

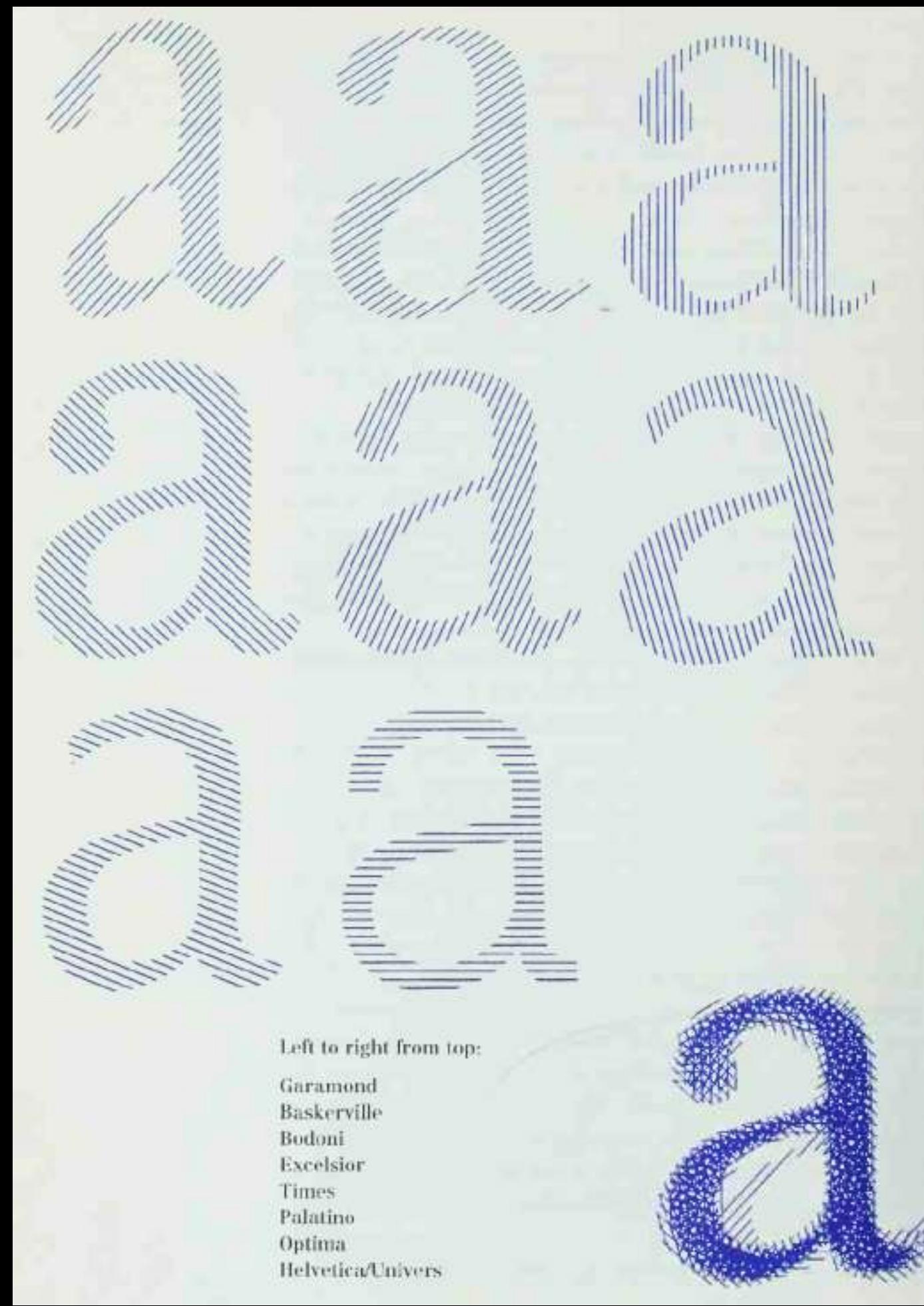
Chinese “All Over” Chinese

Superimposing Experiment on Hanzi

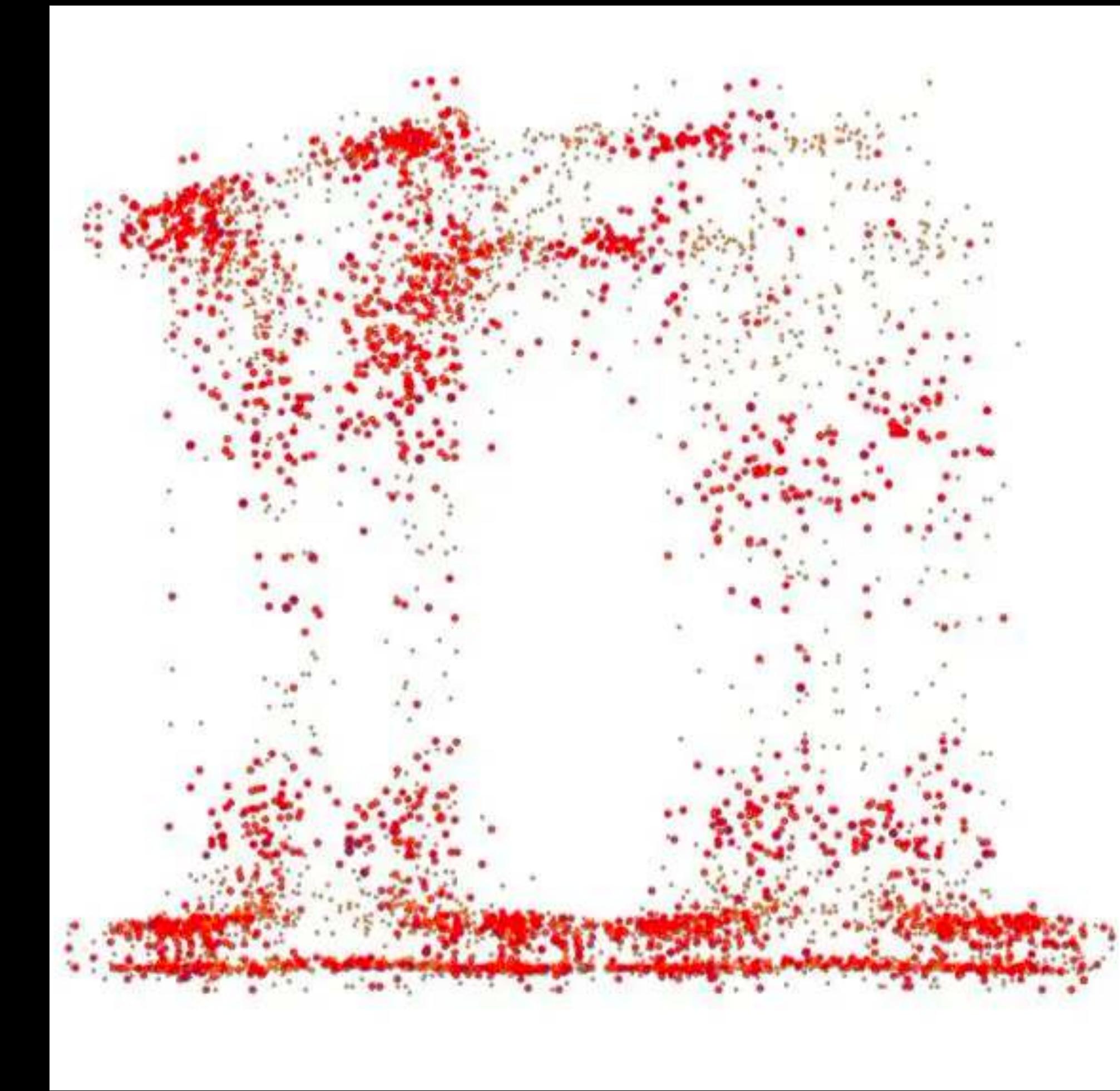
Xiangdong Zeng (曾祥东), 3type

@AtypI 2020 All Over

Superimposing in Latin



Adrian Frutiger. Signs and Symbols: Their Design and Meaning



Erik van Blokland. On Digitization, Atypi 2013
Image source: <https://vimeo.com/60648164>

a a a a

a b c d



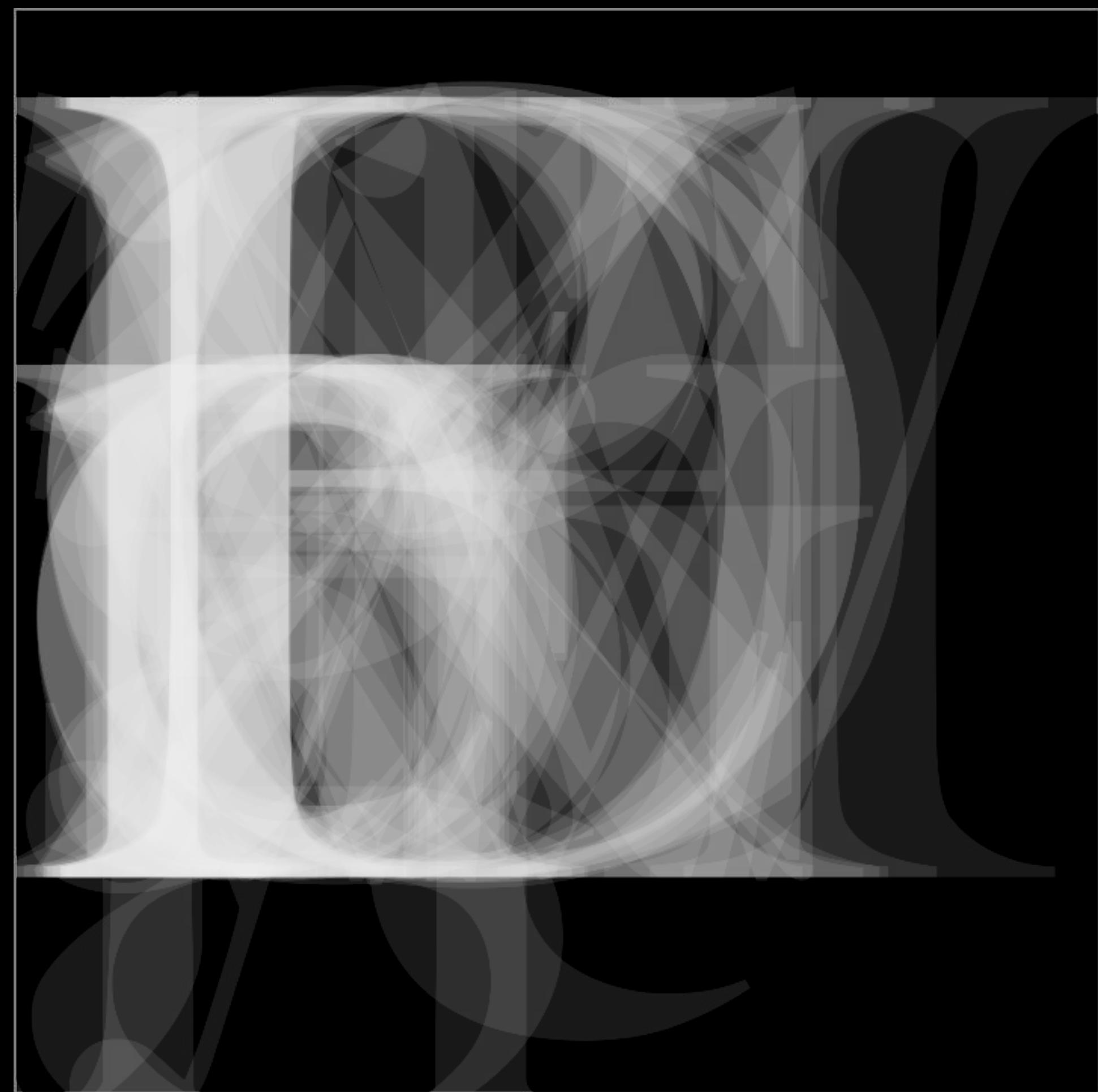
Font axis



Character axis

Merriweather

Mark cloud in Glyphs



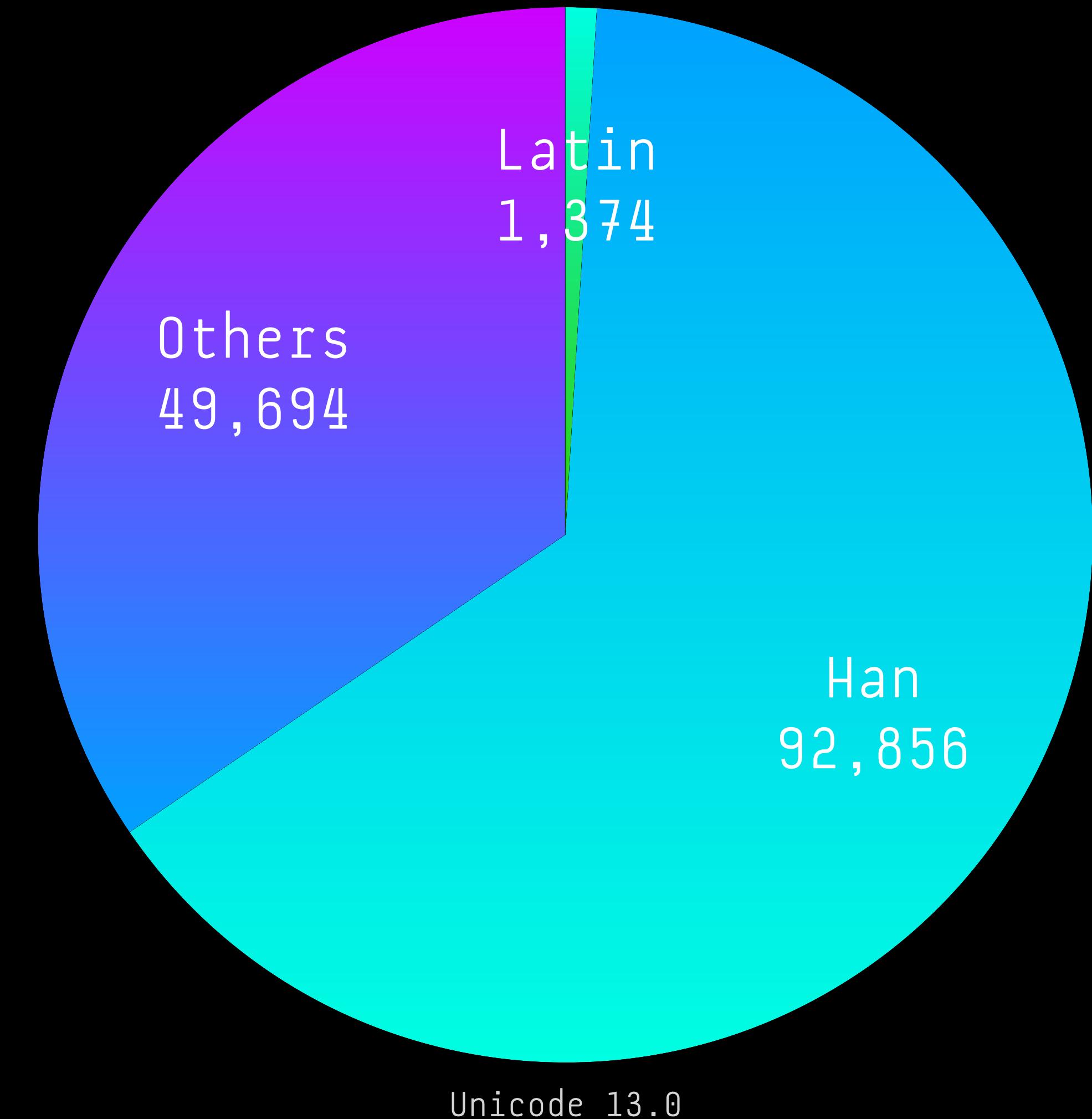
Big Caslon

What about Chinese?

A big character set & (almost) monospaced shapes

How big is “big”?

- An average primary school student can know ~3,000 hanzi
- Basic set requires at least **6,763** hanzi (GB2312-80)
- Full set requires at least **70,244** hanzi (GB18030-2005)
- 1.4 times the limit of a single OpenType font



Procedure

```

import fontforge as ff

font = ff.open('./fonts/xxx.otf')
result = {}
for glyph in glyphRange:
    curves = []
    if glyph in font:
        for contour in font[glyph].foreground:
            curvesInContour = []
            temp = []
            temp.append([contour[0].x, contour[0].y])
            for point in contour[1:] + contour[0]:
                temp.append([point.x, point.y])
                if point.on_curve:
                    curvesInContour.append(temp)
                    temp = [[point.x, point.y]]
            curves.append(curvesInContour)
    else:
        print('Glyph {} not in the font!'.format(glyph))
        pass
    result[glyph] = curves

```

```

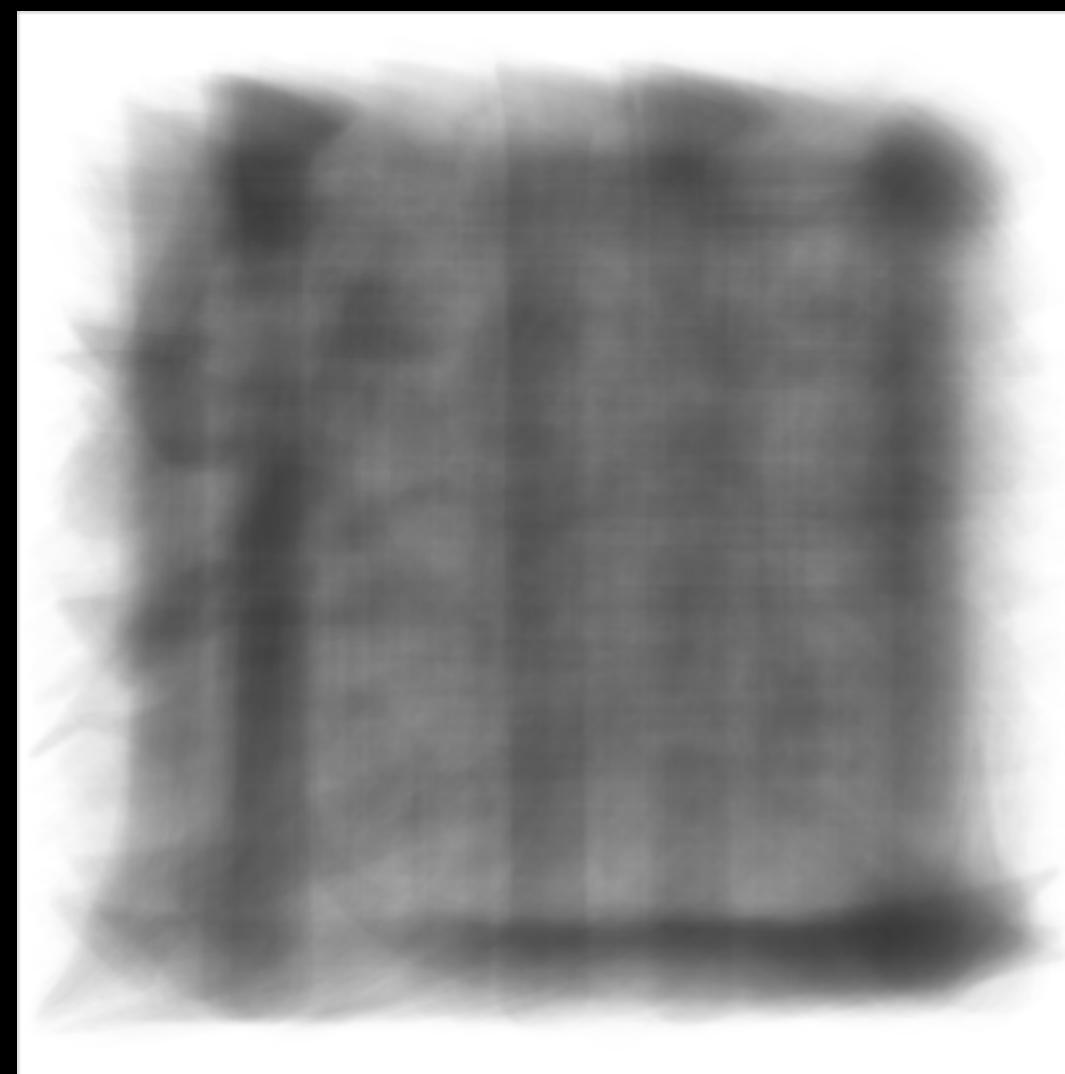
drawGlyph[glyphCurves_] := FilledCurve[
  BezierCurve /@
  Join[{First @ #}, Drop[# , 1, 1]] & /@
  glyphCurves]
draw[glyphRange_] := Values[
  drawGlyph /@ DeleteCases[
    pythonEvaluate @ pyCodeGetCurves @ glyphRange, {}]]
ranges = With[{n = 150, k = 4},
  Partition[RandomSample[$GB2312Range, n * k], k]];
curves = draw /@ ranges;
splitCurves = Reverse @
  TakeDrop[Flatten @ Take[curves, #], -1] & /@
  Range[Length @ curves];
images = Graphics[
  {Opacity[0.004], First[#], Opacity[0.4], Last[#]},
  PlotRange -> {{0, 1000}, {-150, 850}},
  Frame -> True,
  FrameTicks -> False
] & /@ splitCurves;
videoFrames = Rasterize /@ images;

