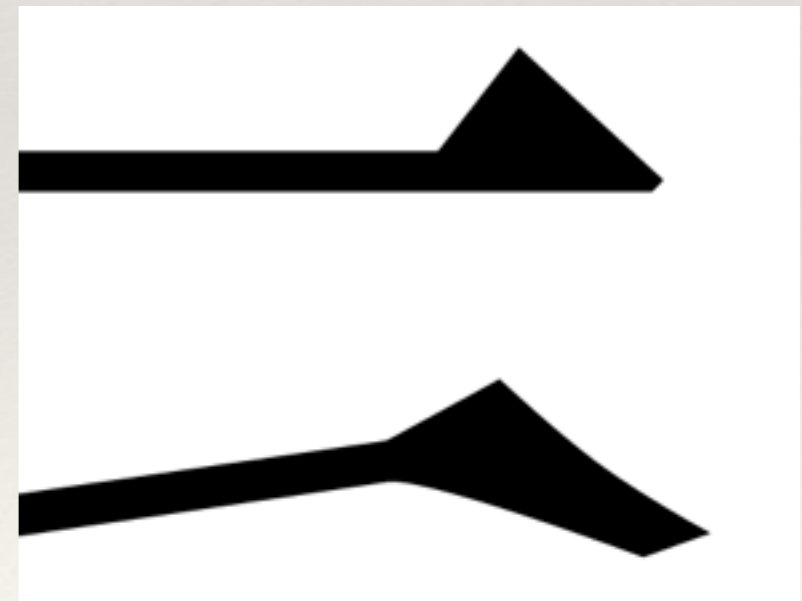
Evolution of Vertical



Evolution of Horizontal



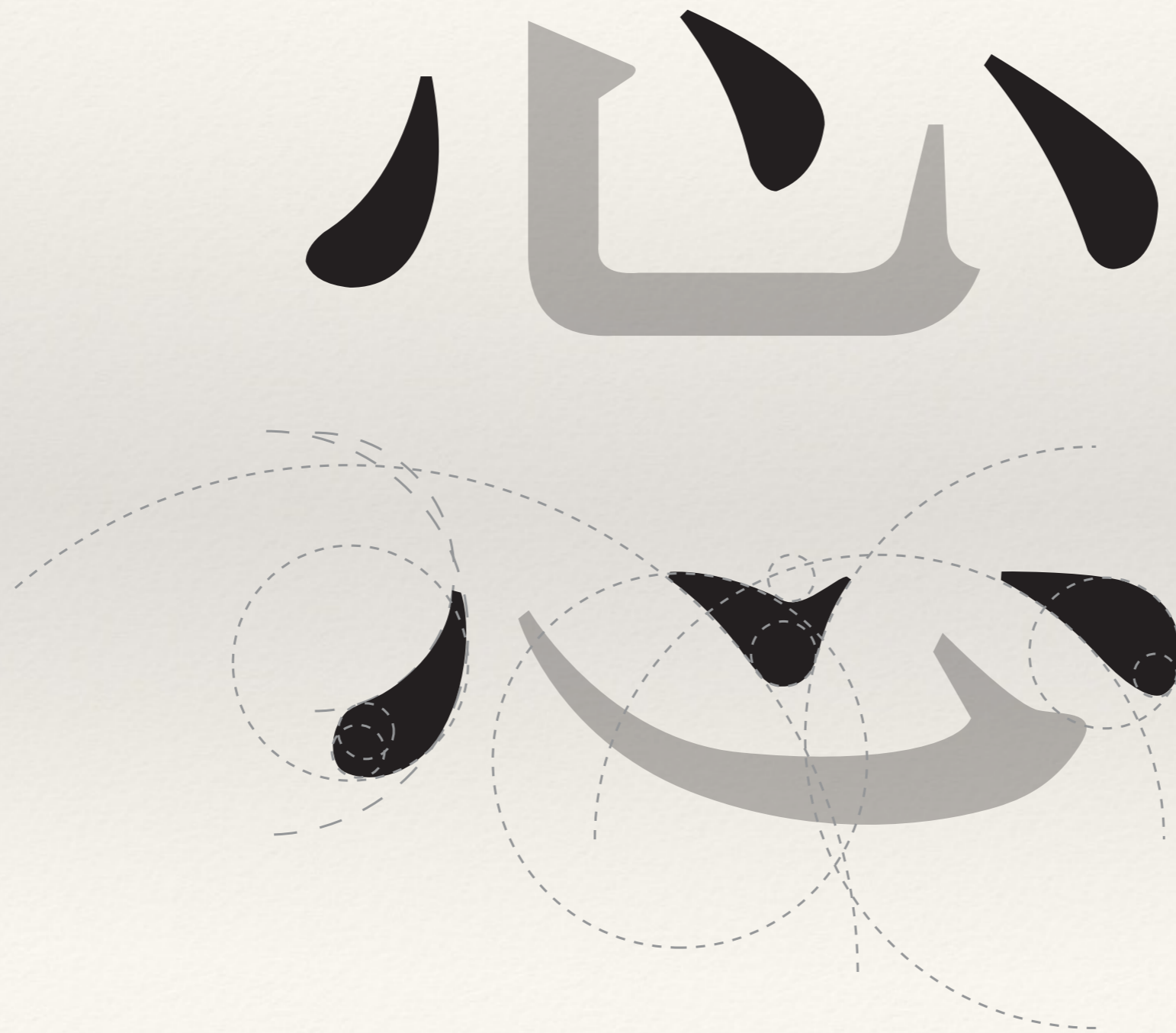
Vertical of Ming (left)
and the experimental typeface (right)



