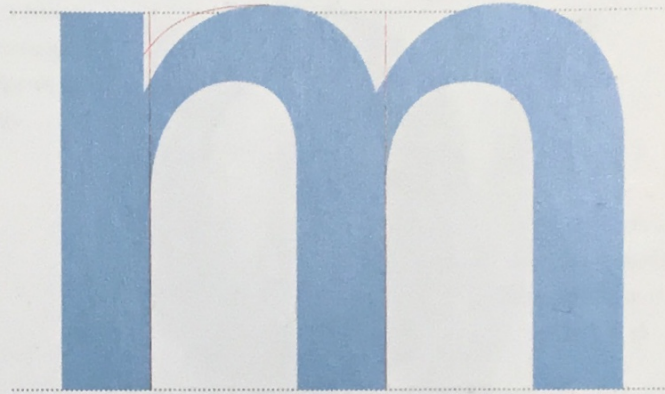
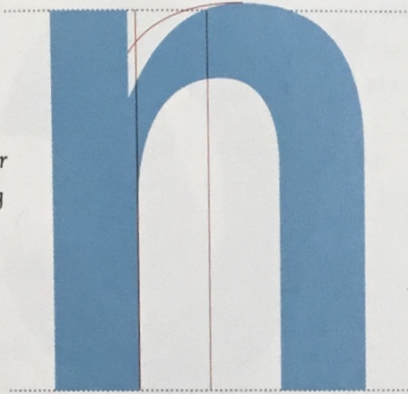


Many designers begin a typeface by drawing the lowercase n. Once the n is perfected, the u, h, and m quickly follow suit. While all four letters are similar, they usually have subtle variations in emphasis, curvature, and width.

The shoulders of the n, m, and h push to the upper right, balancing the weight of the stems and emphasizing the forward motion of reading and writing.

The rounded portions of the letters overshoot the x-height or baseline.

Considerable tapering at the join keeps this area of the letter from appearing too dark.

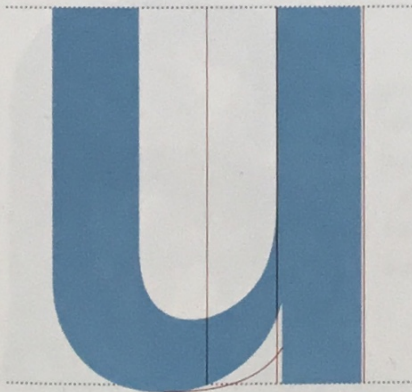


The m's counters are approximately the same shape and area as the counter of the n. In some typefaces the m's counters are slightly narrower.

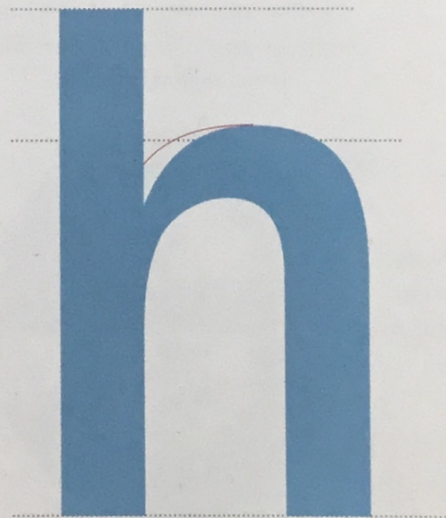
The two counter spaces of the m are optically equal in area.



The counters of the n, m, u, and h are not symmetrical.



The finish and appearance of the stems' tips—flat, angled, serifed, flared, or other—are reflected throughout the font's system.



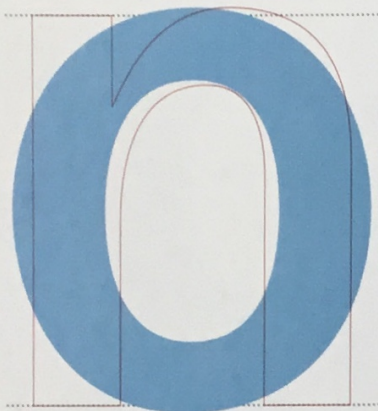
In fonts with greater stroke contrast, the right stem of the u is typically thinner than the left. In Franklin Gothic there is only a slight difference.