```

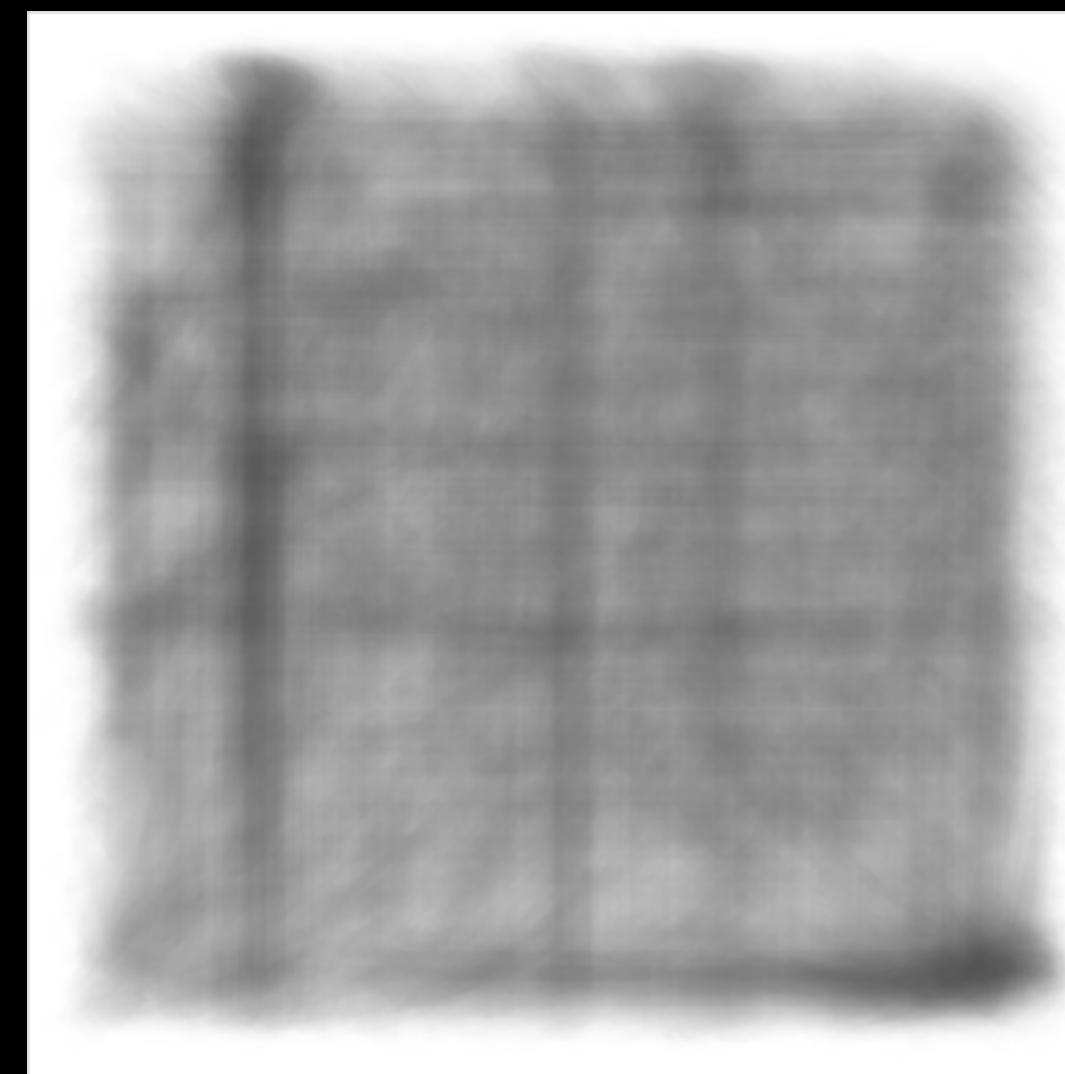


FZFW ZhuZi A Old Mincho
方正 FW 筑紫 A 老明朝

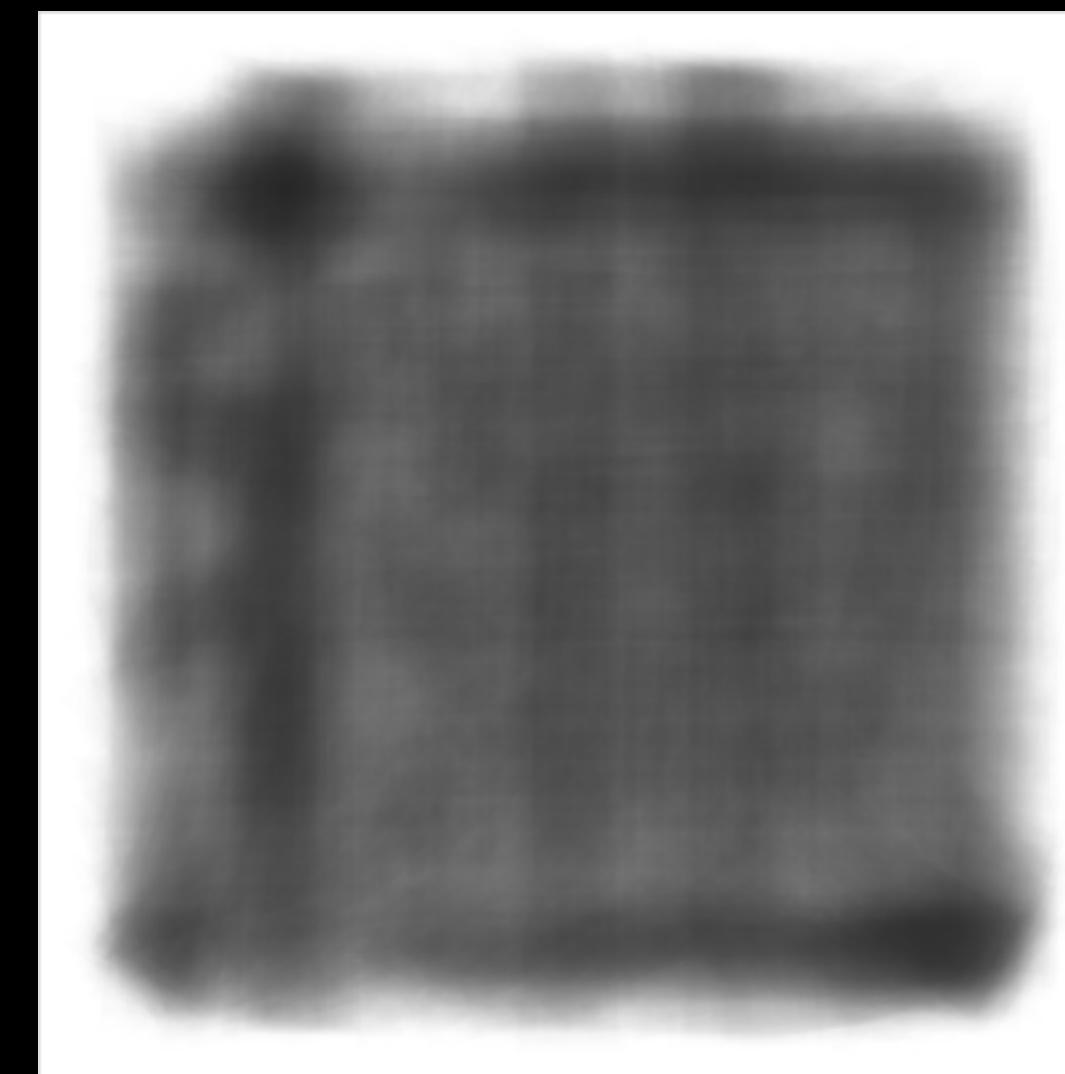
Stroke patterns



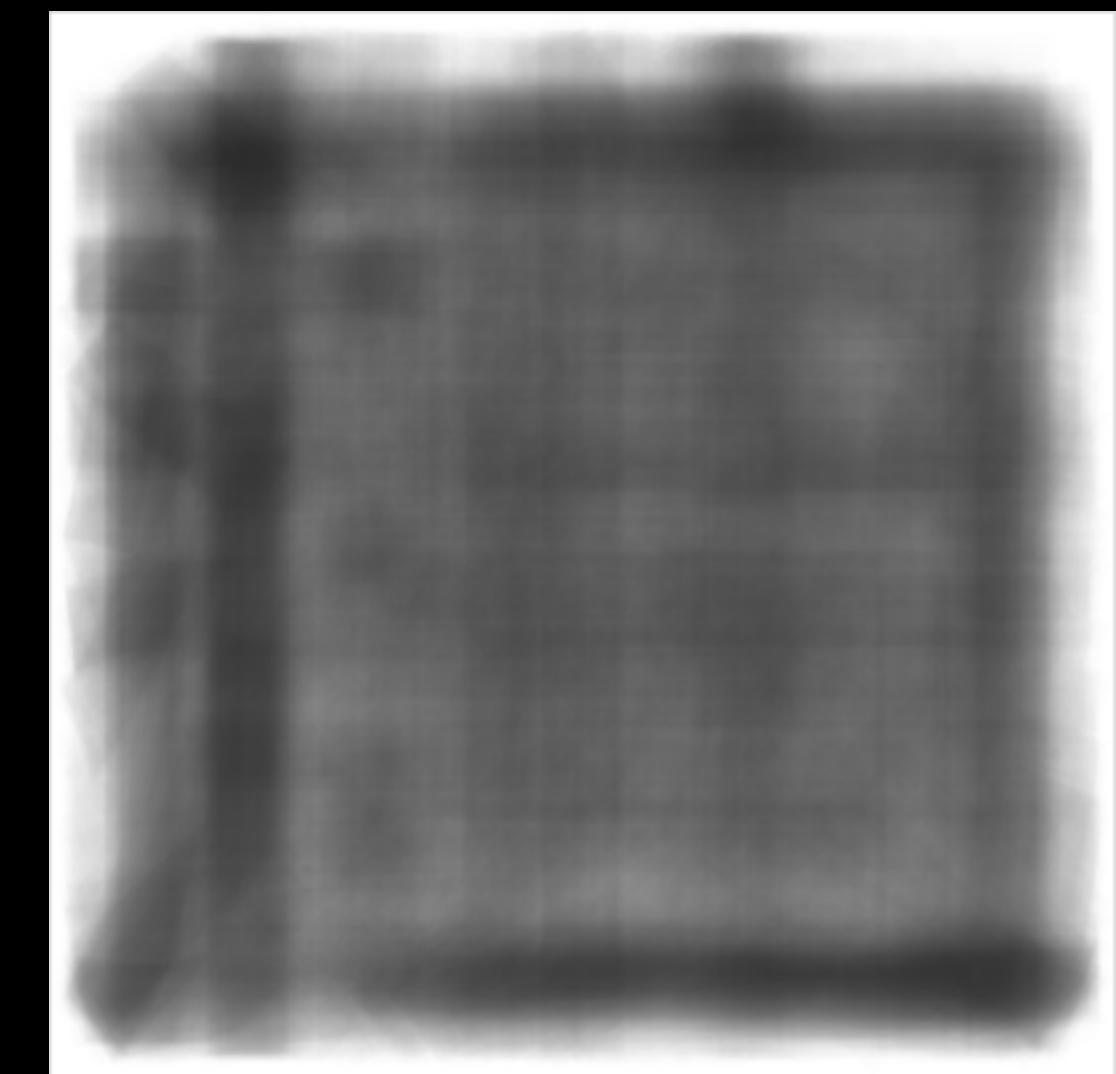
FZFW ZhuZi A Old Mincho
方正 FW 筑紫 A 老明朝



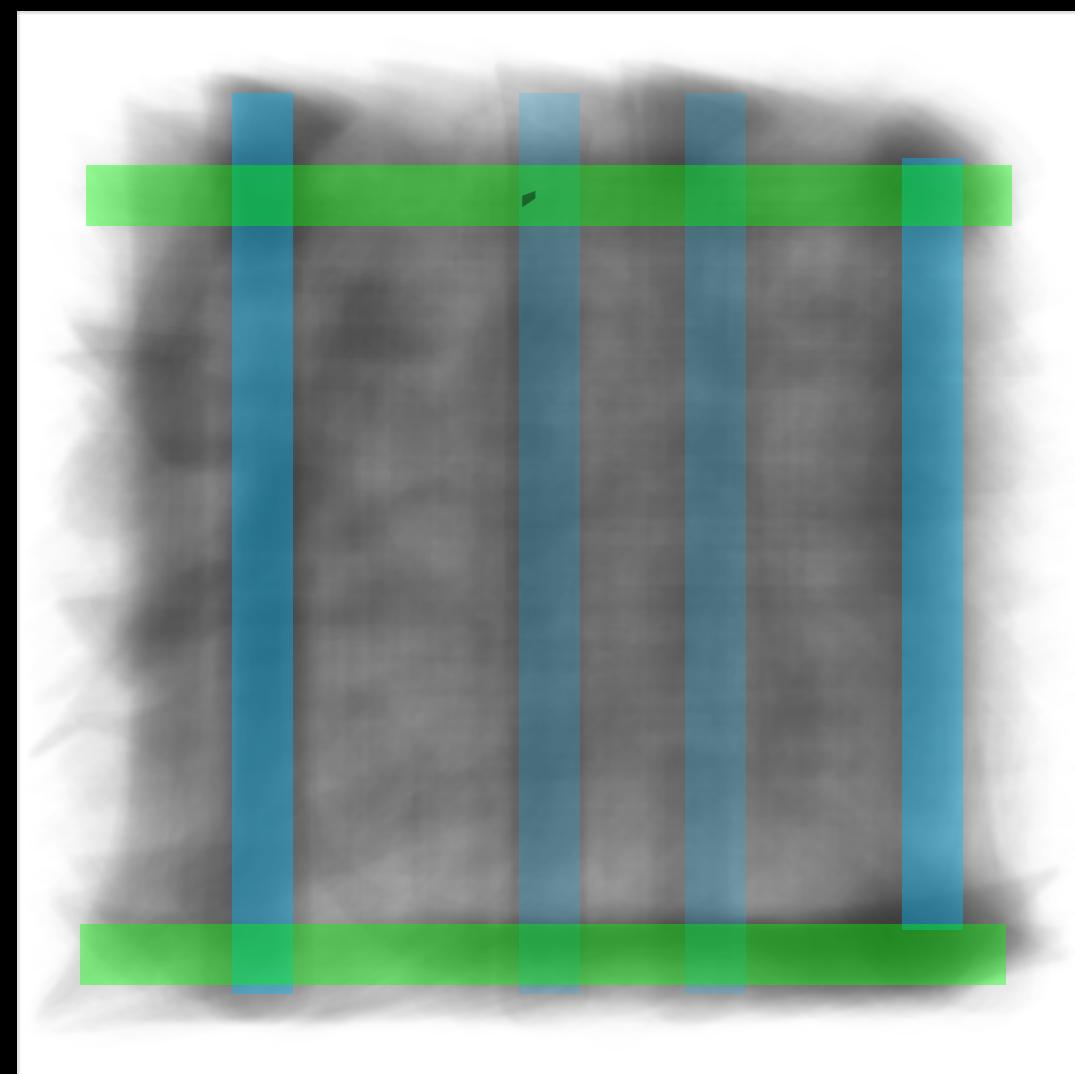
HYBaosong
汉仪报宋



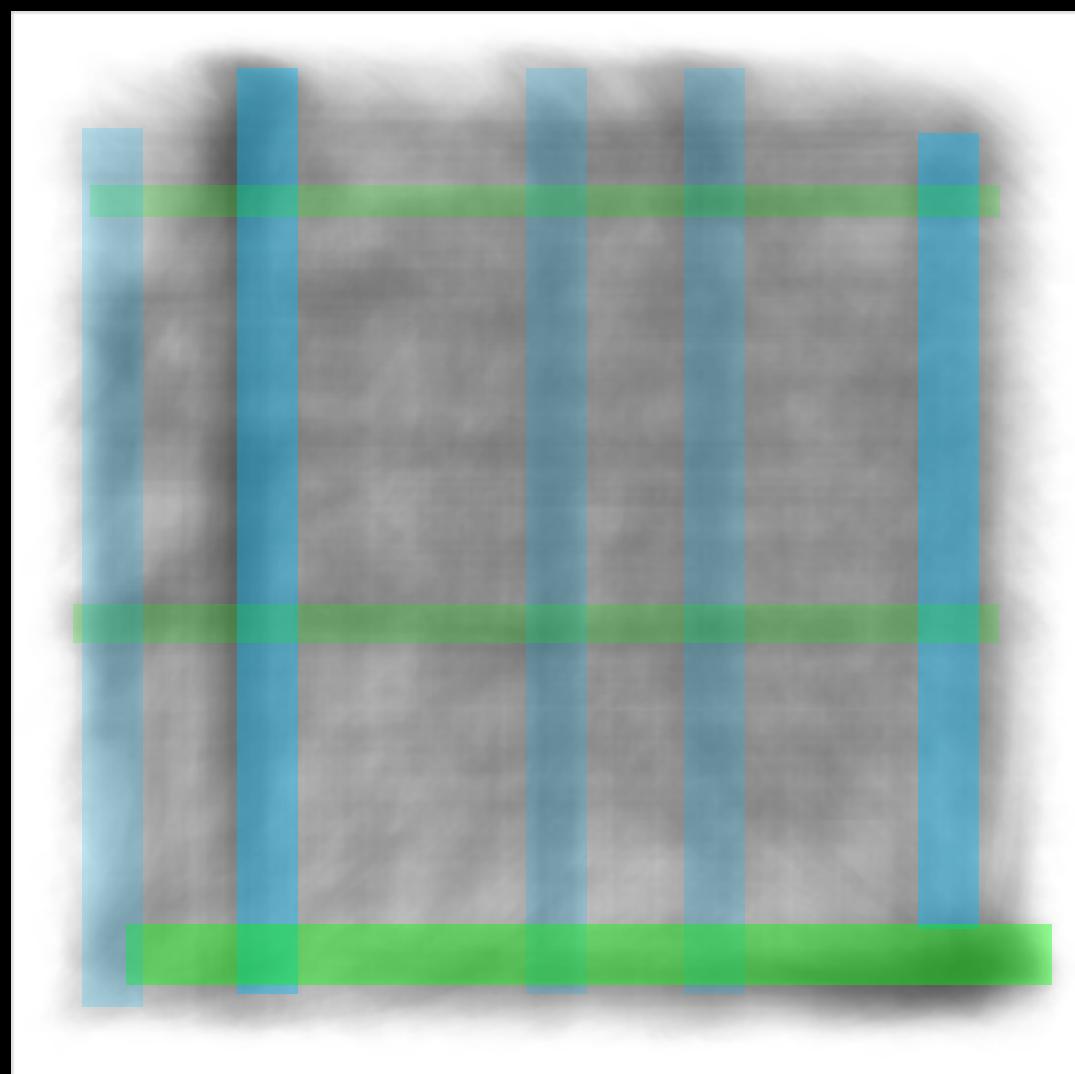
STheiti
华文黑体



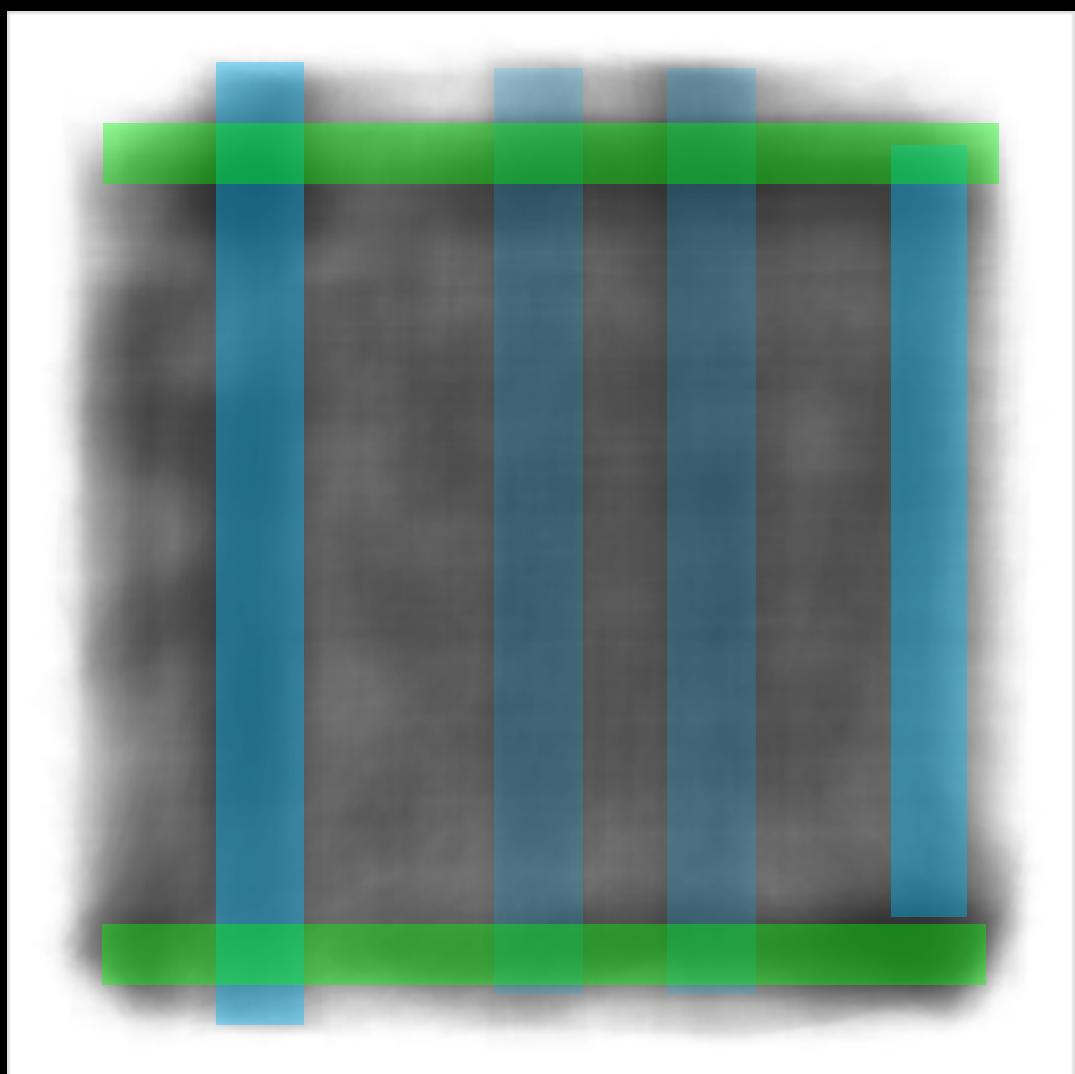
Microsoft YaHei
微软雅黑



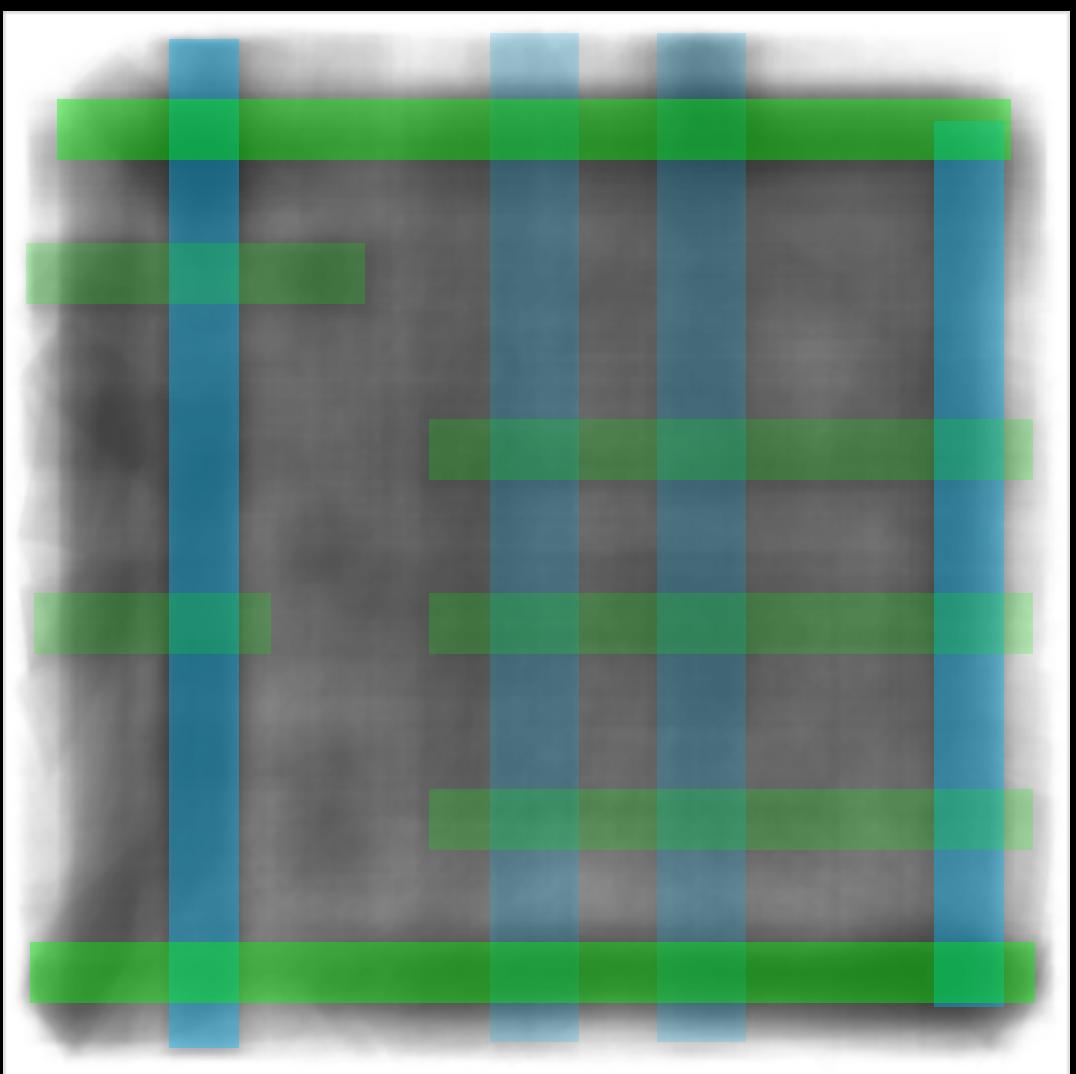
FZFW ZhuZi A Old Mincho
方正 FW 筑紫 A 老明朝



HYBaosong
汉仪报宋



STHeiti
华文黑体



Microsoft YaHei
微软雅黑

丶)	乚	乚	乚	乚	乚	乚
乚	乚	乚	乚	乚	乚	乚	乚
丶		ノ	ノ	丶	ノ	→	乚
丶	丶	丶	丶	丶	丶	丶	丶
乙	ㄅ	ㄅ	ㄅ	ㄅ	ㄅ	ㄅ	ㄅ

CJK Strokes in Unicode 13.0

丶)	乚	乚	乚	乚	乚	乚
乚	乚	乚	乚	乚	乚	乚	乚
乚		乚	乚	丶	乚	乚	乚
乚	乚	乚	乚	乚	乚	乚	乚
乙	乚	乚	乚	乚	乚	乚	乚

CJK Strokes in Unicode 13.0

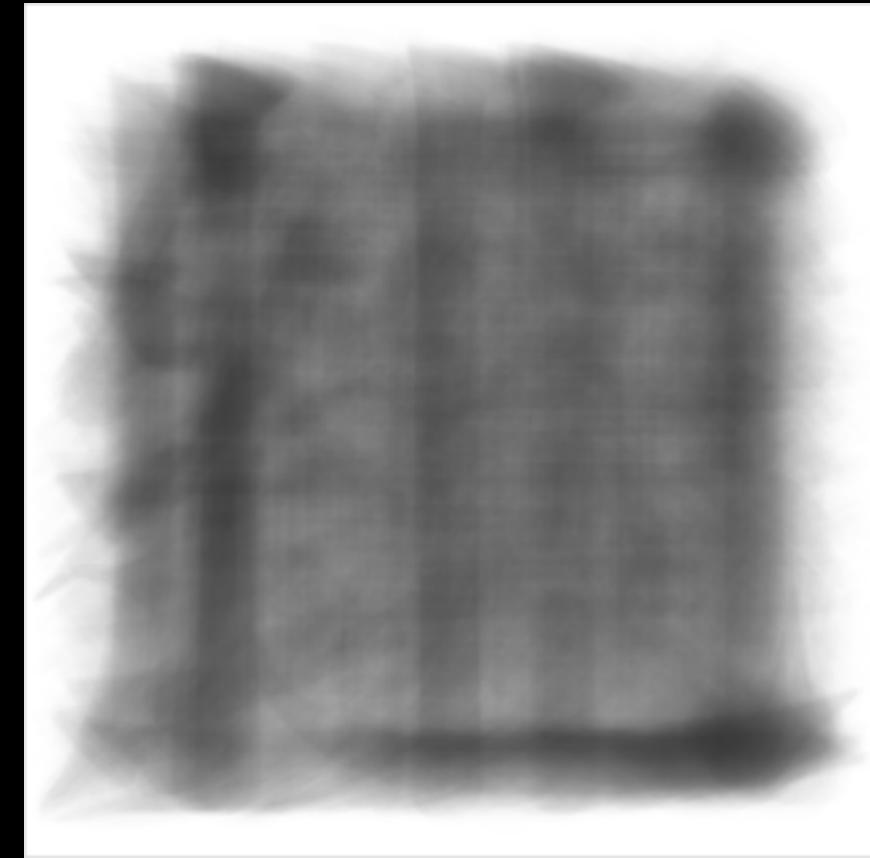
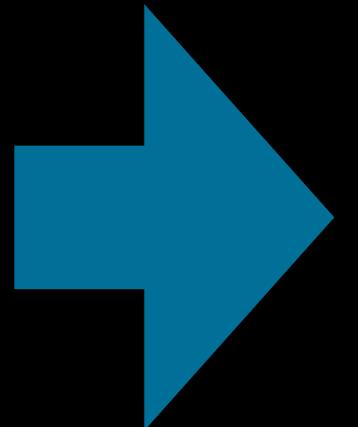
Spacing & side-bearing