Horizontal of Ming (top) and the
experimental typeface (bottom)

More Humanity in Strokes

More variations and connections in dots



More Humanity in Strokes



changes in Lying Hook

Sample of Trial Typeface

Trial
typeface

意大利汉平假片

Ming

意大利汉平假片

Trial
typeface

今鷹酬爰袋永

Ming

今鷹酬爰袋永

Practical Application Experiment

Sample

测试字体 1

国三力今鹰酬爱袋永

在西文的正文中，意大利体（italic type，又俗称斜体）可以表示强调、书籍名称、文章标题、船舶名称、引用、外语等内容。相比用来表示重点，更多的用来表现“区分”。

日语字体虽然没有，但是文字体系上有着风格相差较大的汉字、平假名、片假名三者，大致对应着拉丁文的大写字母、小写字母、意大利体。通过汉字与假名的混用可以达到类似意大利体的效果，例如原本常用汉字写的单词改成片假名来显示。因此日本读者并没有明显感觉到日语字体没有意大利体而带来的不方便。

但中文中只有汉字，一直缺少用作变调用的字体。而专名号以及粗体等形式的强调又强调级别过强，连续使用时也容易造成页面的凌乱、脏，并不能很好的达到类似西文中意大利体的强调效果。

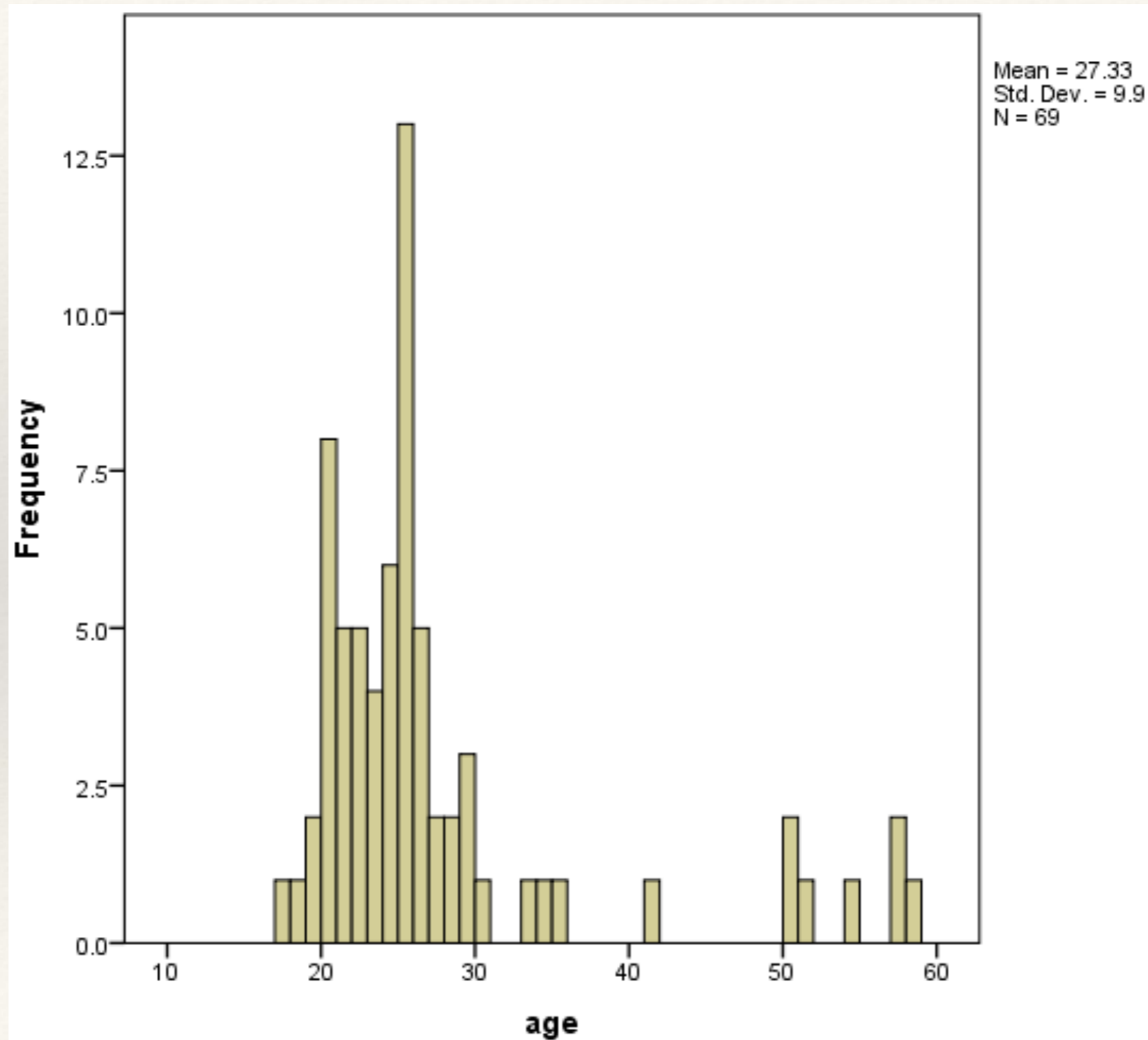
Questionnaire

- ❖ The beauty of italic type
- ❖ The tradition of italic type
- ❖ The suitability of font combination
- ❖ The salience at reading distance
- ❖ The salience at glimpse distance
(at least farther than reading distance)

Subjects

age					
sex	medium	N	Mean	Minimum	Maximum
male	display	29	29.55	20	58
	print	5	32.80	24	50
	Total	34	30.03	20	58
female	display	28	24.11	17	50
	print	6	27.33	20	51
	Total	34	24.68	17	51
Total	display	57	26.88	17	58
	print	11	29.82	20	51
	Total	68	27.35	17	58