The length and appearance of the ascenders establish important relationships between the x-height, cap height, and ascender height.

To avoid appearing small next to square and diagonal characters, the round lowercase letters all have overshoots and slightly broader widths.

The lowercase o maintains more circular proportions in some typefaces, especially in geometric sans serifs and modern faces.

Less common is a boxy and flat-sided o, which can reduce or even eliminate the need for overshoots.

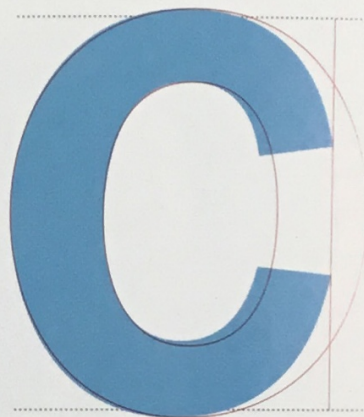


Curved strokes thin at the top and bottom and thicken at the sides.

The shape of the counter and outside curves of the o establish the rounded forms that are carried throughout the typeface's system.

The stroke emphasis of the o also determines the typeface's axis. Franklin Gothic has a vertical axis. Humanist typefaces typically have oblique stress, and the axis may vary from character to character.

The overhang of the c does not extend beyond the lower stroke.

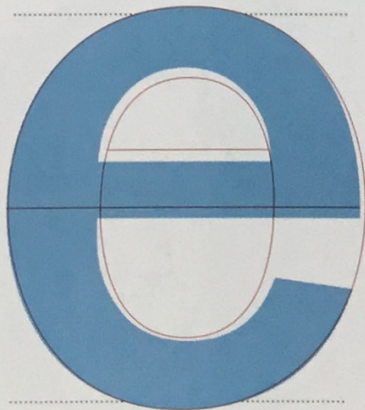


As with an aperture that is too large may exhibit uneven color; however, apertures that are too small reduce legibility.

The c is narrower than the o to compensate for its added negative space.



Significant thinning of both round and horizontal strokes keeps the e from filling in and appearing too dark.

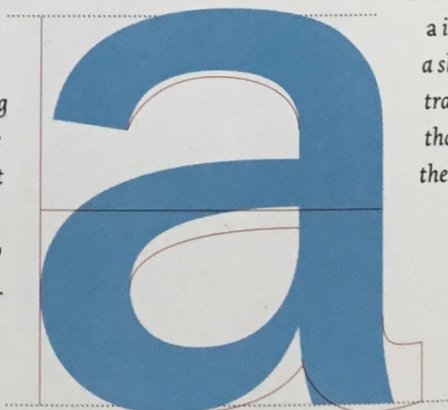


The e's crossbar is above the centerline of the letter.

In old style and transitional fonts, the eye of the e is typically asymmetrical and sometimes enclosed with a diagonal crossbar.

Significant thinning and tapering of the horizontals prevent the two-story a from appearing too dark and congested.

The top of the a is slightly narrower than its bowl, to keep the letter from seeming top-heavy and unbalanced.



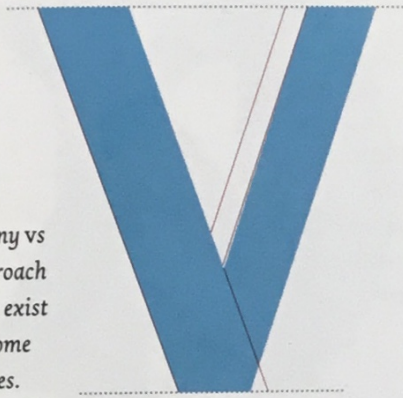
In some fonts, the a incorporates a short tail or a transitive serif that references the exit mark of the pen.

Like many twentieth-century sans serifs, Franklin Gothic's two-story a possesses a large bowl and narrow aperture. The a in humanist fonts typically has a much shorter bowl.

The single-story version of the a, frequently found in italics and geometric sans serifs, is similar in construction to the q.

Because of their angled strokes and joins, diagonal characters typically display increased stroke contrast and tapering.