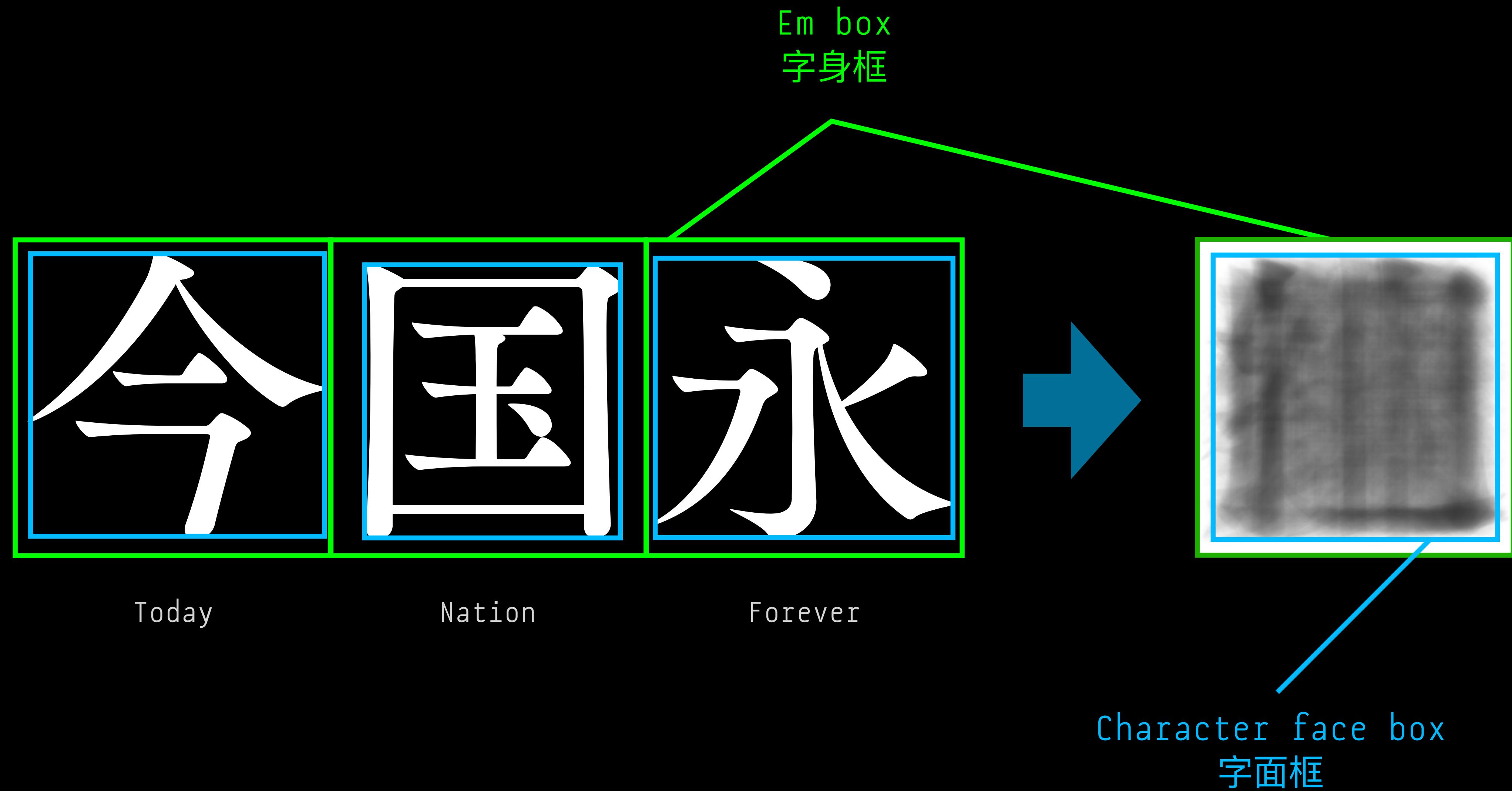
今 玉 永

Today

Nation

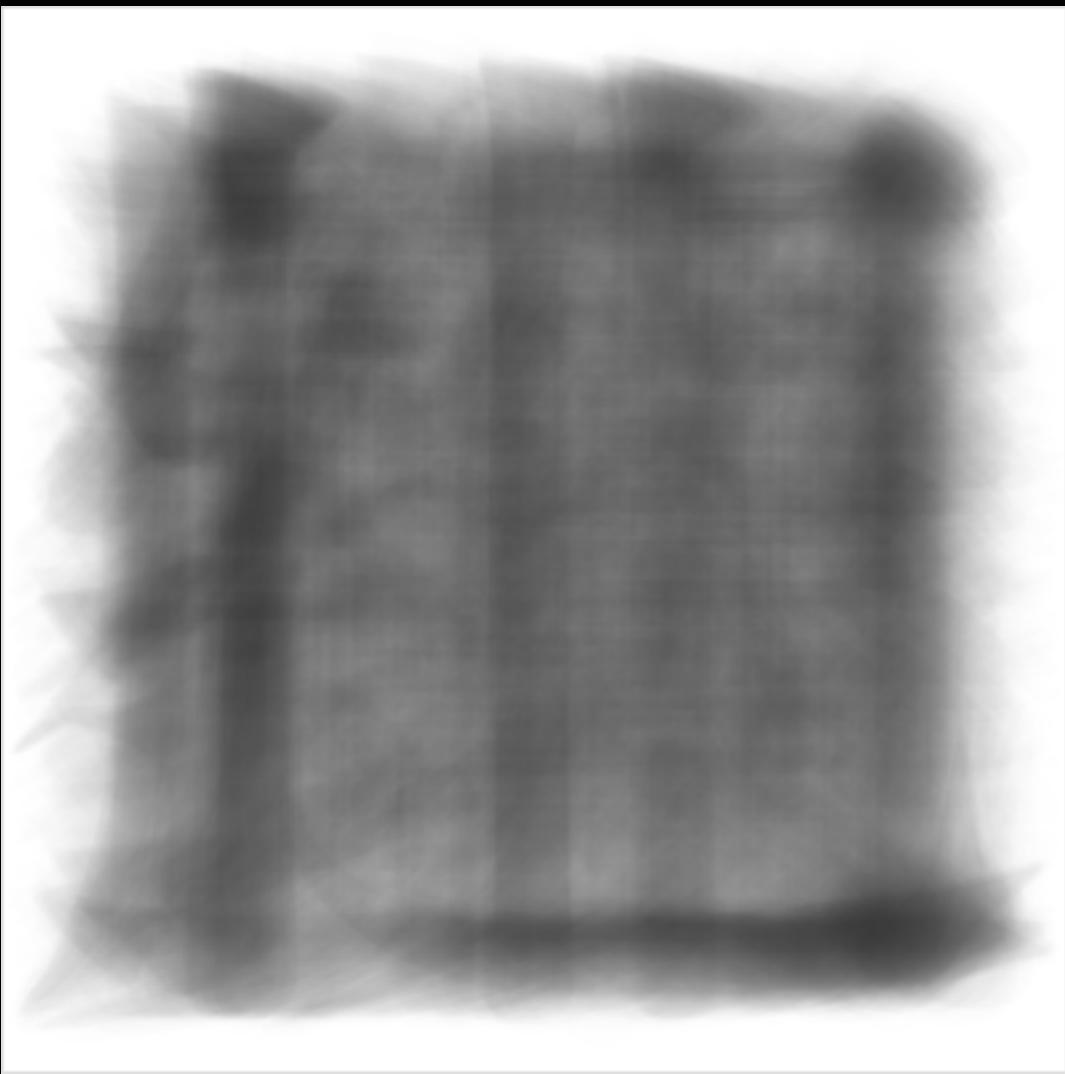
Forever



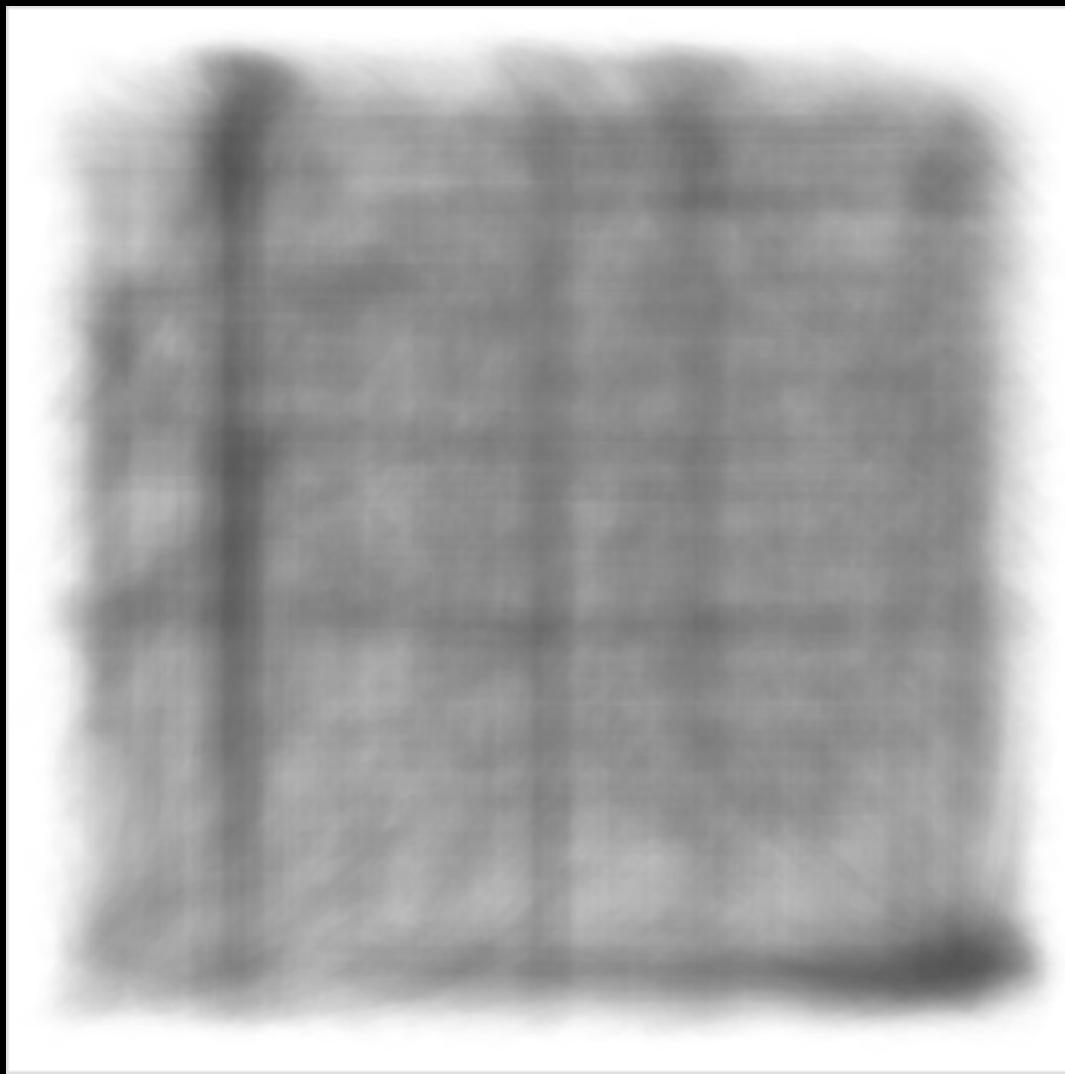


Em box
字身框

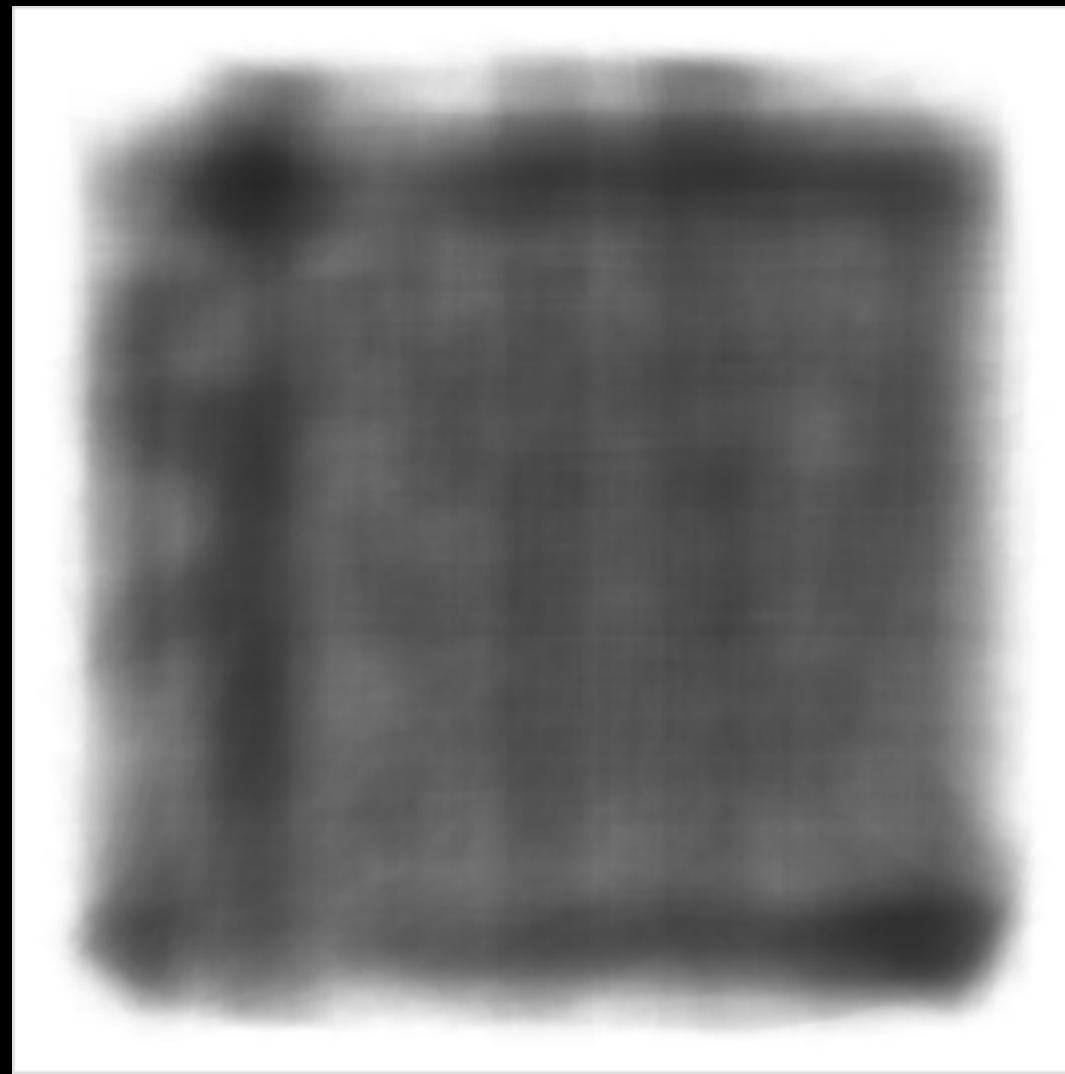
Character face box
字面框



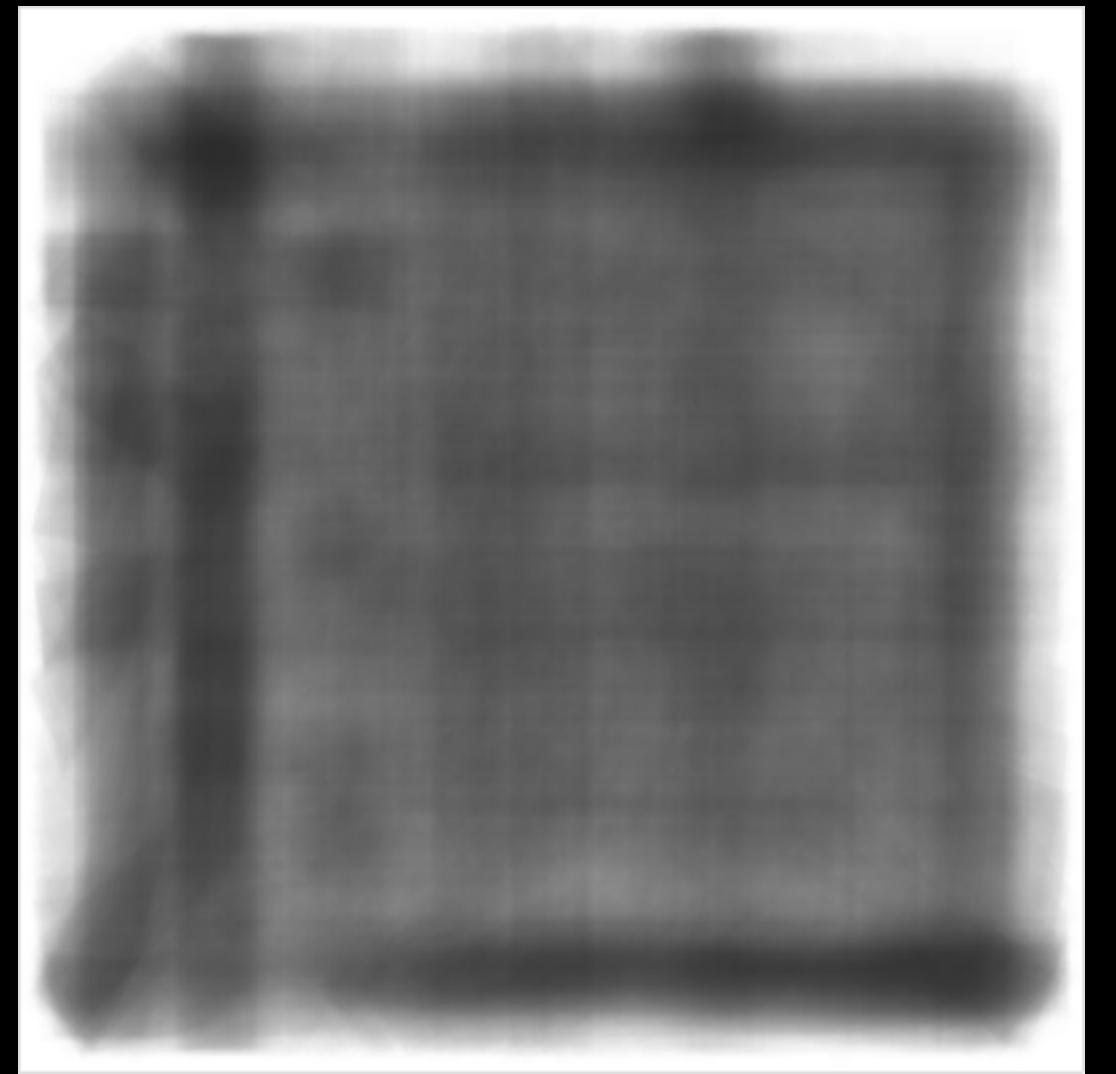
FZFW ZhuZi A Old Mincho
方正 FW 筑紫 A 老明朝



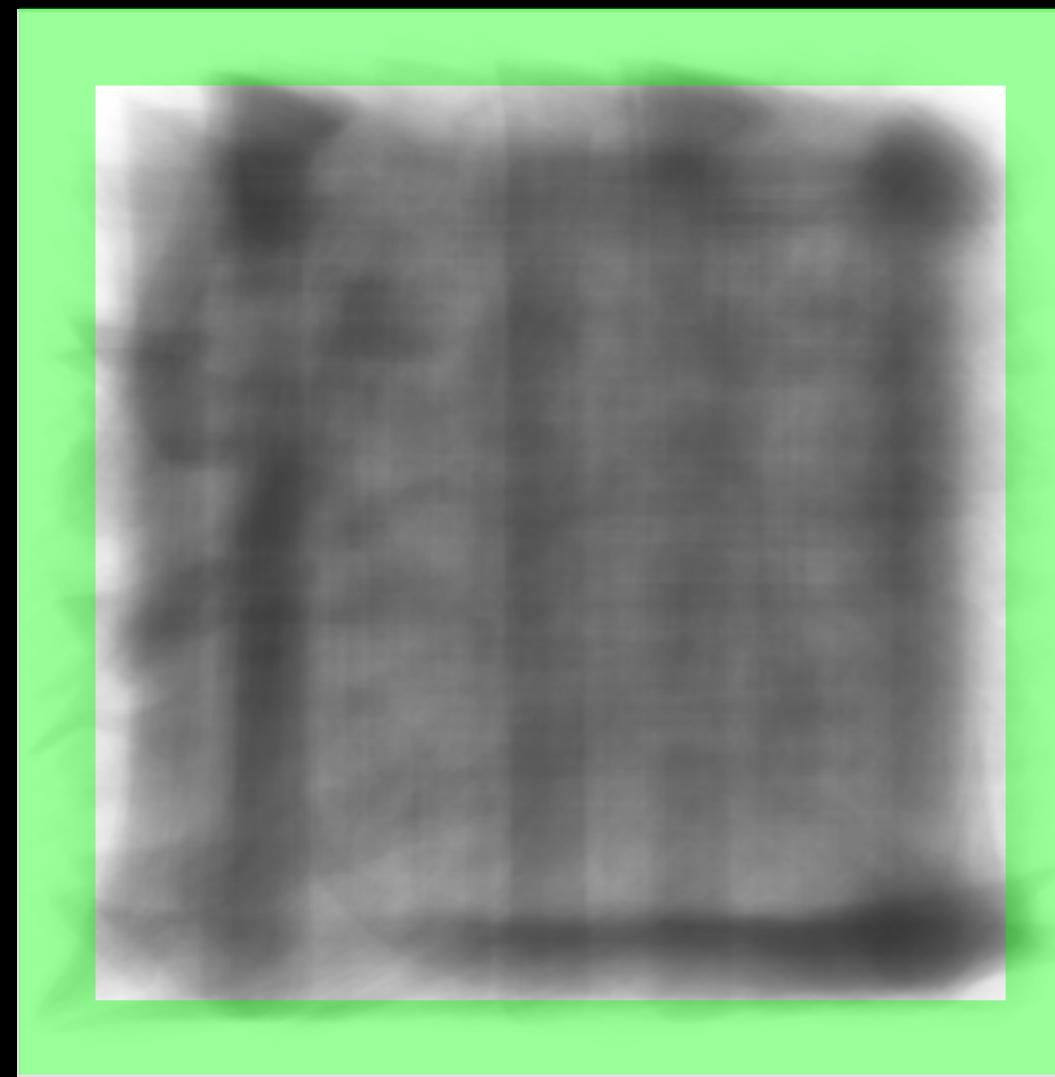
HYBaosong
汉仪报宋



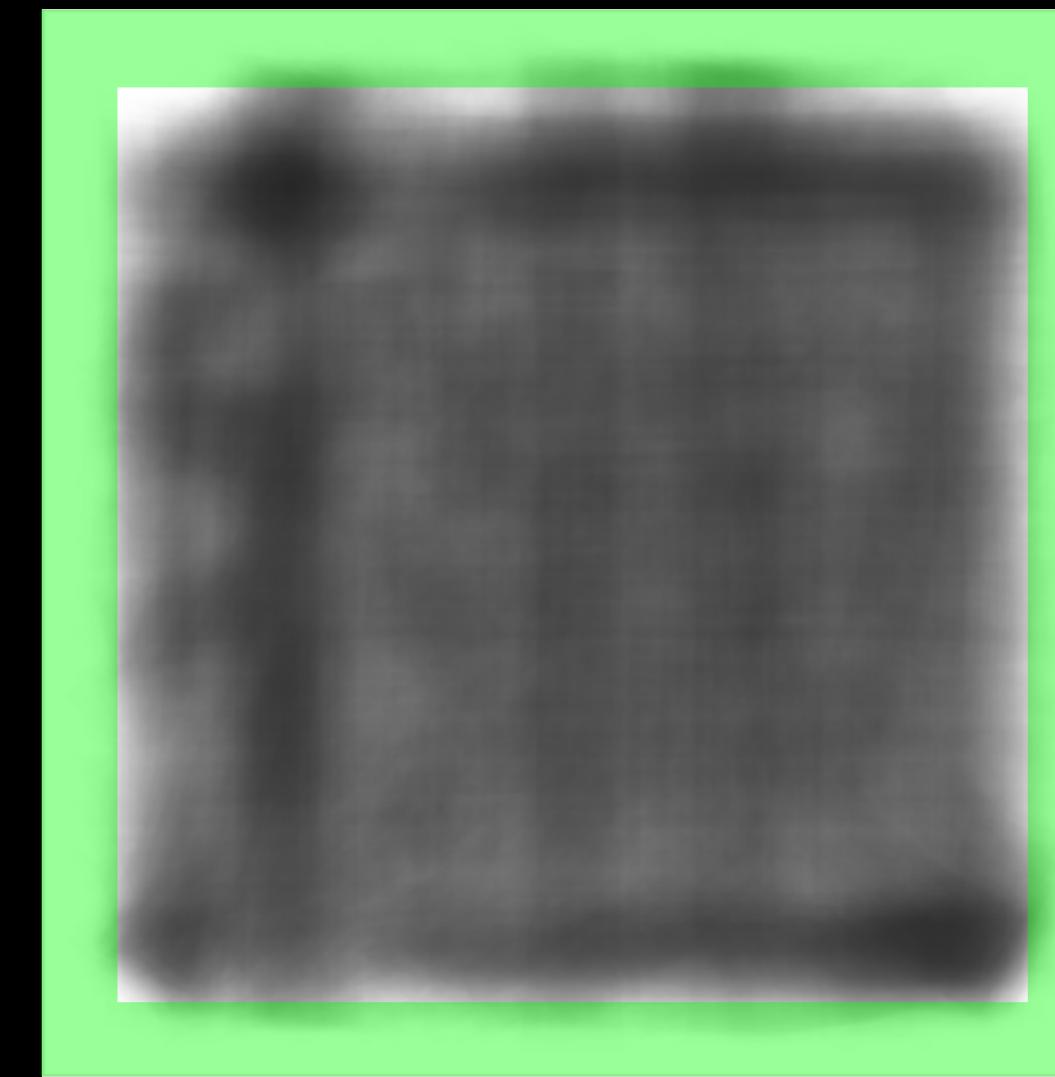
STheiti