Subjects



Results Data

Typeface's Name	Mean				
	Beauty	Tradition	Combination	Close Saliency	Distant Saliency
Clerical	6.394	6.352	5.549	9.099	8.929
Ming rightward	5.38	4.746	5.845	6.239	5.386
Ming condensed	4.845	4.761	4.366	5.282	4.429
Ming extended	4.423	4.732	4.423	5.38	4.943
Ming upward	5.141	4.887	5.254	5.07	4.357
Ming bold	7.239	6.831	7.493	8.775	8.7
modern Imitation Song	6.901	6.211	6.704	5.099	4.329
old Imitation Song	6.563	6.451	6.62	5.254	4.443
original	7.155	7.056	6.648	5.493	4.657
Regular	7.197	6.915	6.282	5.901	5
Heiti	6.629	5.071	6.786	6.586	5.739
Heiti rightward	5.577	4.479	6.014	7.648	7.129
Heiti condensed	5.028	4.563	4.634	5.662	5.257
Heiti extended	4.746	4.338	5.042	7.07	6.629
Heiti upward	5.366	4.634	5	7.113	6.829
Semi-cursive	6.732	7.085	4.972	7.592	7.171
Semi-cursive rotated	6.225	6.62	5.282	7.366	6.957
Slender Gold	6.352	6.915	4.62	7.437	7.143
Slender Gold rotated	5.662	6.113	4.62	7.634	7.514
Wei Regular	7.437	7.183	6.69	6.38	5.657
Wei Regular rotated	5.437	5.732	4.93	6.901	6.4

Results Data

Typeface's Name	Mean				
	Beauty	Tradition	Combination	Close Saliency	Distant Saliency
Clerical	6.394	6.352	5.549	9.099	8.929
Ming rightward	5.38	4.746	5.845	6.239	5.386
Ming condensed	4.845	4.761	4.366	5.282	4.429
Ming extended	4.423	4.732	4.423	5.38	4.943
Ming upward	5.141	4.887	5.254	5.07	4.357
Ming bold	7.239	6.831	7.493	8.775	8.7
modern Imitation Song	6.901	6.211	6.704	5.099	4.329
old Imitation Song	6.563	6.451	6.62	5.254	4.443
original	7.155	7.056	6.648	5.493	4.657
Regular	7.197	6.915	6.282	5.901	5
Heiti	6.629	5.071	6.786	6.586	5.739
Heiti rightward	5.577	4.479	6.014	7.648	7.129
Heiti condensed	5.028	4.563	4.634	5.662	5.257
Heiti extended	4.746	4.338	5.042	7.07	6.629
Heiti upward	5.366	4.634	5	7.113	6.829
Semi-cursive	6.732	7.085	4.972	7.592	7.171
Semi-cursive rotated	6.225	6.62	5.282	7.366	6.957
Slender Gold	6.352	6.915	4.62	7.437	7.143
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Difference with Age

Name	Age	Mean				
		Beauty	Tradition	Combination	Close Salience	Distant Salience
Clerical	<42	6.34	6.39	5.52	9.21	9.03
	>42	6.71	6.14	6.14	8.43	8.29
Ming rightward	<42	5.21	4.56	5.82	6.39	5.52
	>42	6.29	6.14	5.71	4.71	3.71
Ming condensed	<42	4.60	4.55	4.13	5.39	4.46
	>42	6.57	6.29	6.00	4.29	3.57
Ming extended	<42	4.15	4.53	4.26	5.45	5.07
	>42	6.57	6.29	5.71	4.86	3.86
Ming upward	<42	5.13	4.81	5.24	5.18	4.39
	>42	5.43	5.71	5.43	4.43	4.00
Ming bold	<42	7.26	6.77	7.56	8.98	8.90
	>42	7.57	7.86	7.29	7.43	7.43
Modern Imitation Song	<42	6.82	6.10	6.74	5.10	4.30
	>42	7.57	7.14	6.43	4.71	4.14
Old Imitation Song	<42	6.60	6.52	6.66	5.31	4.38
	>42	6.71	6.43	6.43	4.71	4.86
Tiral typeface (by Jin Zhaoli)	<42	7.23	7.08	6.66	5.58	4.59
	>42	6.86	7.29	6.57	4.57	4.86

(continues in the right table)