The v's left diagonal is thicker than its right. This difference in stroke weight is more pronounced in faces with high contrast.



The strokes of many vs taper as they approach the join. Ink traps exist at the joins in some bolder typefaces.

The w is narrower than the m and is frequently asymmetrical.



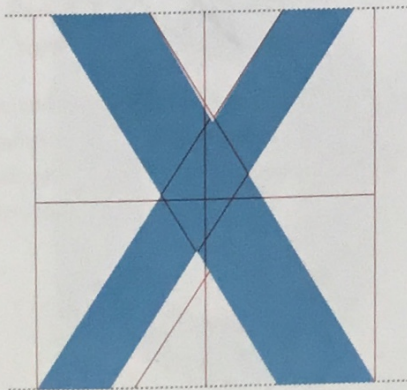
The angles of the w's two middle strokes differ from those of the outer strokes, to keep the character from becoming too wide.

Thinning and tapering, especially noticeable on the middle strokes, maintain the w's even color.

On some bold fonts, ink traps may be added to relieve heaviness at the joins.



The lowercase x gives the illusion of being a symmetrical character.

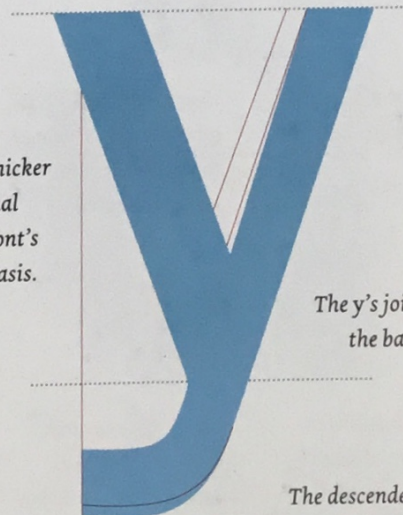


The top half of the x is slightly shorter and narrower than the bottom half, to avoid top-heaviness.

Subtle, or occasionally prominent, offsets and stroke tapering maintain the x's optical balance.

Stroke weight and emphasis follow the axis and pattern of the typeface's system.

The strokes of the y taper into the join.



The slightly thicker left diagonal reflects the font's stroke emphasis.

The y's join is above the baseline.

The descender of the y typically flares or ends in a terminal.

The z's diagonal breaks the rules of stroke emphasis and axis; in weight it is similar to strokes that follow the opposite axis, top left to bottom right. This anomaly reflects a change in the angle of translation. Without this emphasis, the z would appear too light, especially in serif fonts.

The diagonal stroke may taper slightly.



The bottom of the z is wider than its top.

The z is usually narrower than the n.

Thinning, tapering, and other optical adjustments keep the center of the k from feeling too dark.

The base of the k's leg extends beyond its upper arm, to keep the letter from appearing top-heavy.



The waist of the k is above its centerline.

The k's three counter spaces enclose relatively equal areas of negative space.

zzzzzzzzkkkkkkkkkk

ROGUES GALLERY

n

This n is too wide, and its curved top lacks an overshoot.

h

The counter of the h is symmetrical, making the letter's shoulder slump backward.

m

This m's right counter is too narrow.

c

This c's aperture and top stroke are both too wide.

e

A low, heavy crossbar and short finial make this e top-heavy and out of proportion.

a

This a has insufficient stroke thinning, and its top curve extends beyond the letter's bowl.

v

This v appears wide, and lack of stroke tapering makes its join too dark.

x

This perfectly symmetrical x lacks tapers and appears top-heavy.

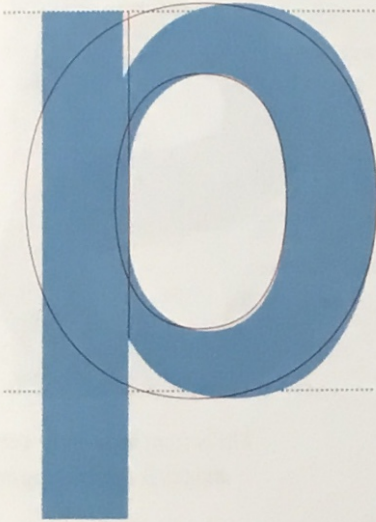
y

The strokes of this y join at the baseline, making its counter too large and its tail too short.