华文黑体



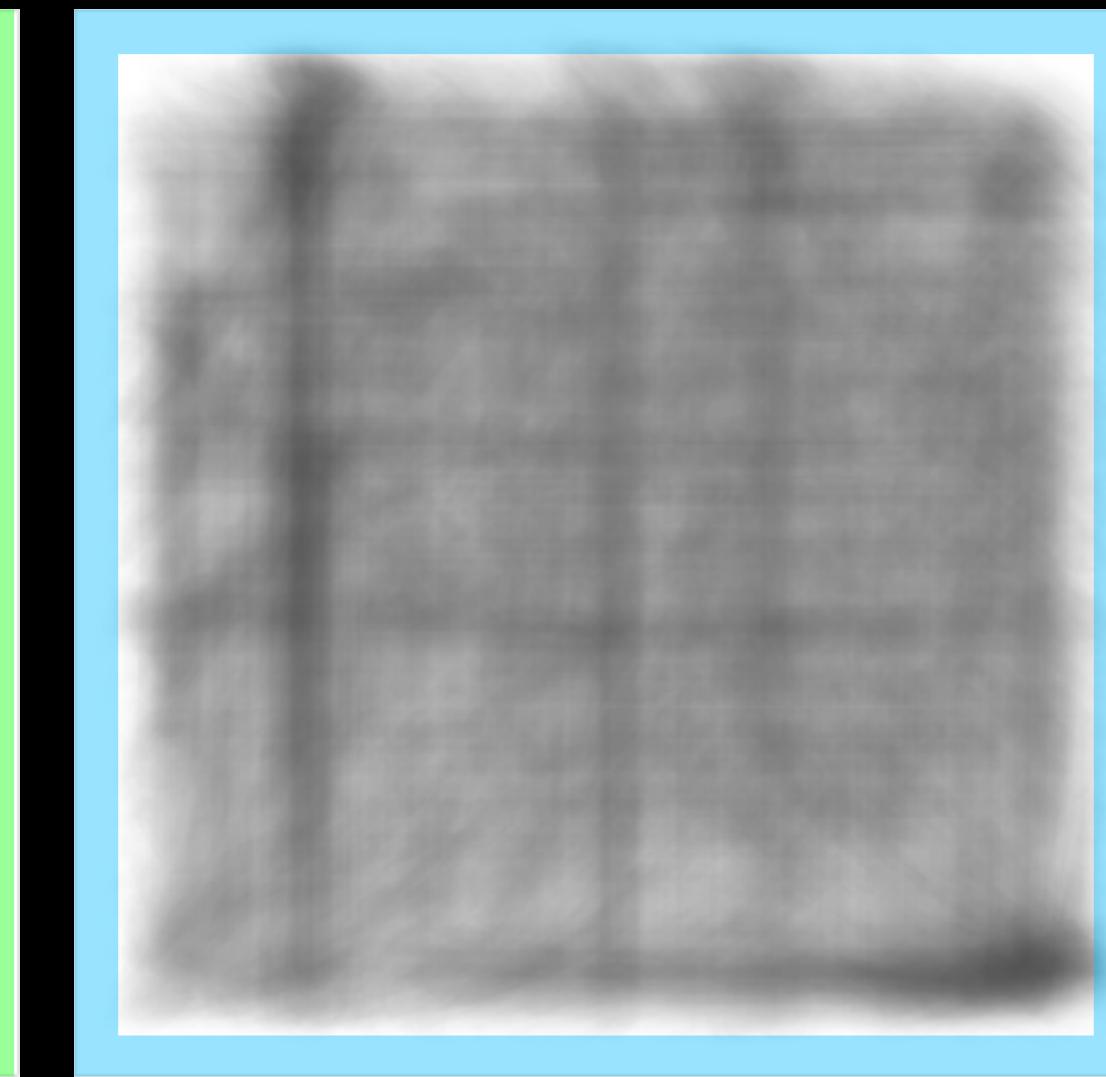
Microsoft YaHei
微软雅黑



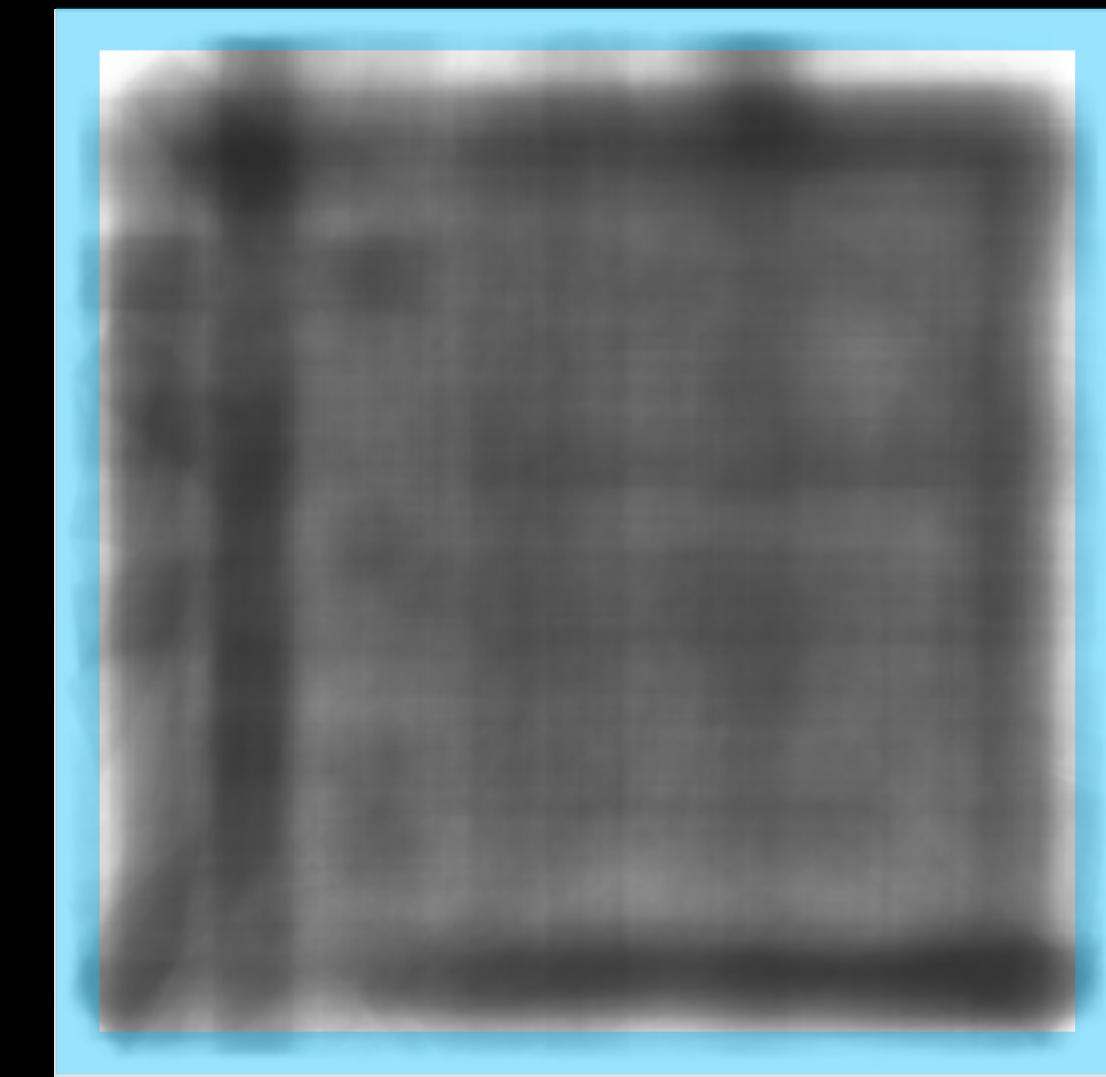
FZFW ZhuZi A Old Mincho
方正 FW 筑紫 A 老明朝



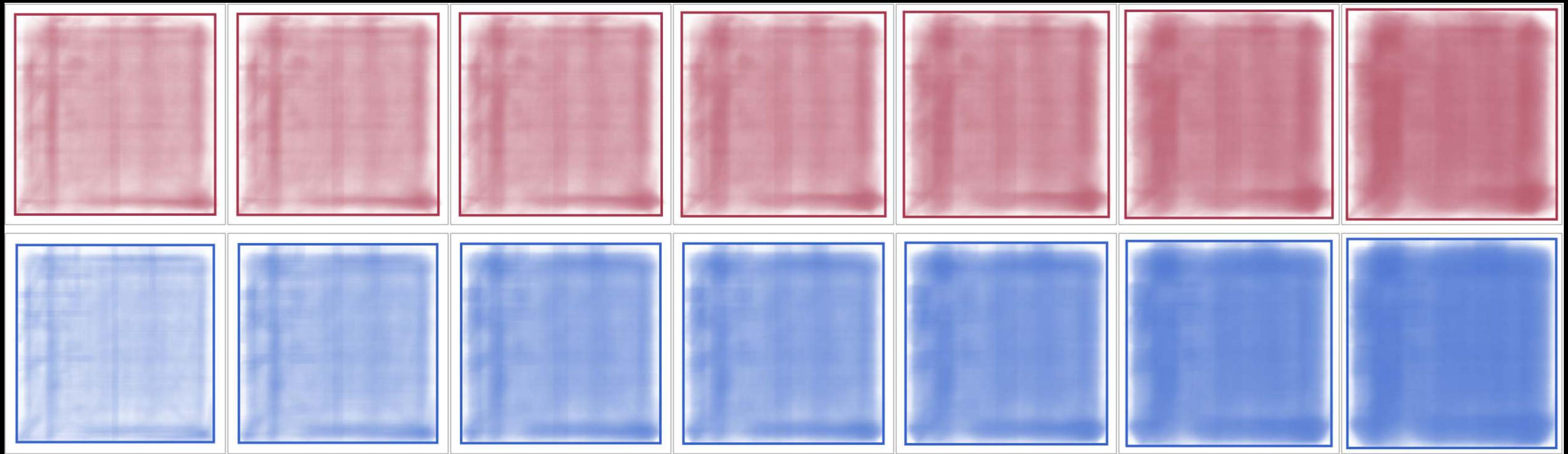
STHeiti
华文黑体



HYBaosong
汉仪报宋



Microsoft YaHei
微软雅黑



Source Han Serif (top) & Source Han Sans (bottom)
思源宋体 & 思源黑体

4 categories

草

Grass

推

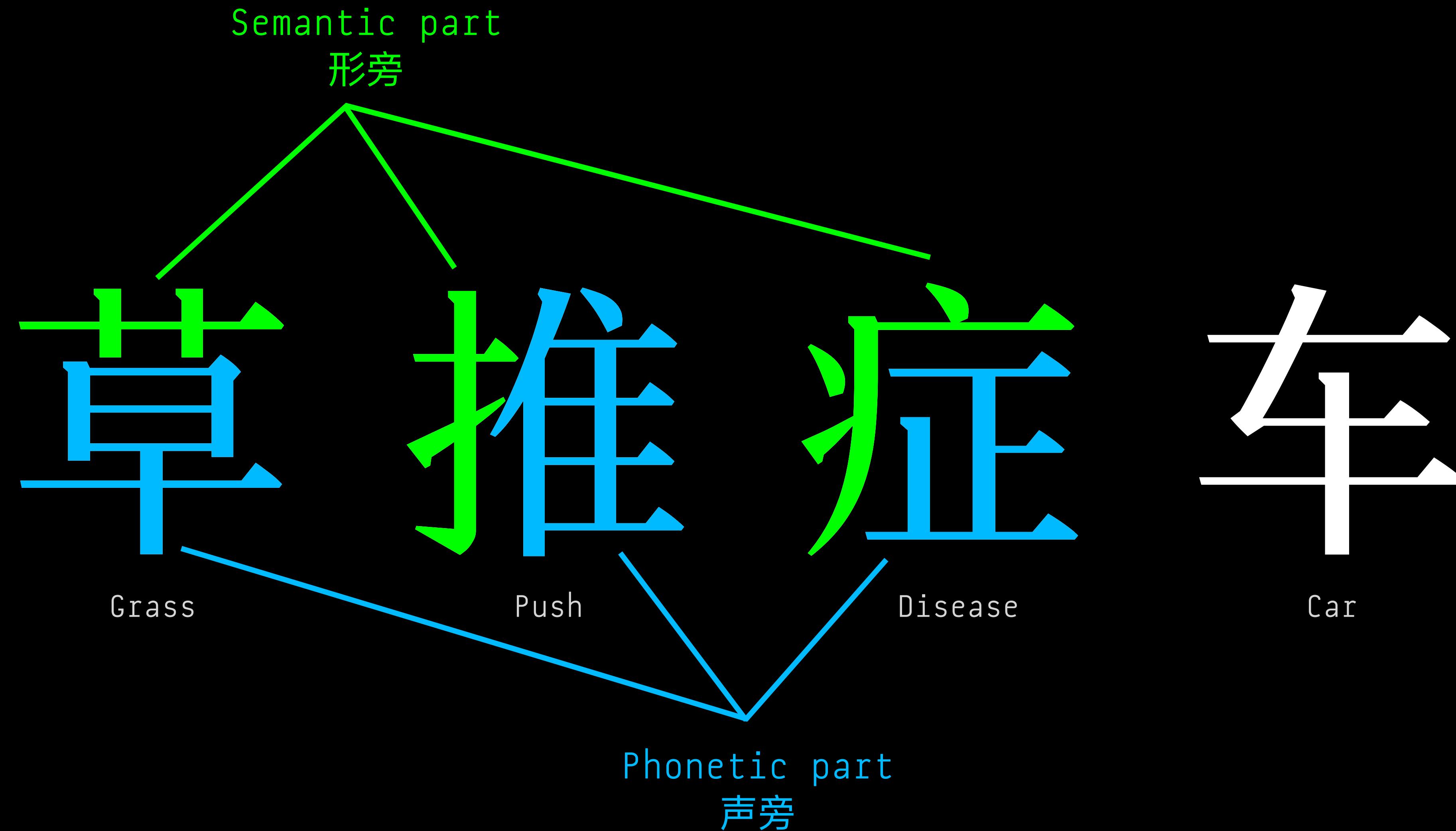
Push

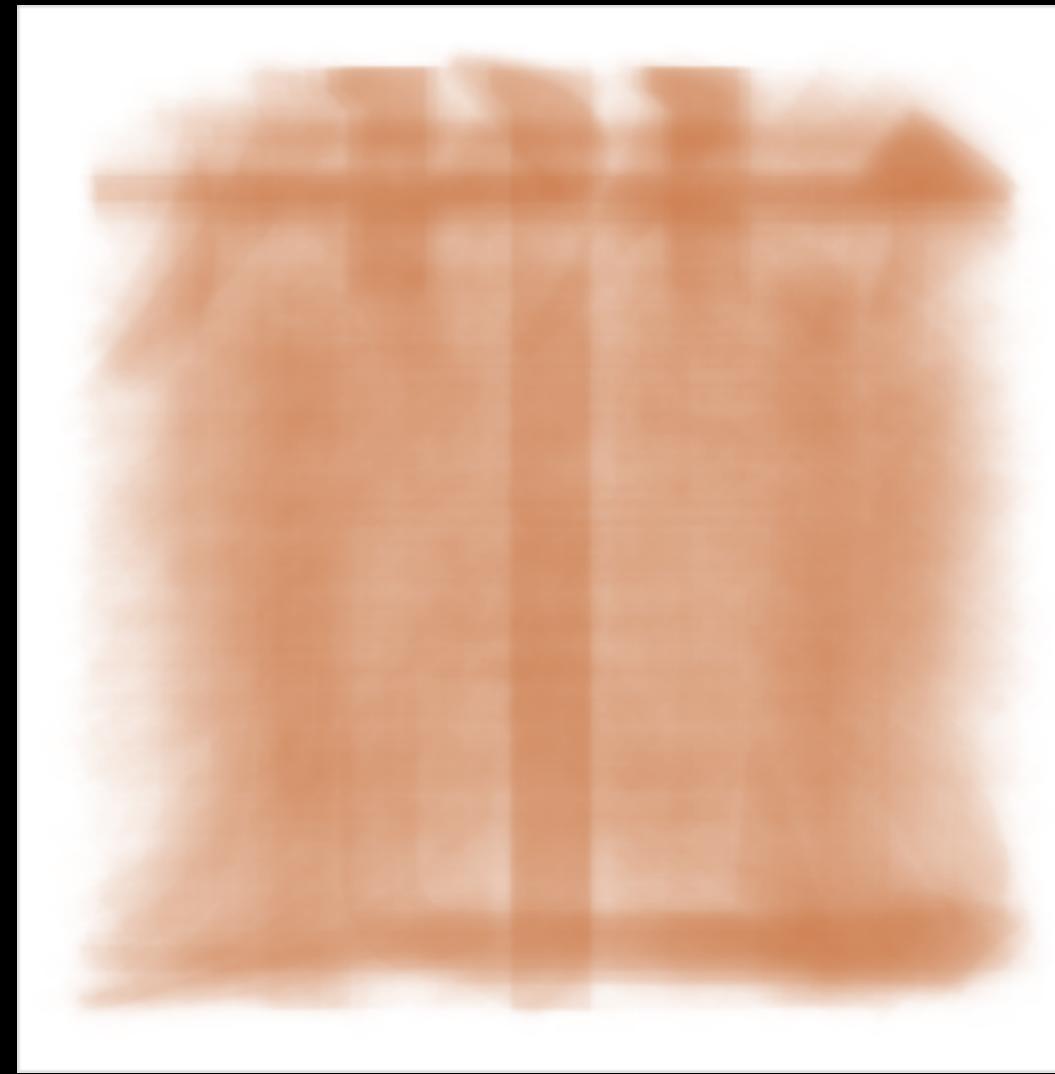
症