Name	Age	Mean				
		Beauty	Tradition	Combination	Close Salience	Distant Salience
Regular	<42	7.10	6.85	6.11	5.90	5.00
	>42	8.14	7.29	7.14	5.86	5.00
Heiti	<42	6.52	4.87	6.69	6.45	5.61
	>42	8.00	7.17	7.83	7.67	6.83
Heiti rightward	<42	5.42	4.21	5.97	7.81	7.26
	>42	6.71	6.43	6.29	6.29	5.86
Heiti condensed	<42	4.79	4.26	4.48	5.68	5.33
	>42	6.86	7.00	5.71	5.43	4.43
Heiti extended	<42	4.53	4.10	4.94	7.10	6.67
	>42	6.71	6.29	6.00	6.71	6.14
Heiti upward	<42	5.32	4.47	4.90	7.23	6.93
	>42	6.00	5.86	6.29	6.86	6.57
Semi-cursive	<42	6.79	7.18	4.81	7.74	7.36
	>42	6.14	6.43	6.29	7.00	6.29
Semi-cursive rotated	<42	6.34	6.81	5.26	7.52	7.05
	>42	5.71	5.43	5.71	6.43	6.43
Slender Gold	<42	6.39	6.98	4.47	7.74	7.43
	>42	5.86	6.29	6.00	5.57	5.57
Slender Gold rotated	<42	5.79	6.24	4.56	7.87	7.74
	>42	4.57	5.14	5.14	6.57	6.43
Wei Regular	<42	7.35	7.21	6.66	6.44	5.67
	>42	8.00	6.86	6.71	5.71	5.43
Wei Regular rotated	<42	5.45	5.79	4.89	7.00	6.54
	>42	5.71	5.86	5.43	6.29	5.43

yellow cell: Correlation is significant at the 0.01 level (2-tailed).

Green cell: Correlation is significant at the 0.05 level (2-tailed).

Significant Difference with Age

Name	Age	Mean				
		Beauty	Tradition	Combination	Close Salience	Distant Salience
<i>Ming</i> rightward	<42					5.52
	>42					3.71
<i>Ming</i> condensed	<42	4.60	4.55	4.13		
	>42	6.57	6.29	6.00		
<i>Ming</i> extended	<42	4.15	4.53			
	>42	6.57	6.29			
<i>Ming</i> bold	<42				8.98	8.90
	>42				7.43	7.43
<i>Heiti</i>	<42		4.87			
	>42		7.17			
<i>Heiti</i> rightward	<42		4.21		7.81	
	>42		6.43		6.29	
<i>Heiti</i> condensed	<42		4.26			
	>42		7.00			
<i>Heiti</i> extended	<42	4.53	4.10			
	>42	6.71	6.29			
Slender Gold	<42			4.47	7.74	
	>42			6.00	5.57	

yellow cell: Correlation is significant at the 0.01 level (2-tailed).

Green cell: Correlation is significant at the 0.05 level (2-tailed).

Overall Correlation

	Beauty	Tradition	Combination	Close Saliency	Distant Saliency	gorgeous	sober	interesting	sharp	legible	stable
Beauty		0.86	0.76			-0.88	0.93		-0.94	0.91	0.99
Tradition	0.86										
Combination	0.76							-0.89			
Close Saliency					0.99						
Distant Saliency				0.99							

only contains correlation that is significant at the 0.01 level (2-tailed).

Conclusion

To conclude, this research considers that :

1. *Wei Regular* (六朝楷書) may be the best candidate for Chinese italic type
 2. Followed by the trial typeface (試作)
 3. Regular script (標準楷書)
 4. Modern Imitation *Song* (宋朝体)
- ❖ When modern impression is required, *Heiti* (ゴシック体) can also be a good choice.

In the End

Future work:

- ❖ Italic Style for *Heiti* (sans-serif)
- ❖ Situation of vertical writing
- ❖ Auto evaluation of Saliience
- ❖ more trials
- ❖ A better name for Chinese italic type

Thanks for Watching