Disease

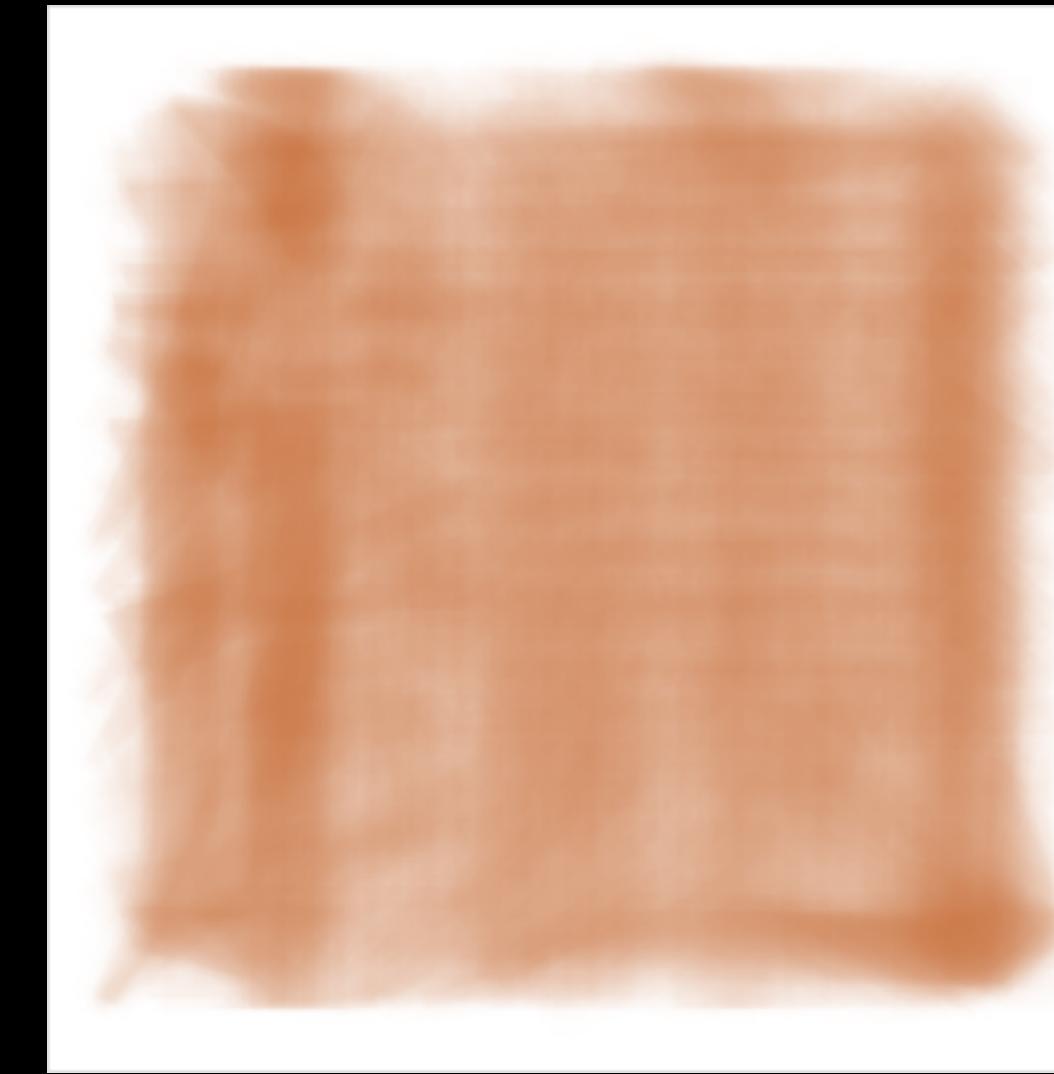
车

Car

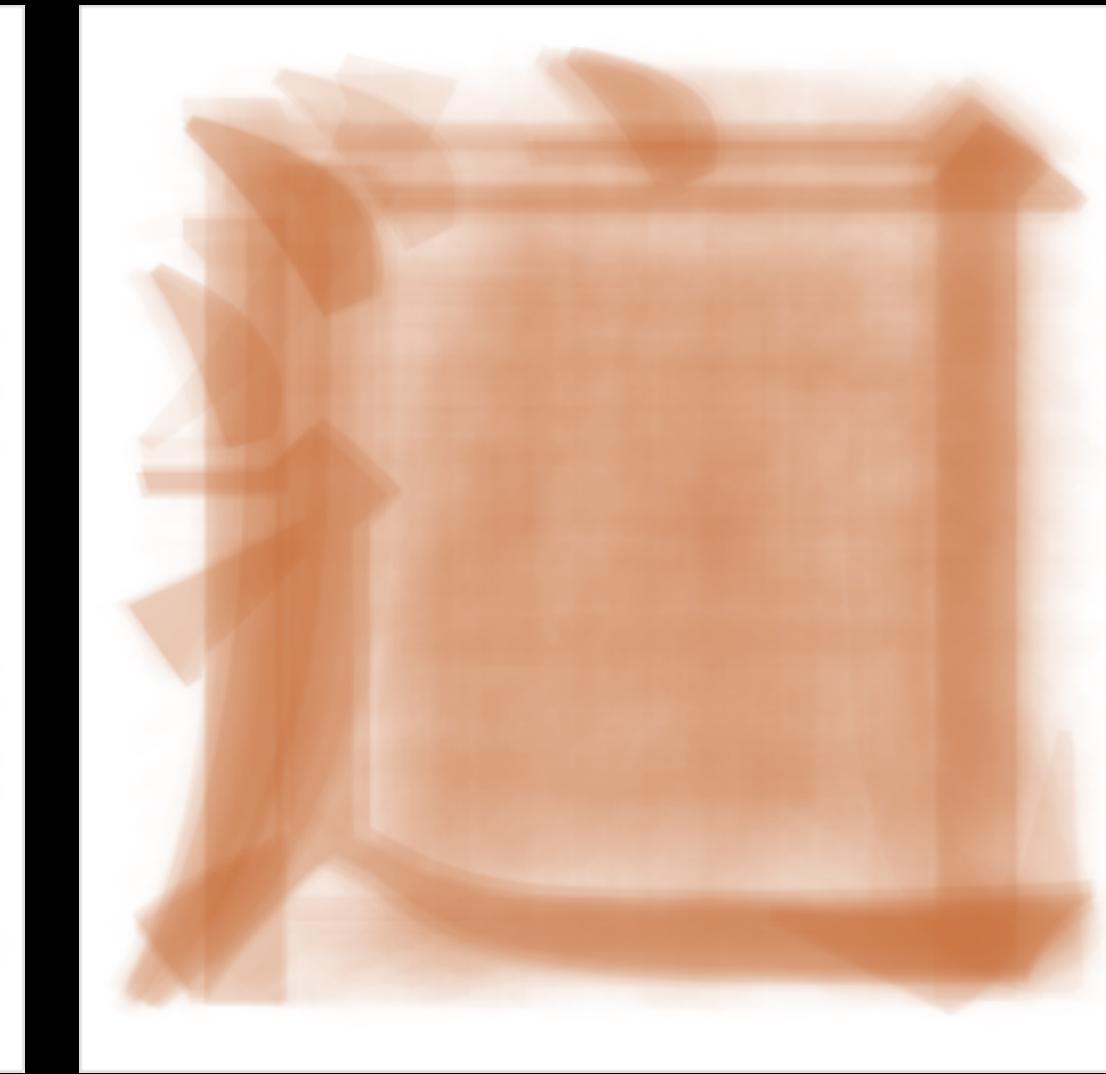




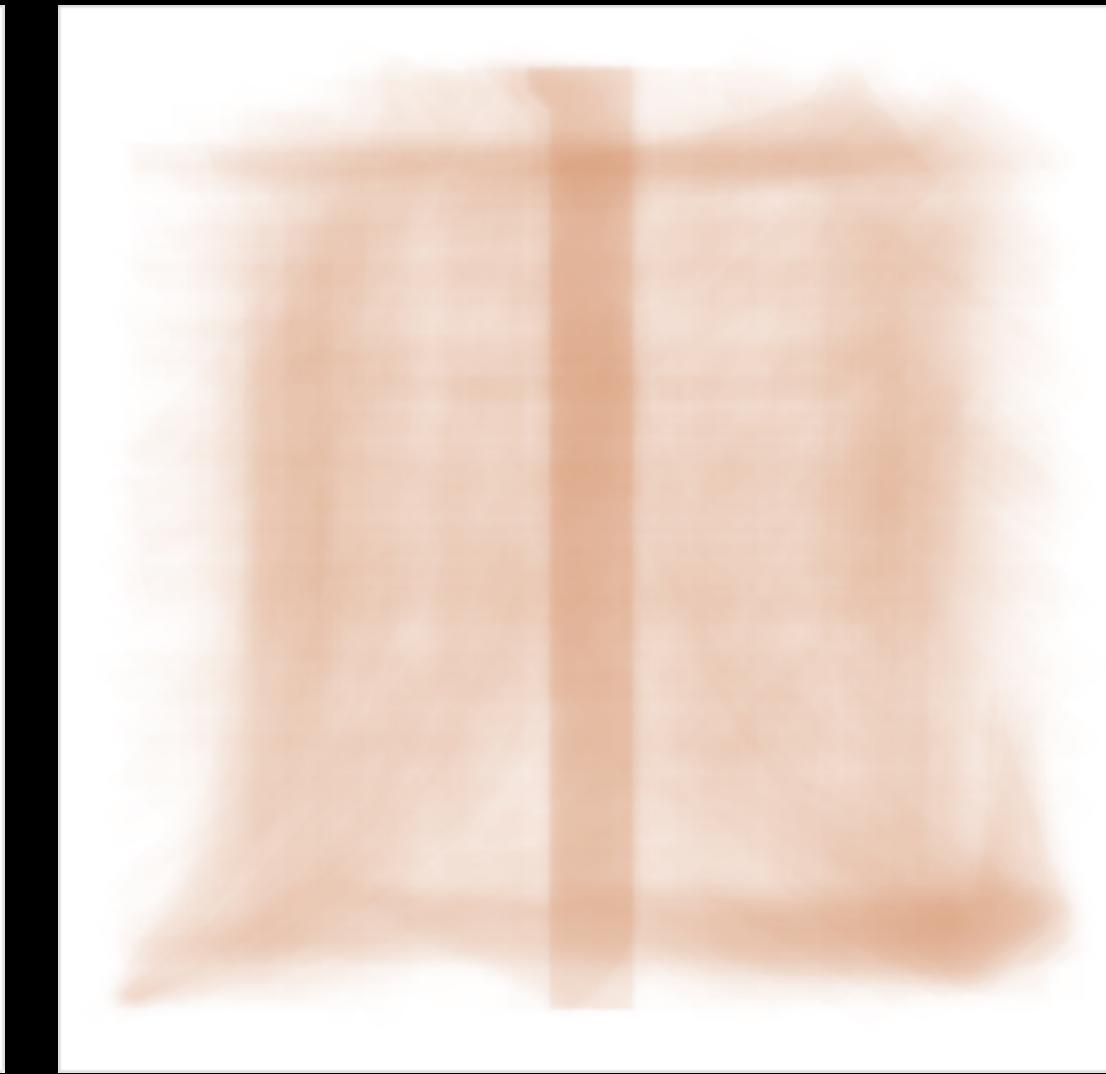
Top-bottom



Left-right

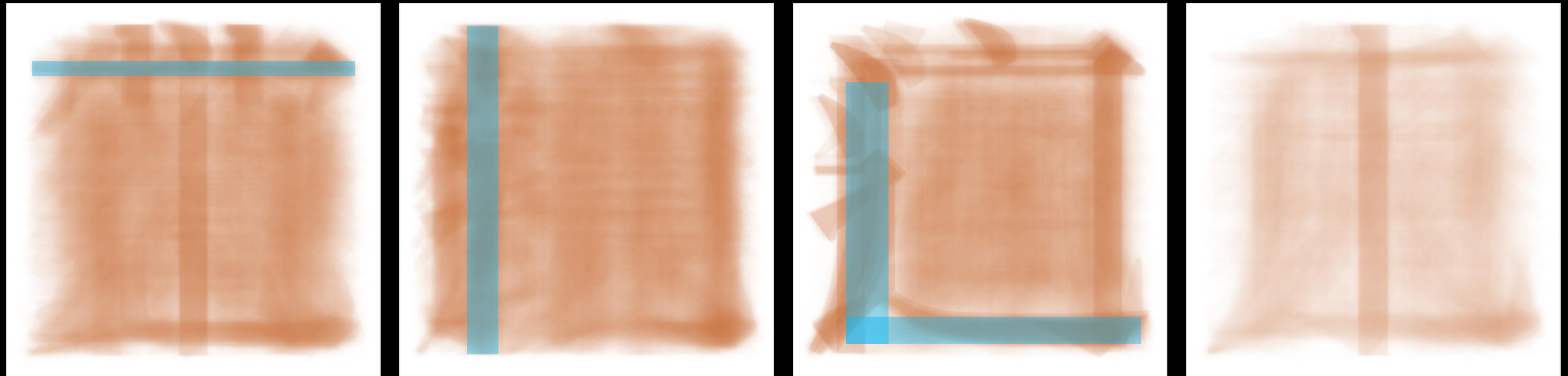


Enclosed



Single

Typeface: HYXinRenWenSong (汉仪新人文宋)



Top-bottom

Left-right

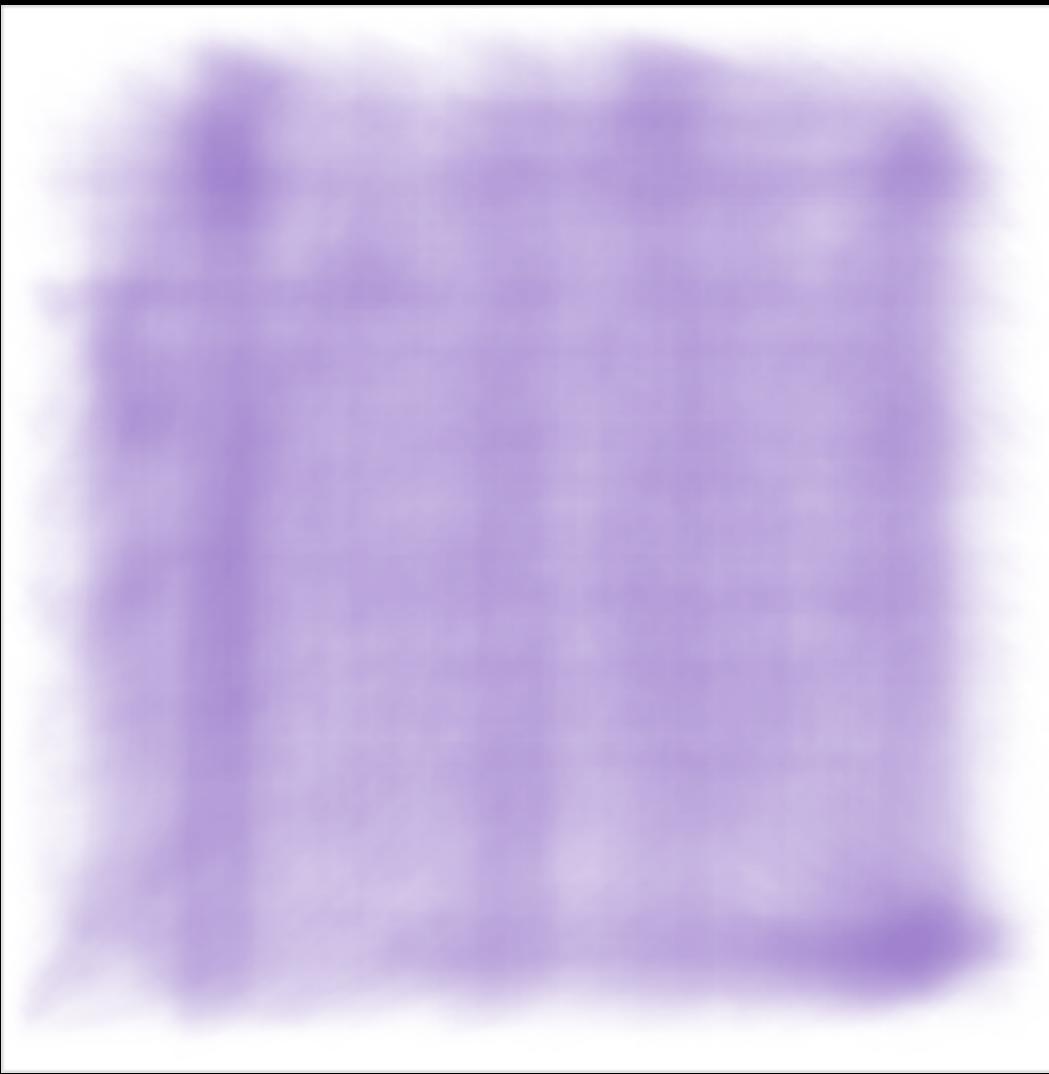
Enclosed

Single

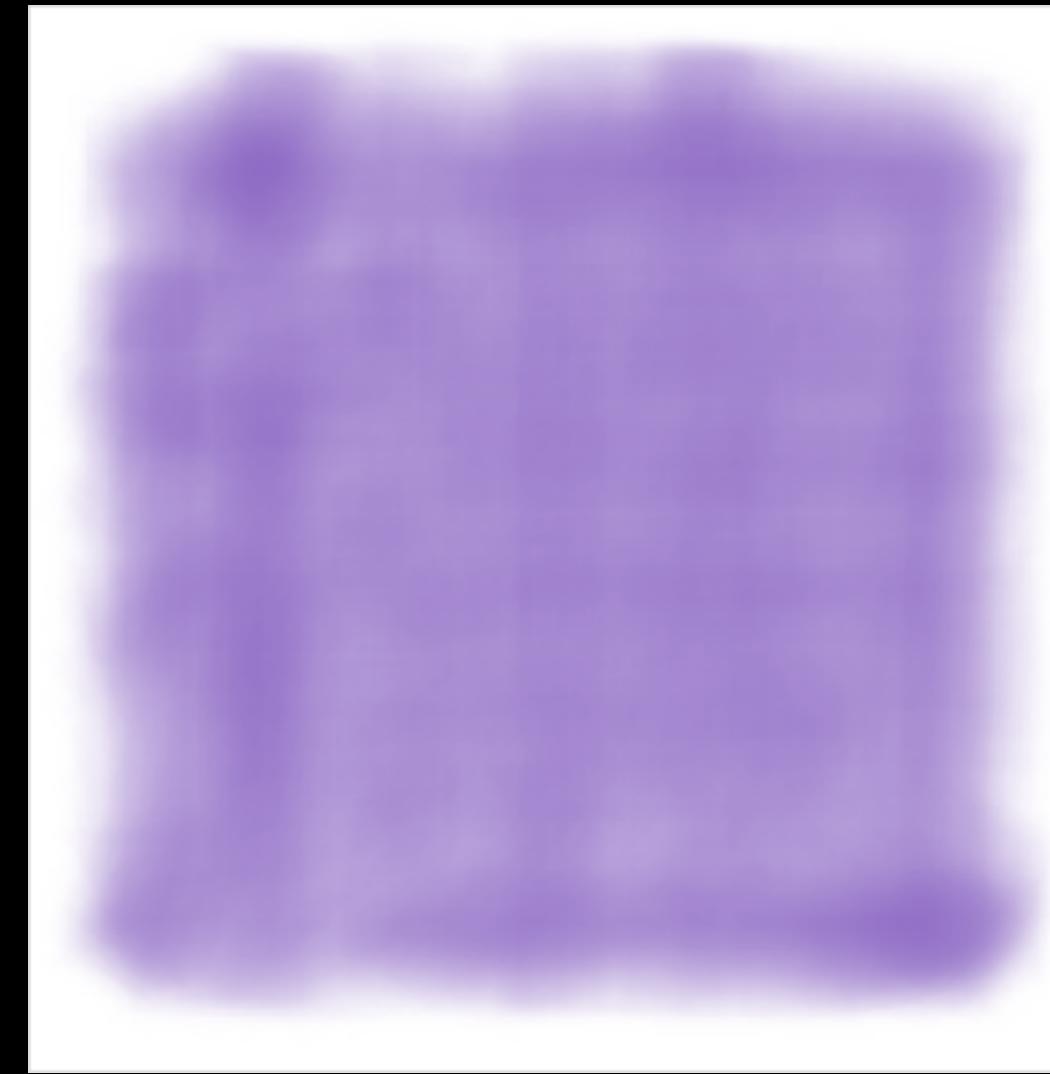
Typeface: HYXinRenWenSong (汉仪新人文宋)

4 basic styles

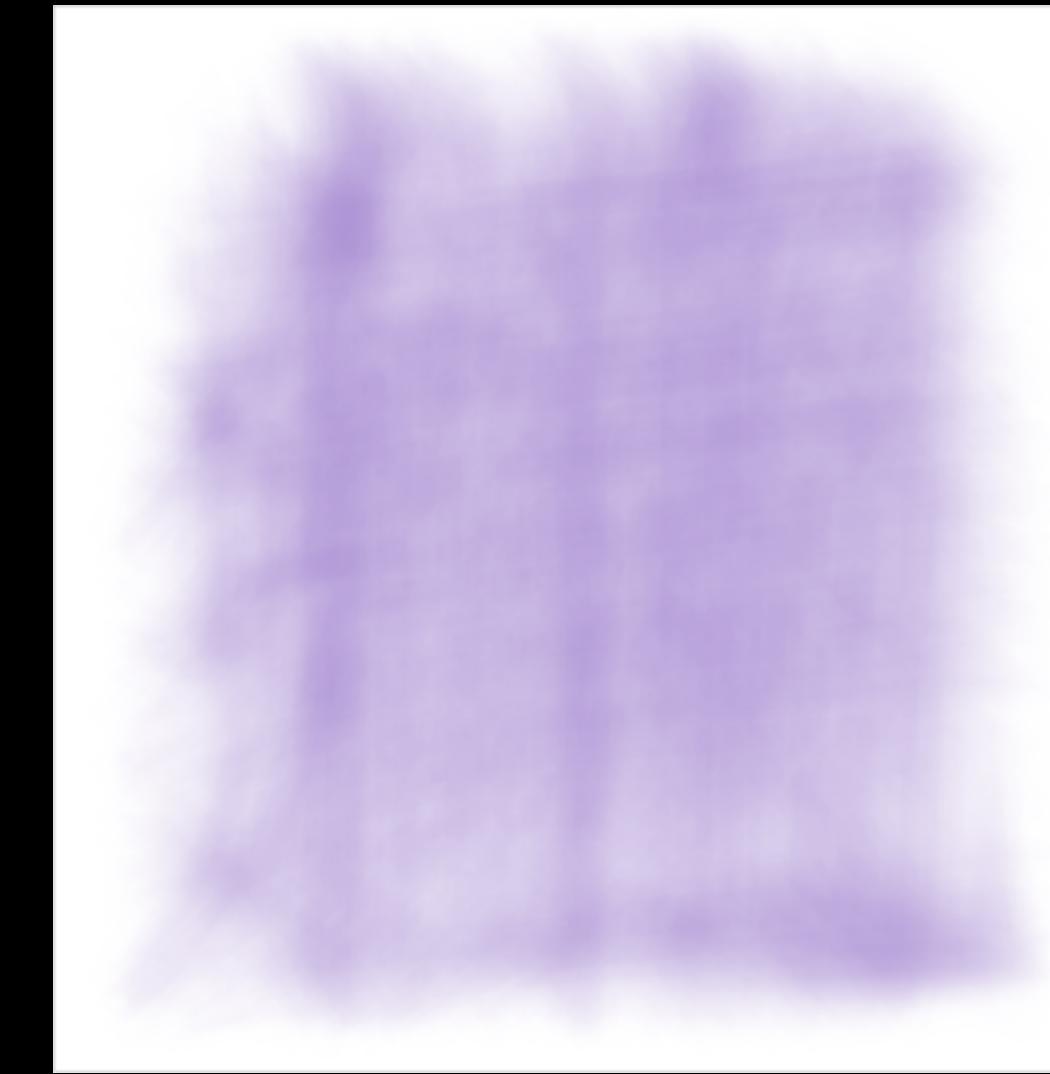
宋 黑 仿 楷



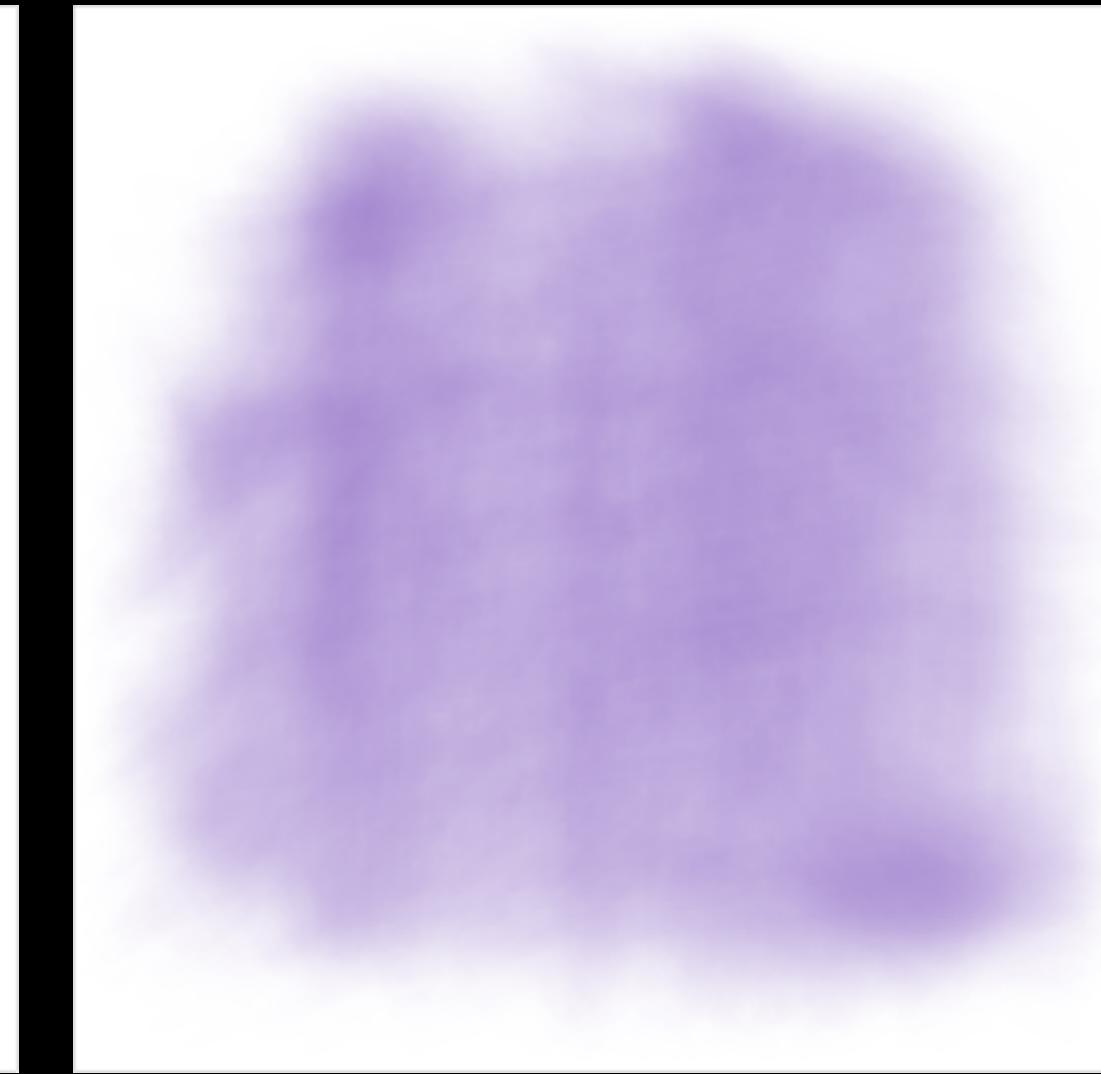
FZShuSong
方正书宋



FZHei
方正黑体



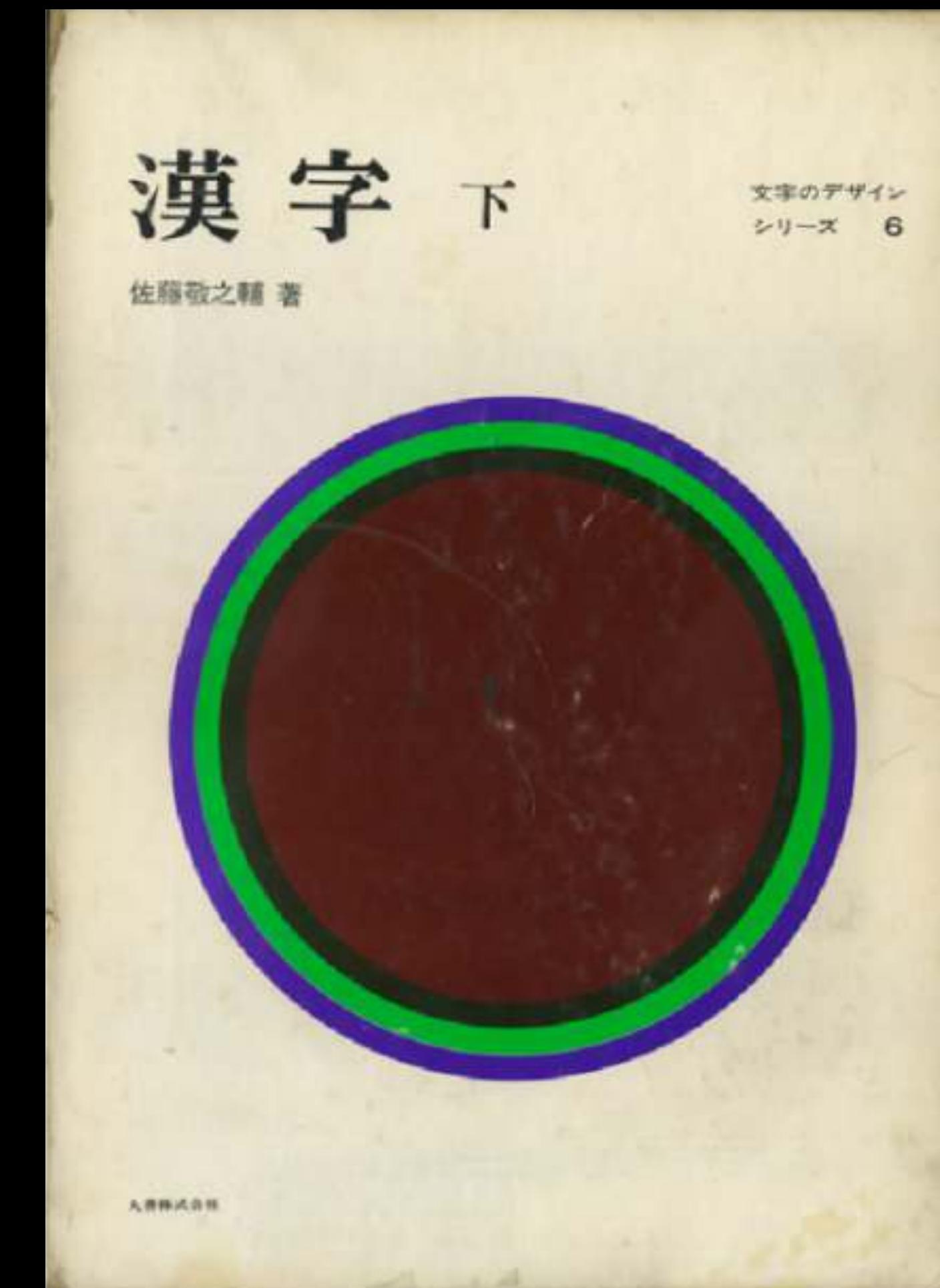
FZFangSong
方正仿宋



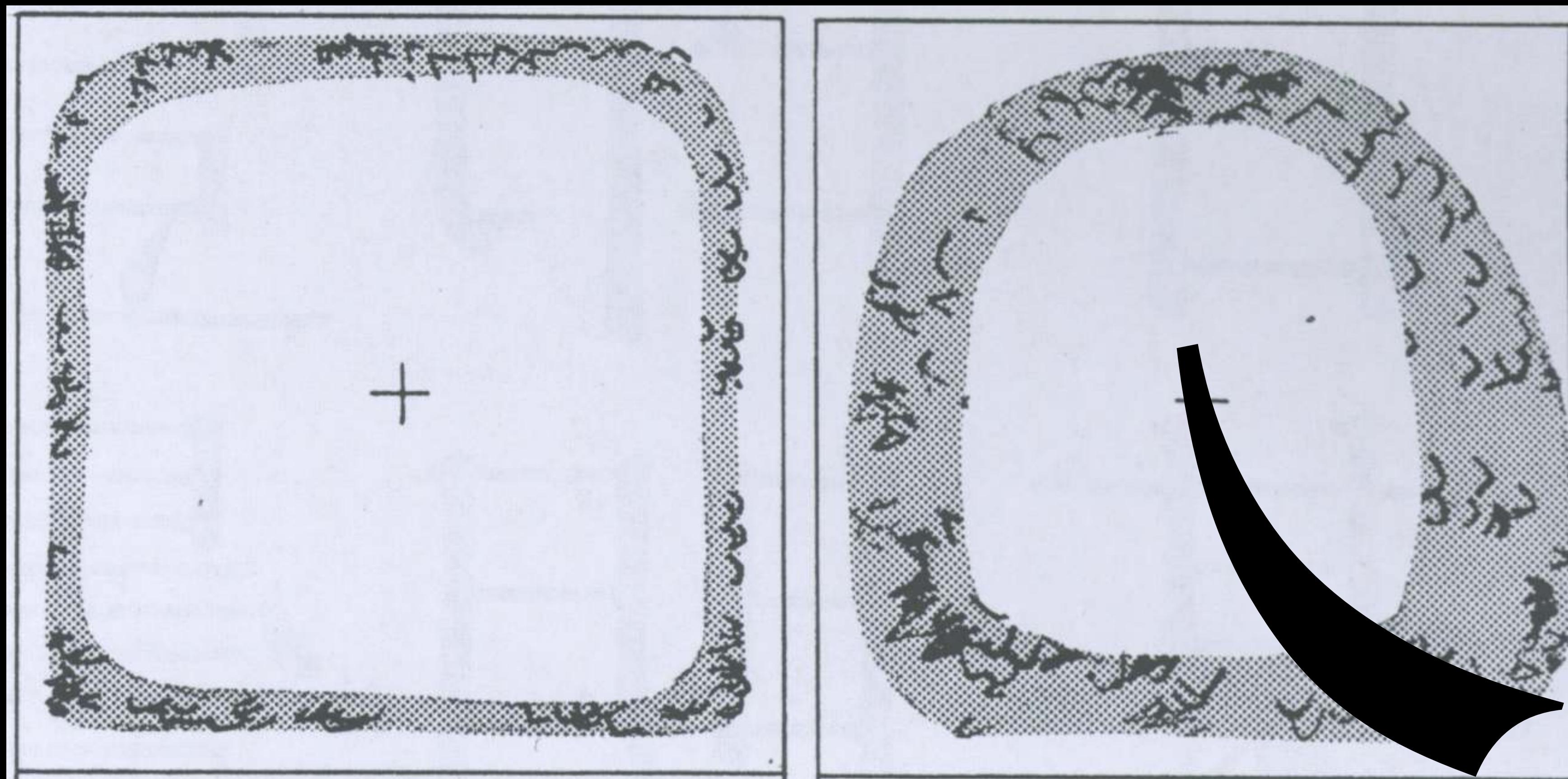
FZKai
方正楷体



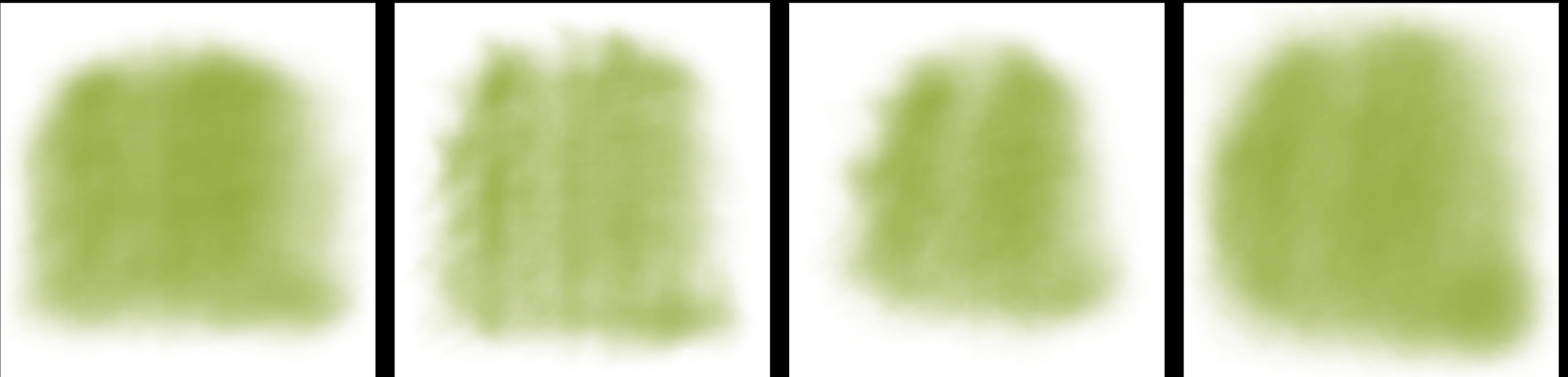
Satō Keinosuke (佐藤敬之輔)



Type Design Series:
Kanji (Part 2)



Satō Keinosuke. Type Design Series: Kanji (Part 2)



HYGuLi
汉仪古隶

HYQuanTangShi
汉仪全唐诗

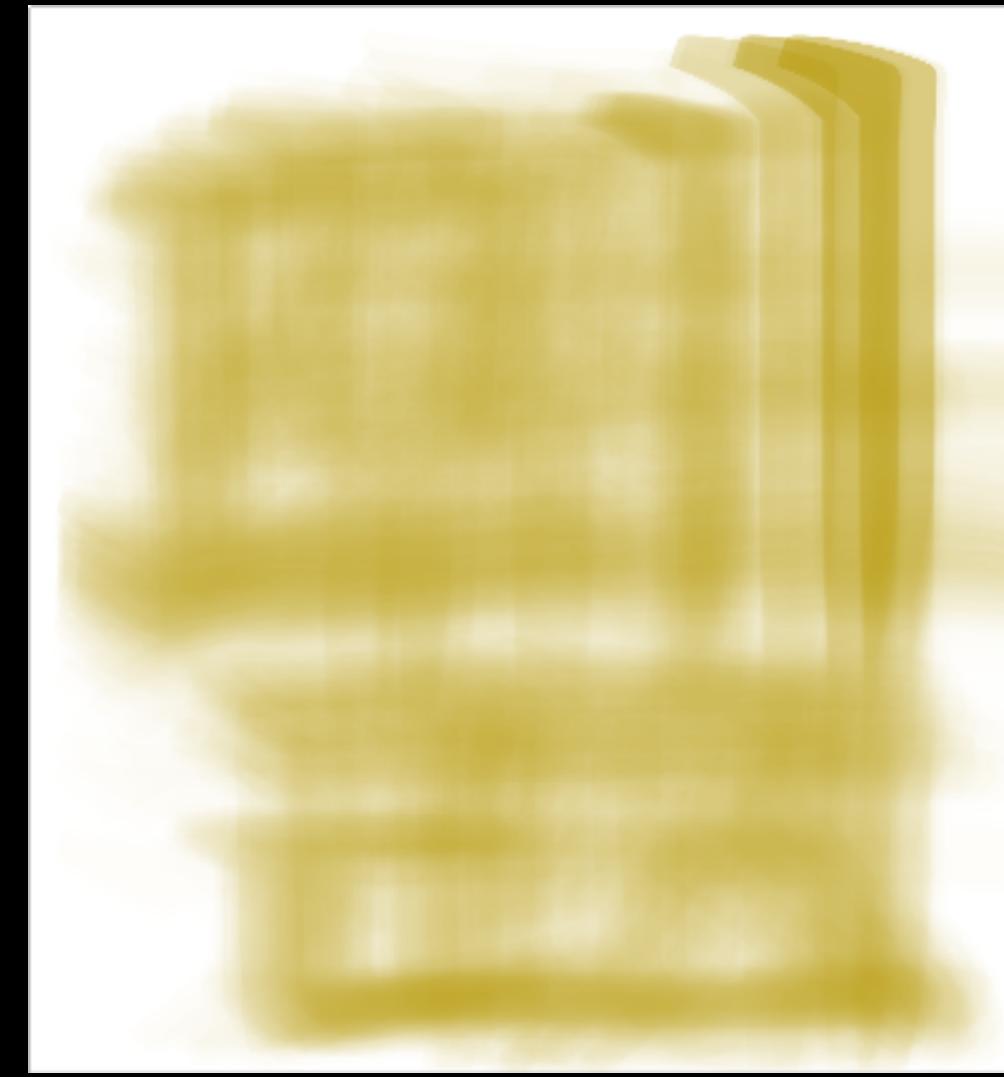
HYSuZeLiXingKai
汉仪苏泽立行楷

HYShangWeiShouShu
汉仪尚巍手书

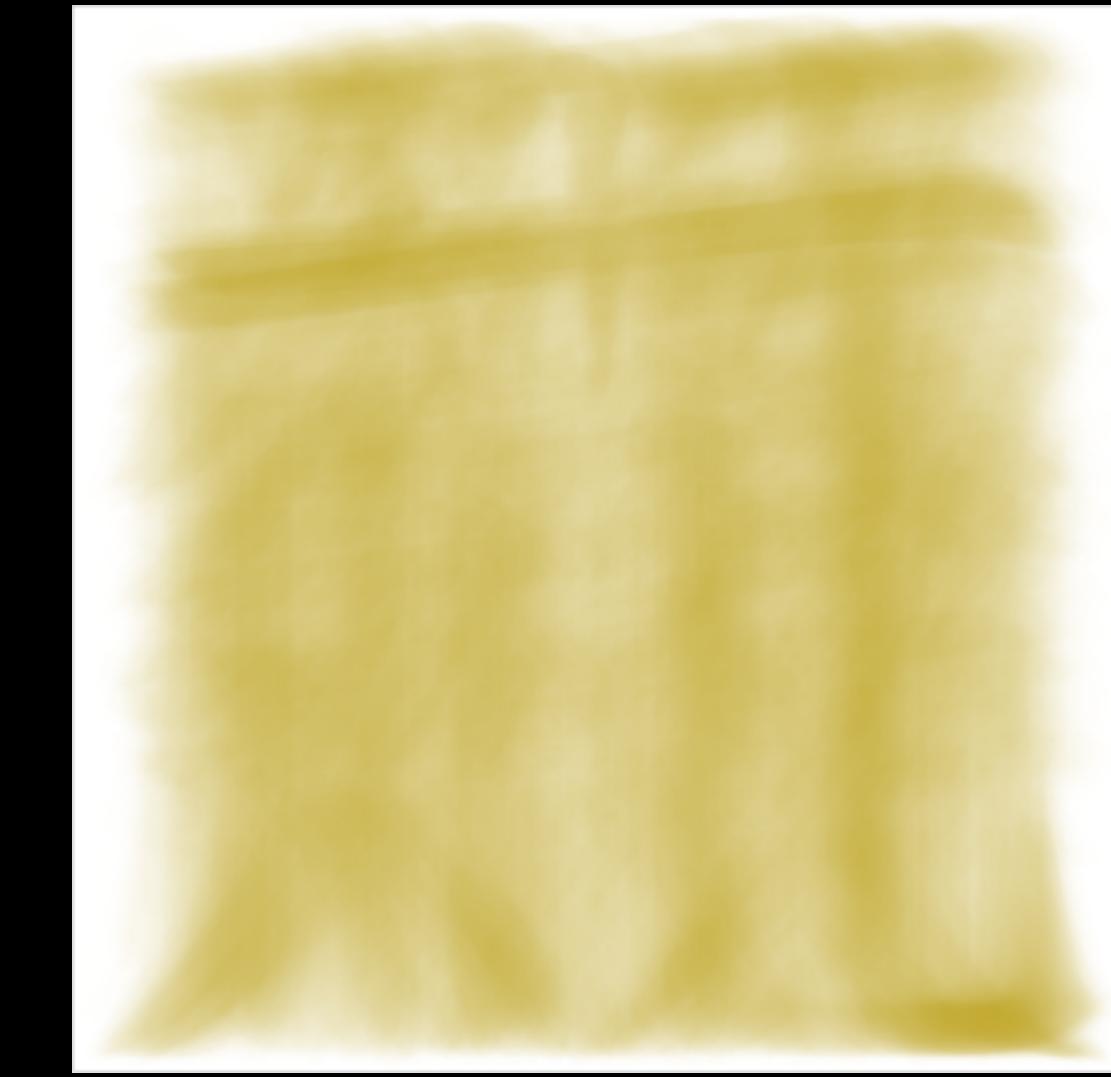
Go beyond Hanzi



Hiragana
(Hiragino Mincho)



Hangul syllables
(Source Han Serif)

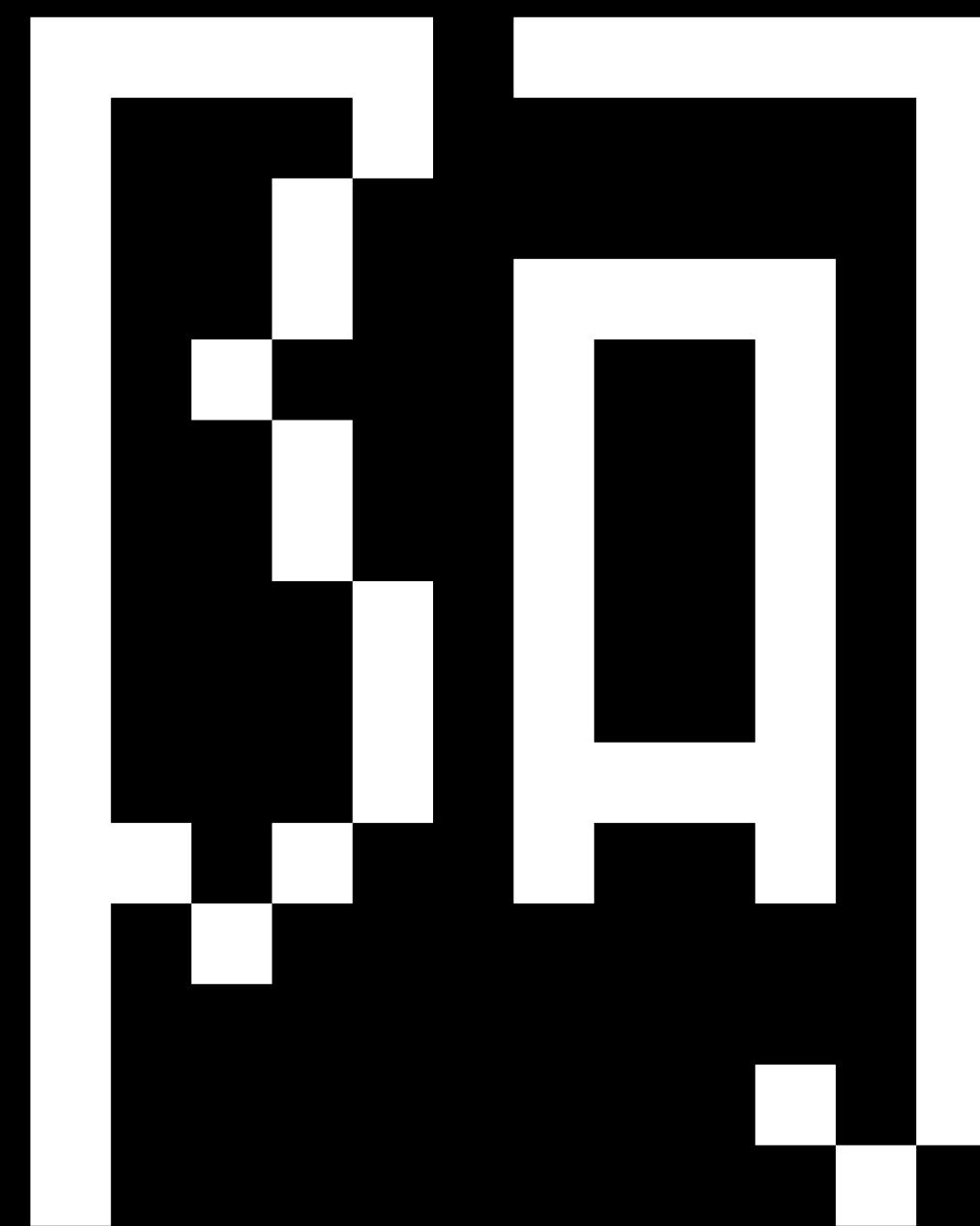


Tangut
(Tangut Yinchuan)

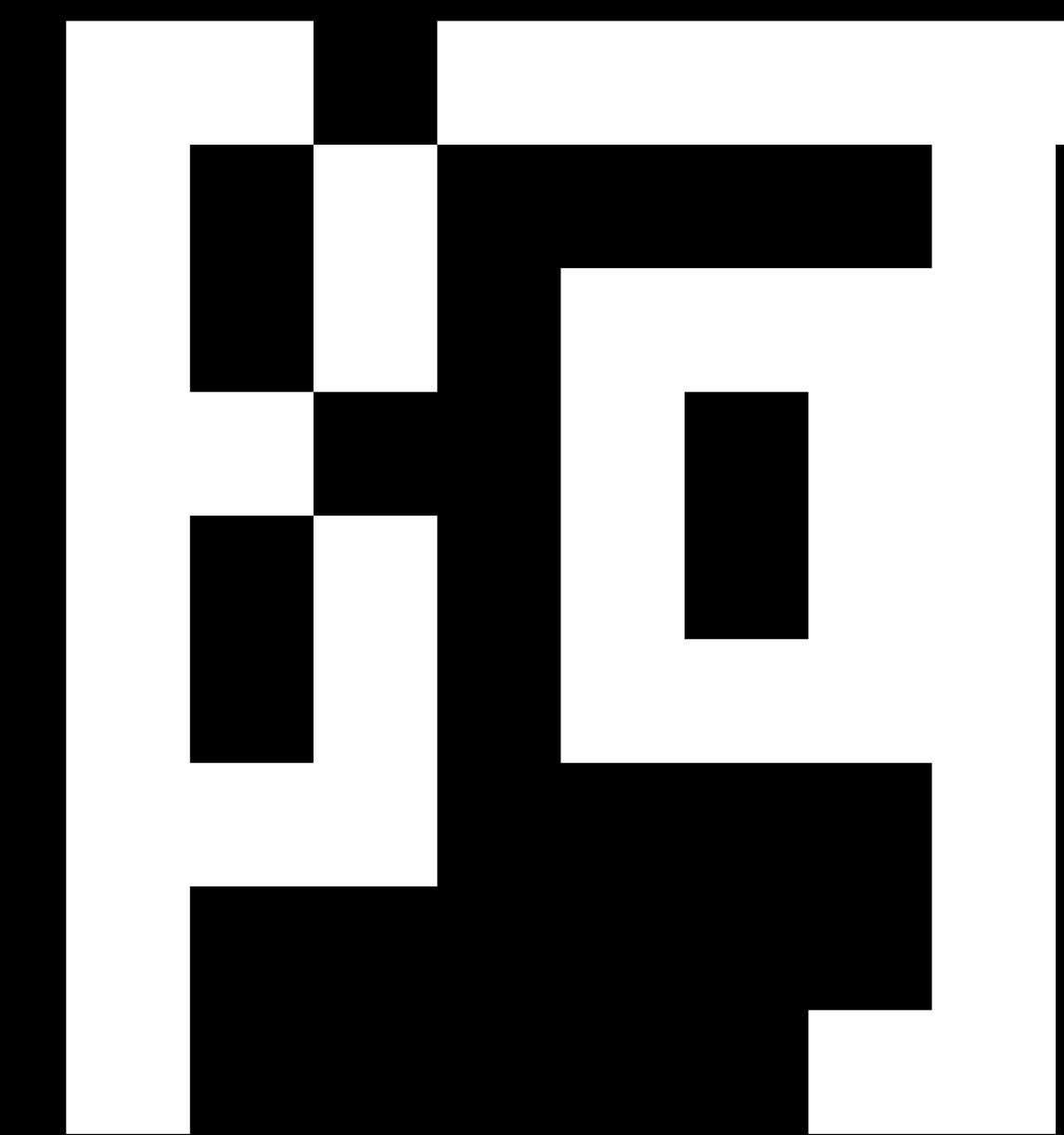


Nüshu
(Noto Sans Nushu)

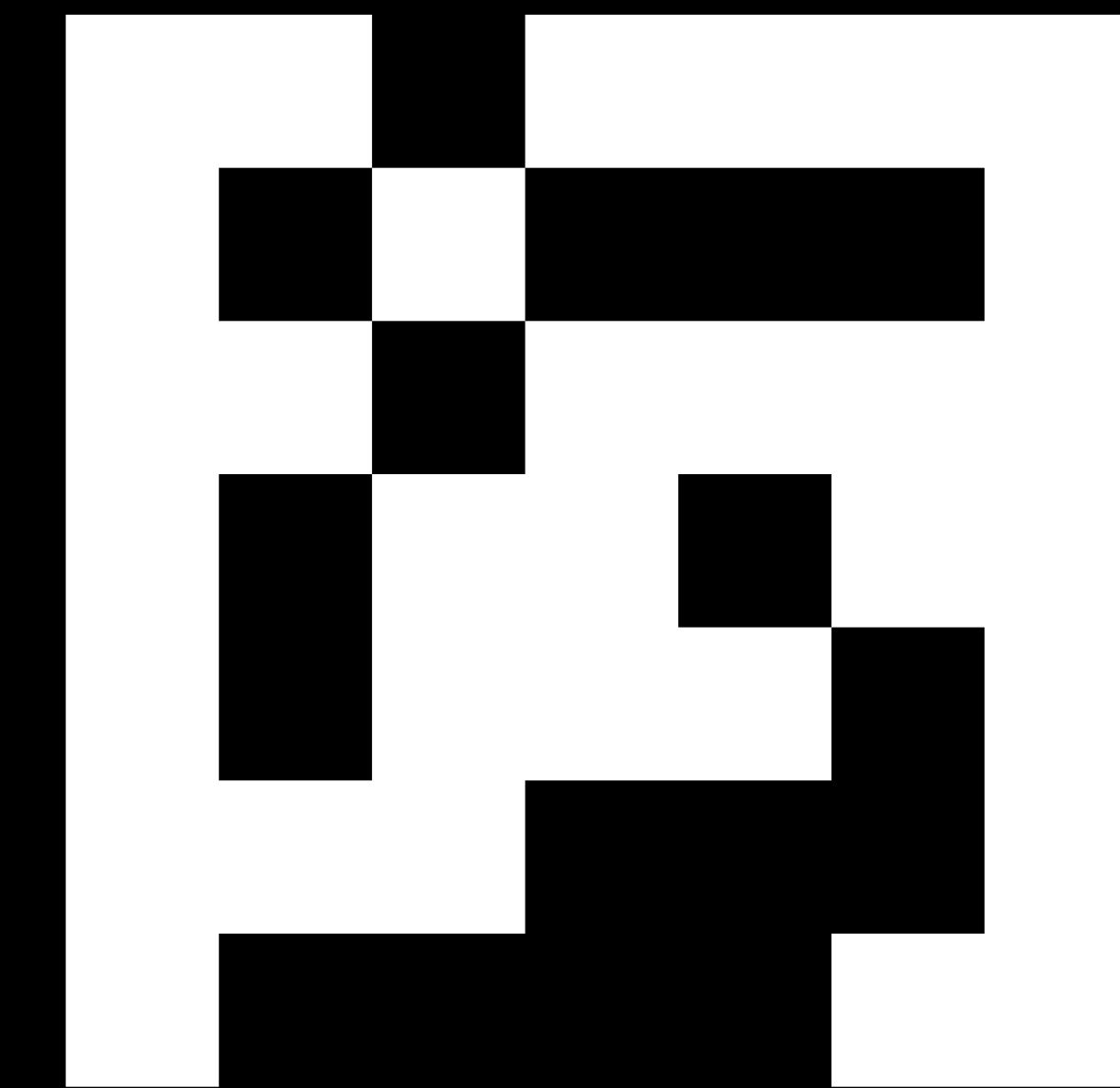
Pixel fonts



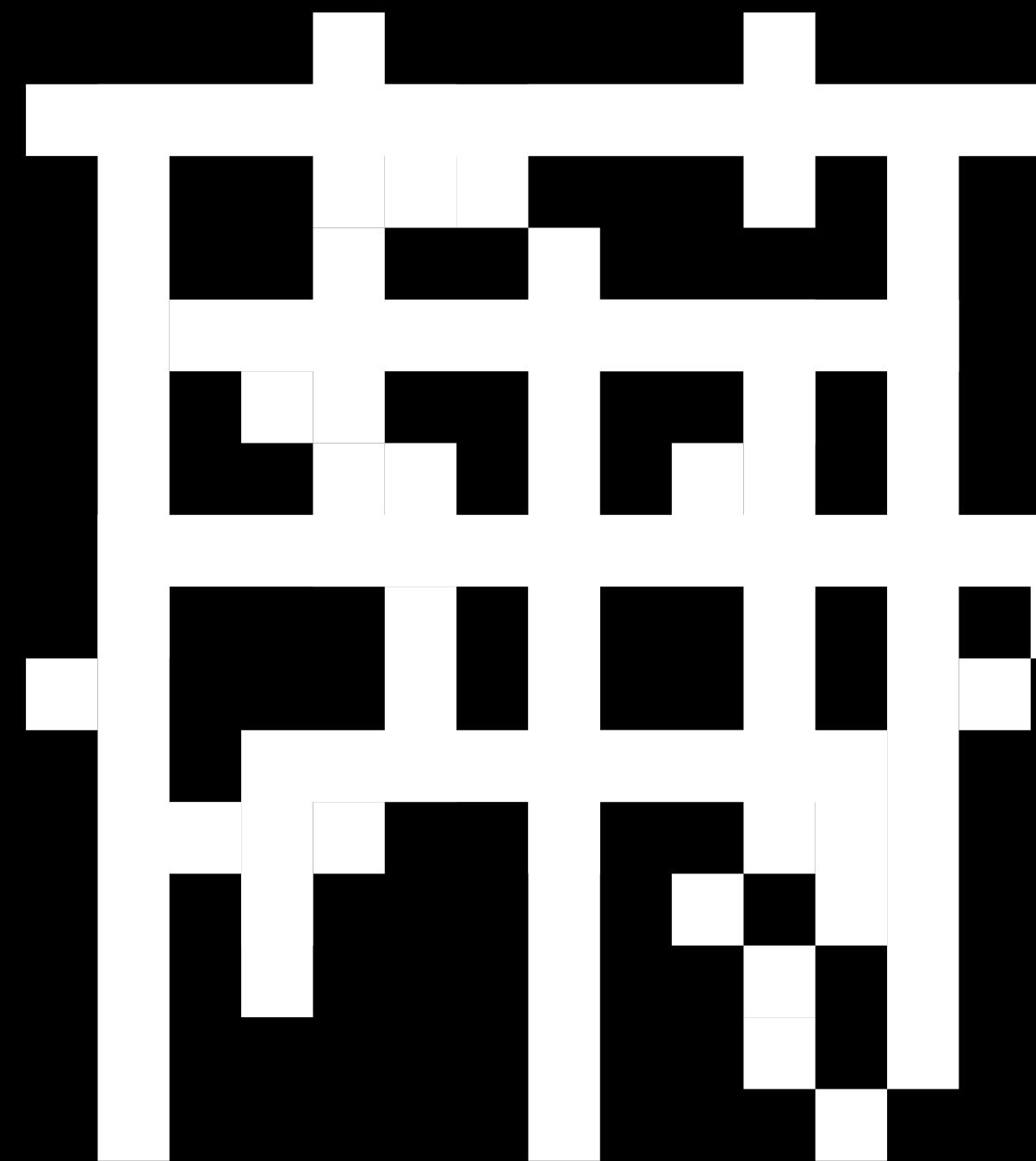
GNU Unifont



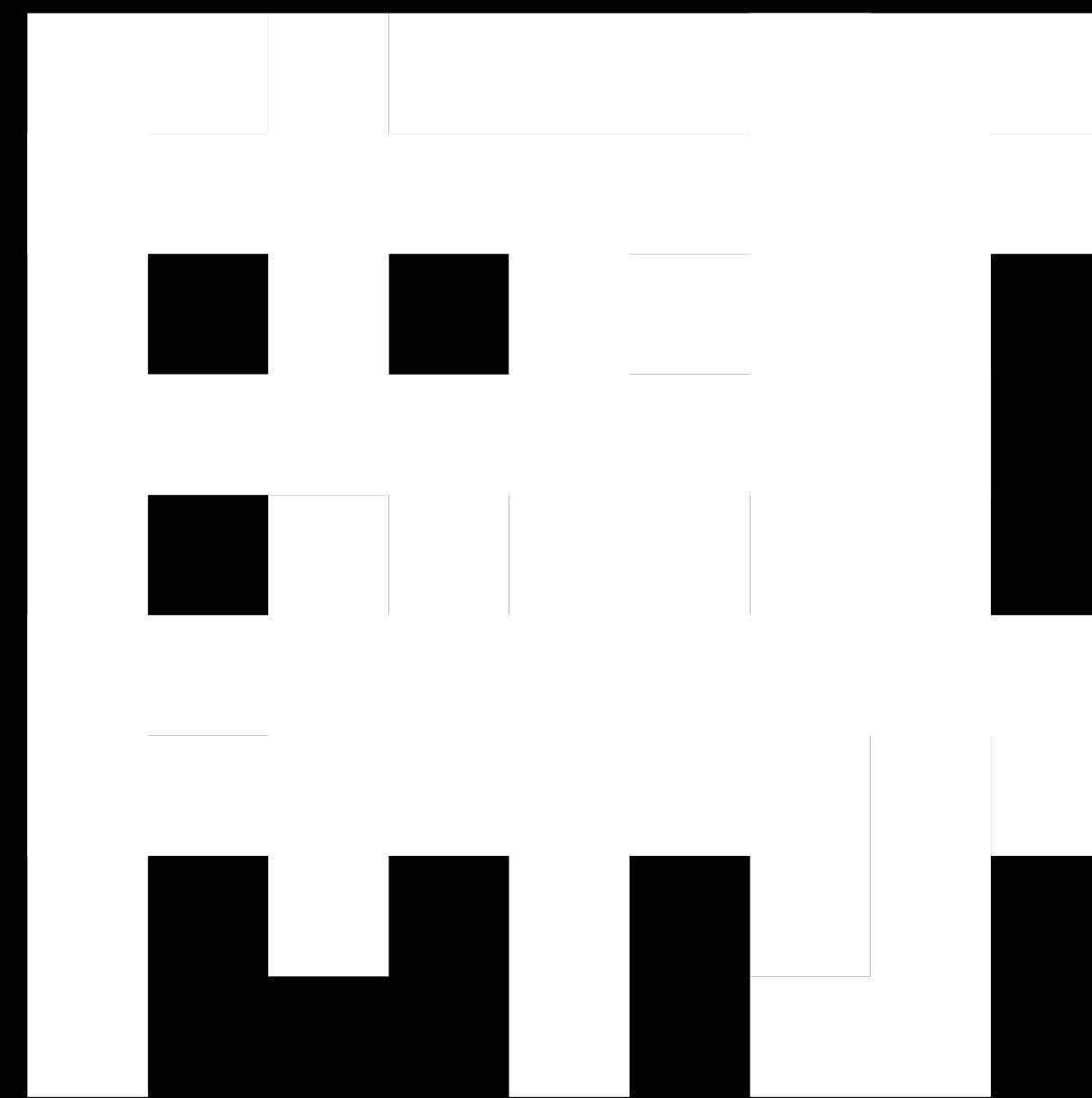
Dinkie Bitmap 9px



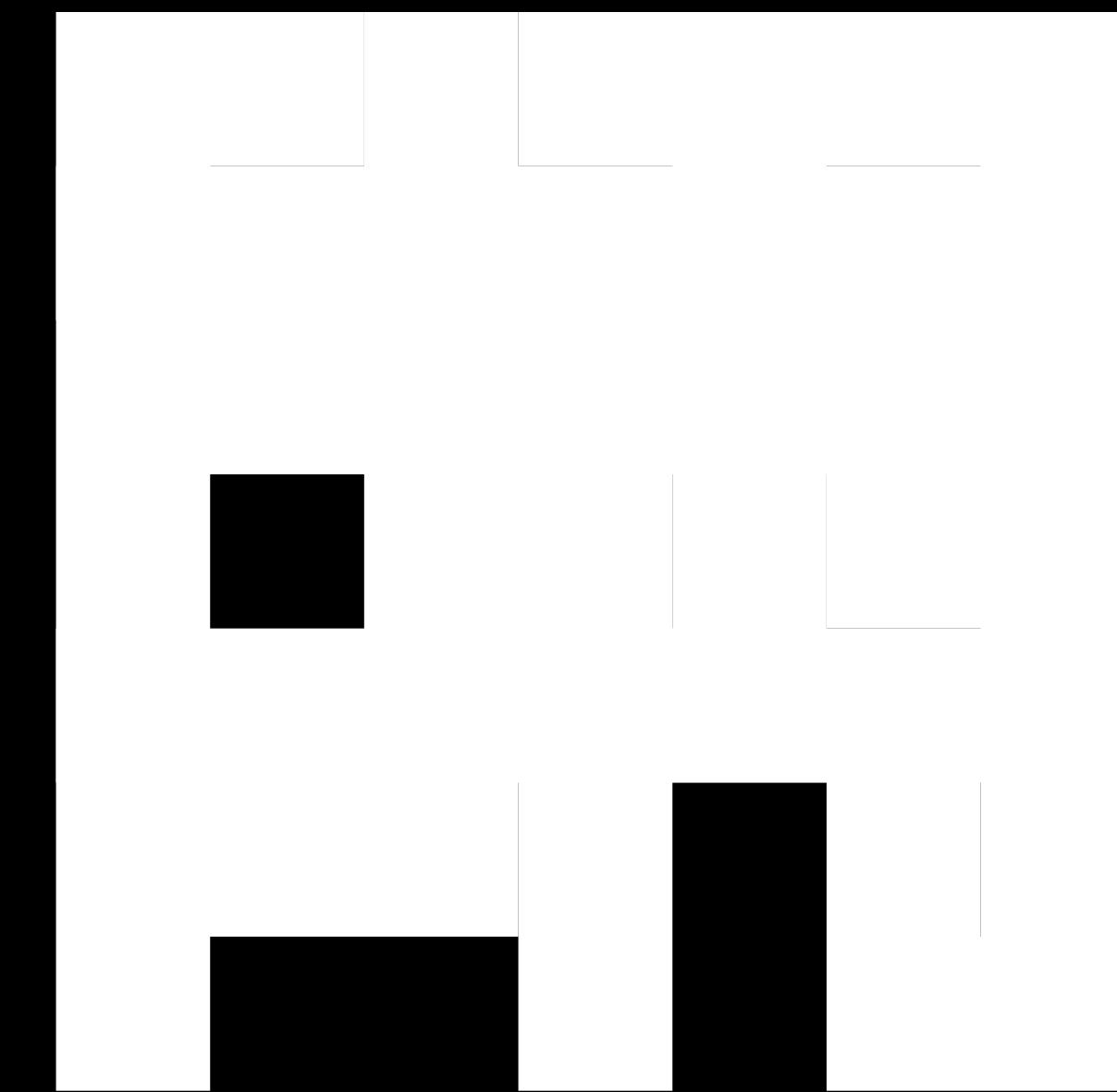
Dinkie Bitmap 7px



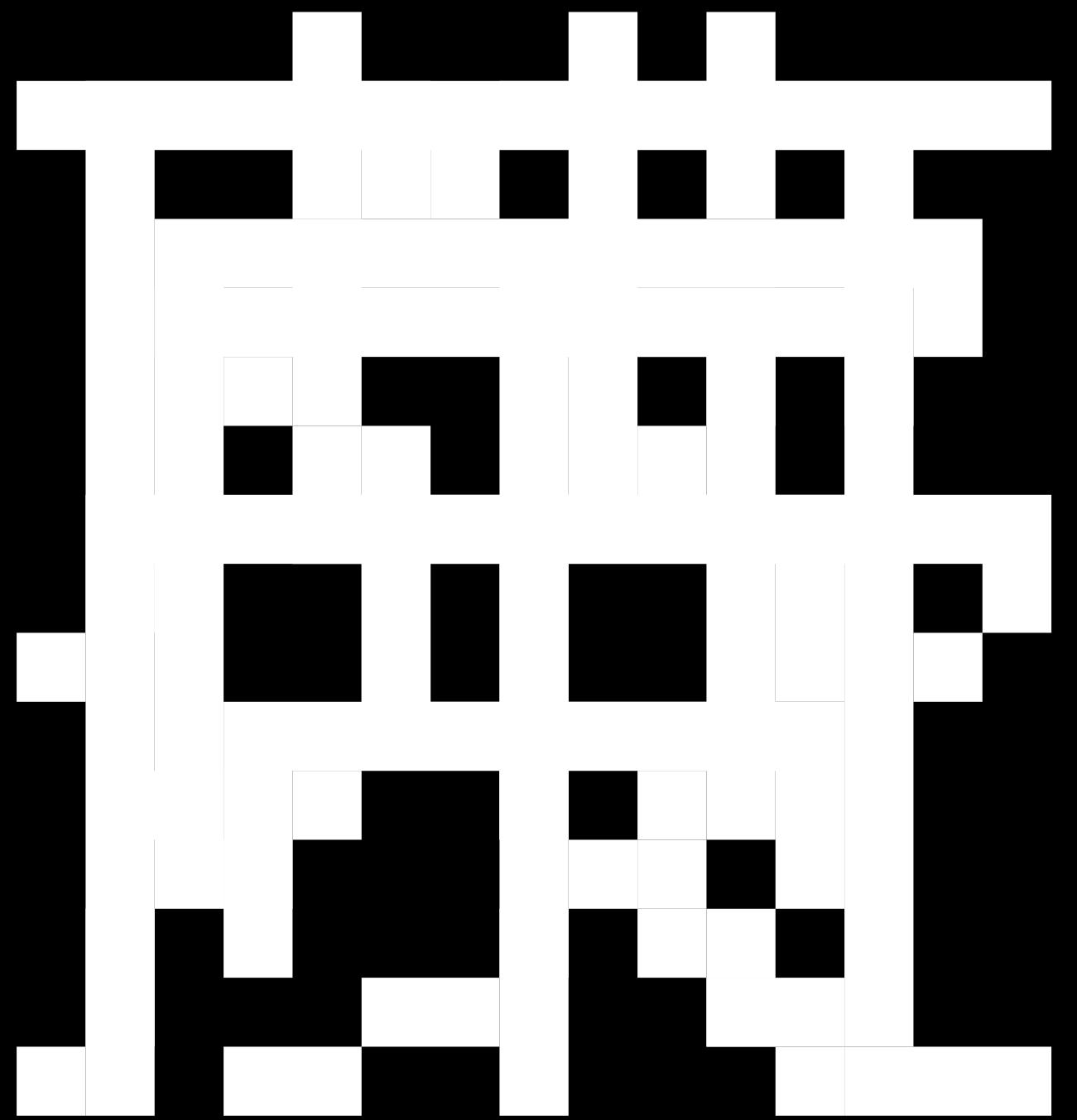
GNU Unifont



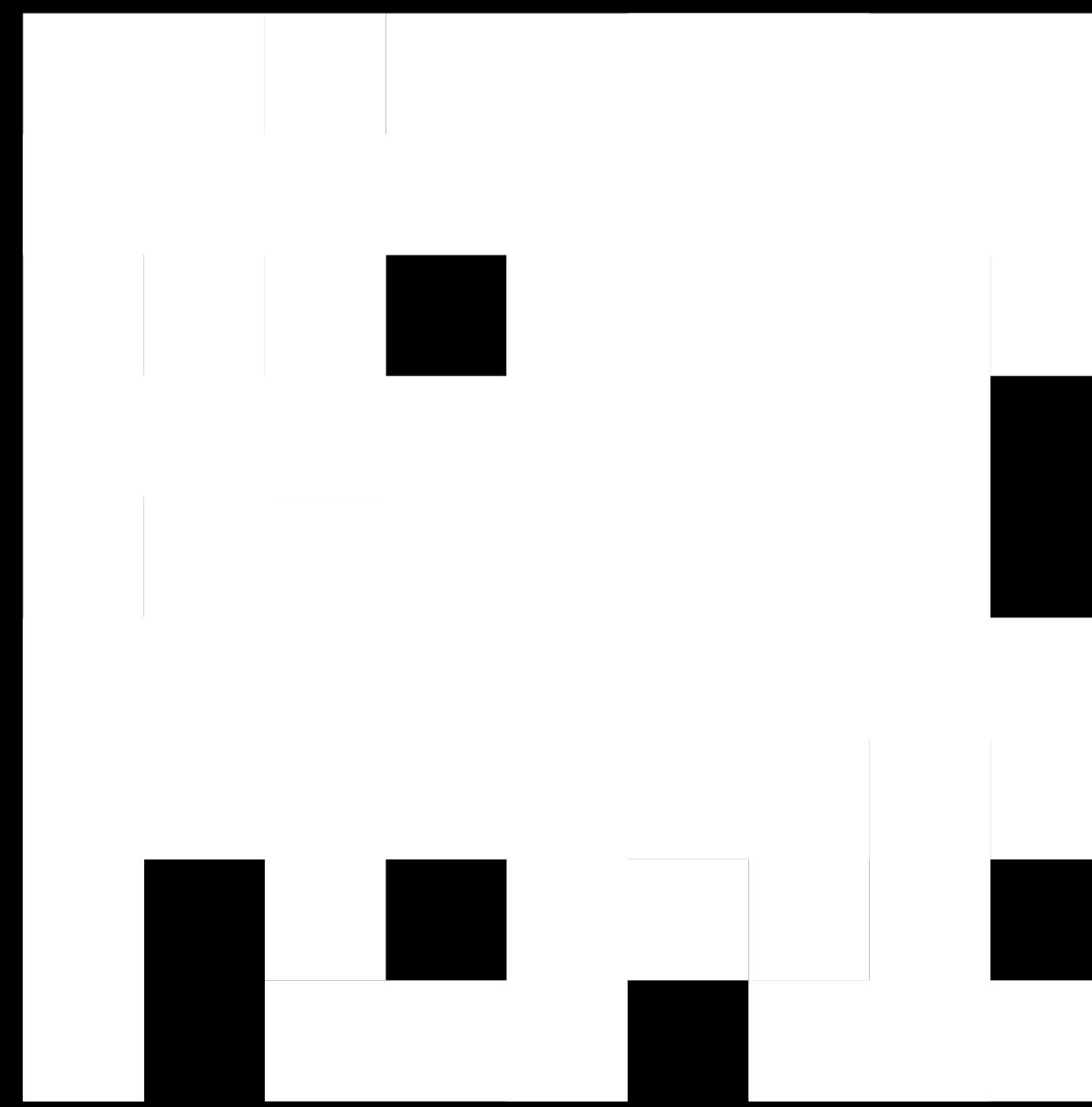
Dinkie Bitmap 9px



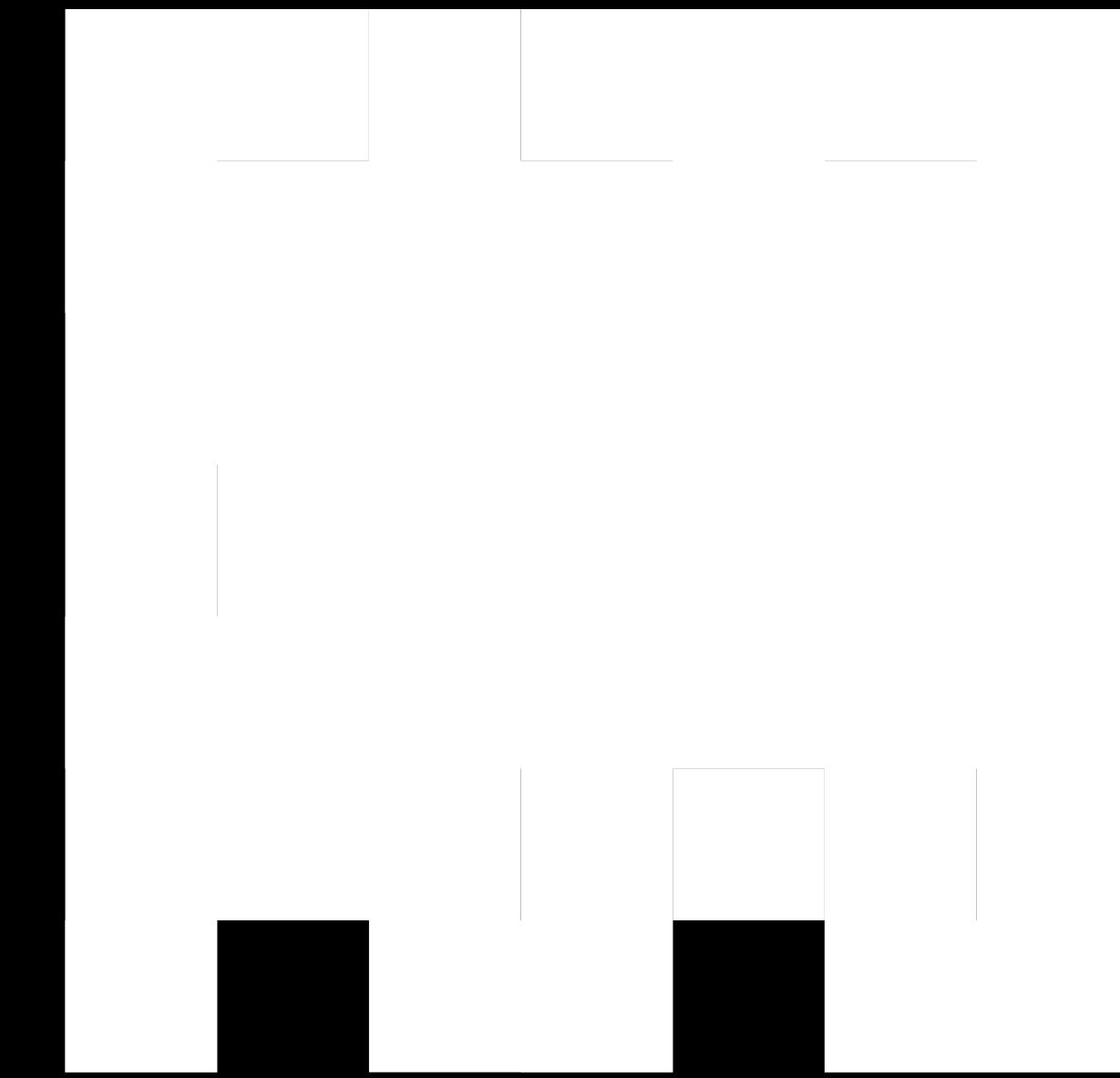
Dinkie Bitmap 7px



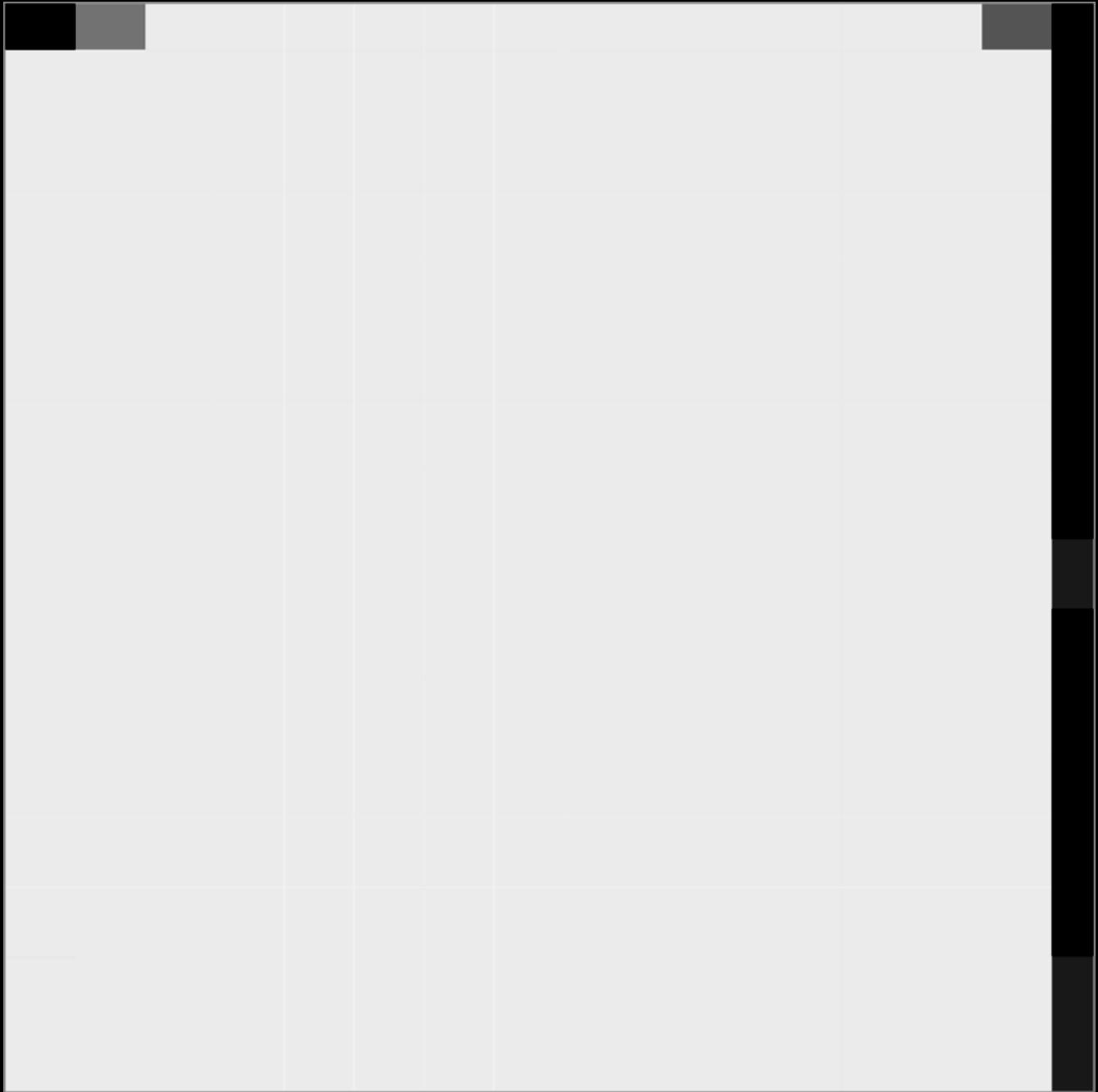
GNU Unifont



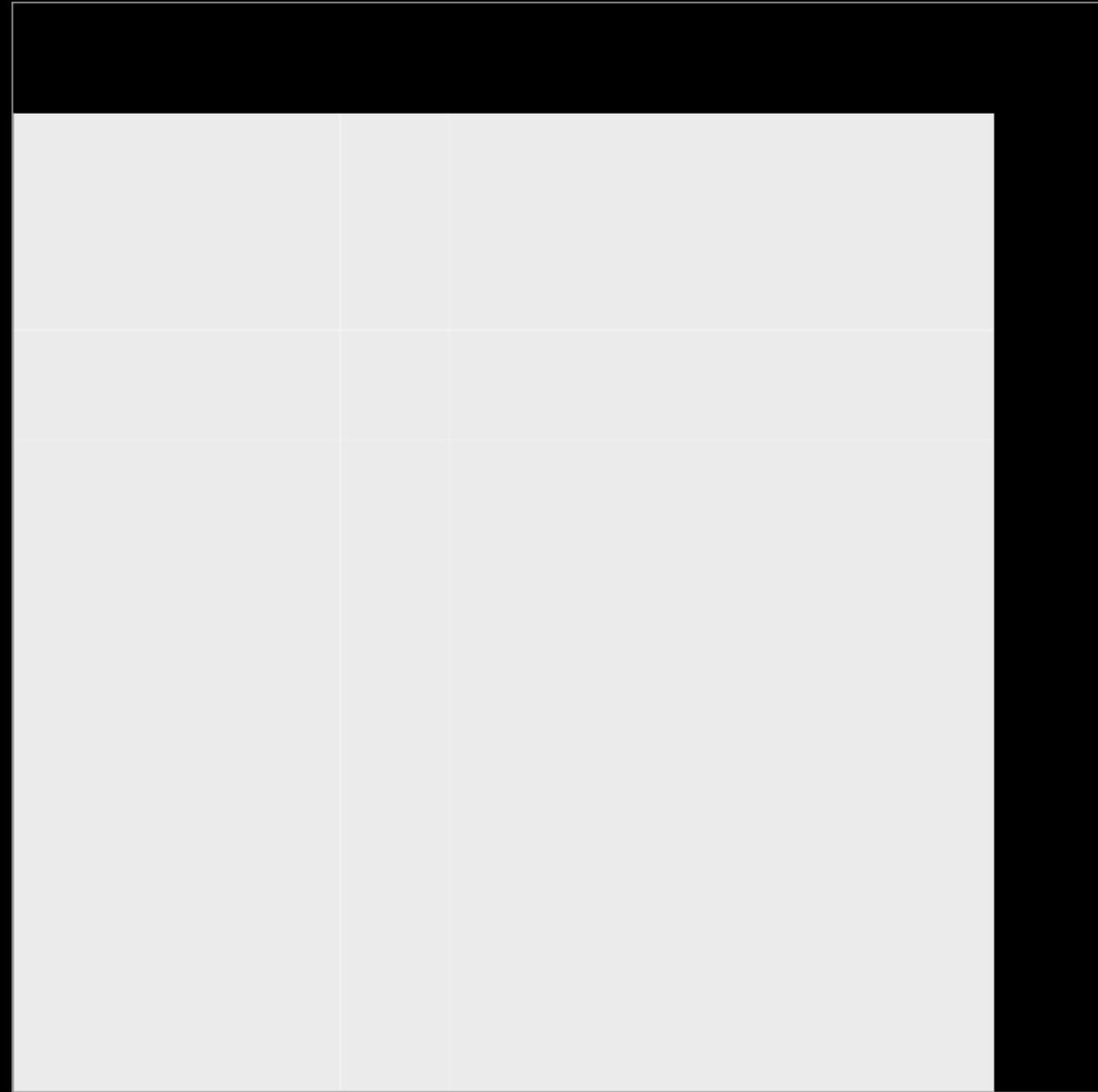
Dinkie Bitmap 9px



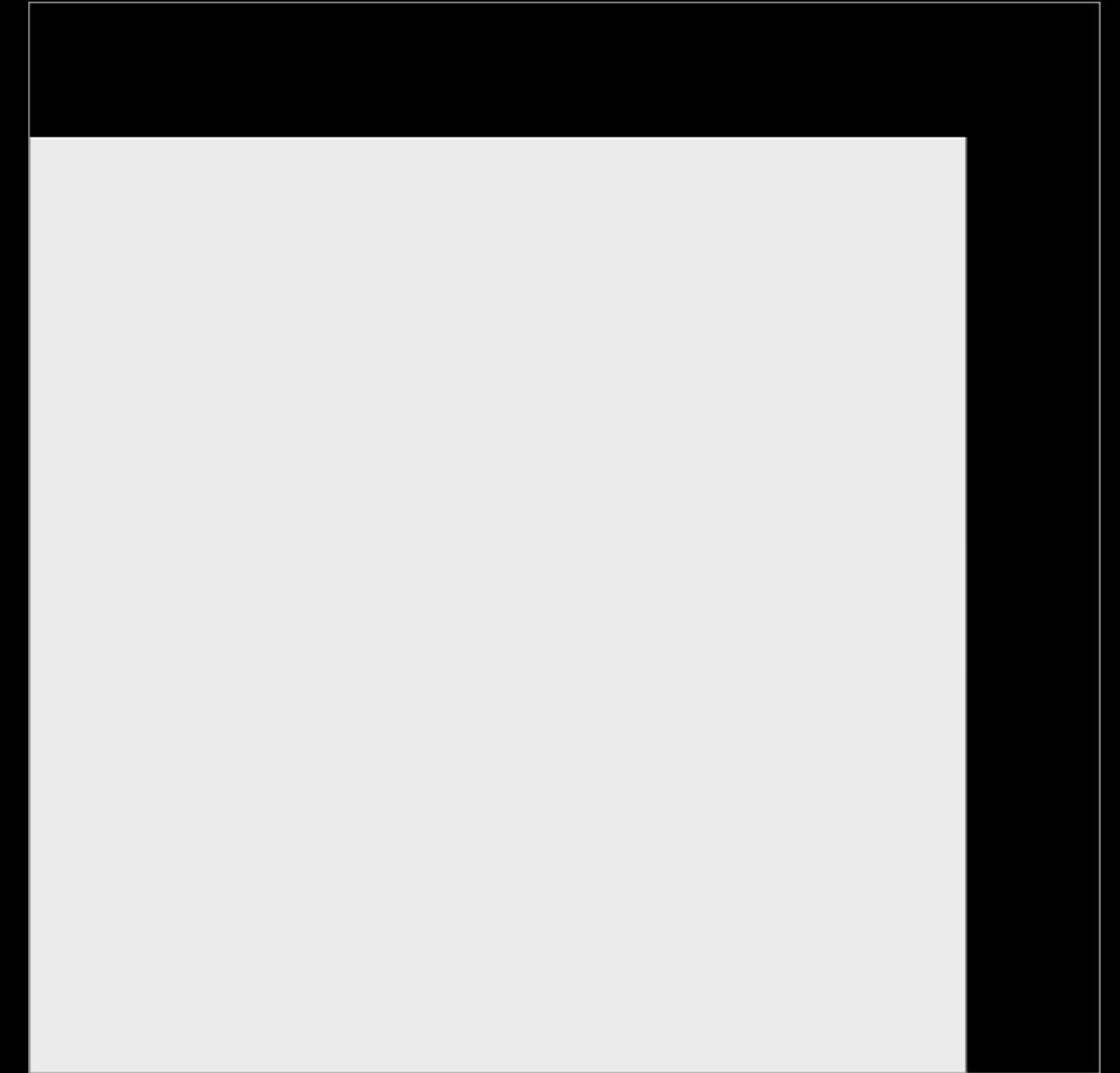
Dinkie Bitmap 7px



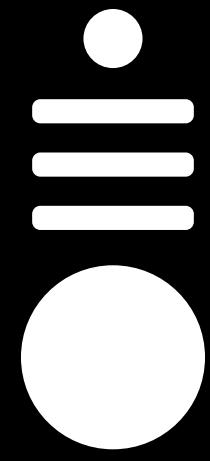
GNU Unifont



Dinkie Bitmap 9px



Dinkie Bitmap 7px



3type