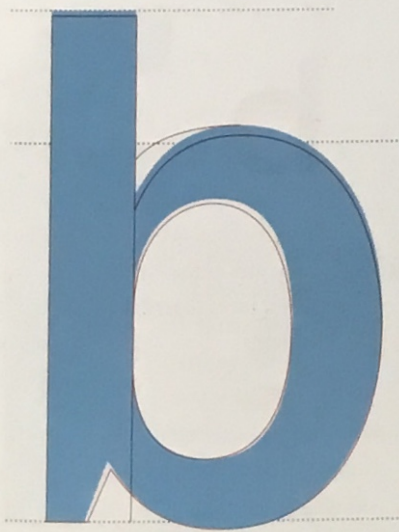
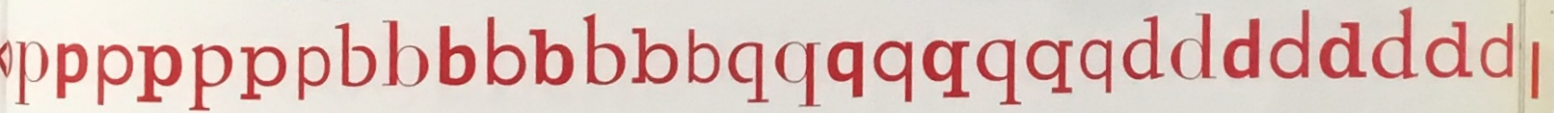
Like the n, m, u, and h, the letters p, q, b, and d are all similar in design. However, they are not merely the same letter flipped or rotated—separate adjustments in emphasis and axis occur for each letter.

Thinning and tapering at the joins prevent these areas of the letter from becoming too heavy.

The p, q, b, and d are narrower than the o, and their counters are slightly more condensed.



The top of the q's stem often ends in a spur.



Tapering maintains even color at small sizes.

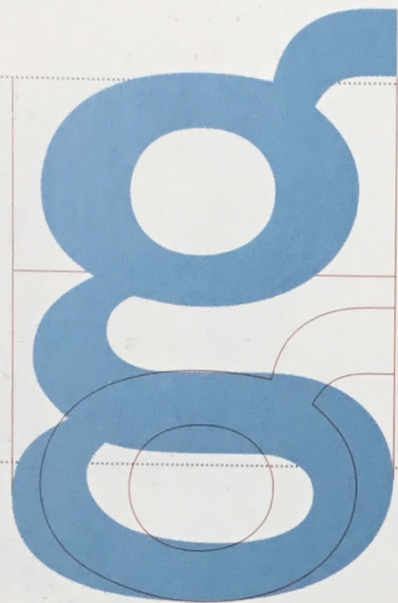
The spur that concludes the b's stem is a calligraphic legacy.

The b and d are not just upside-down qs and ps. A slight shift in emphasis and in the shapes of the counters reflects the letters' orientation and balances the ascenders.

The balance of proportions among its three counter spaces defines the g's appearance. Even though their shapes differ, the color and enclosed areas of the two bowls roughly correspond.

Like the strokes of the e and the a, those of the two-story g are thinned to maintain even color.

The single-story version of the g, more common in italics and modernist sans serifs, is easier to construct than its two-story sibling. One-story gs usually share traits with the bowl of the q.

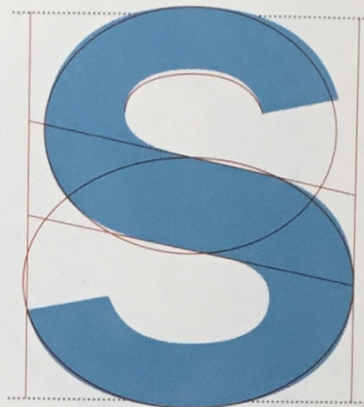


The top bowl of the g is more rounded and narrower than its lower loop.

Fonts with long descenders frequently have gs with larger loops.

The curves and angles of the lowercase s relate to (without necessarily duplicating) the slightly more condensed forms of the capital S.

Thinning of the top and bottom horizontals keeps the s from appearing too dark.



The s is not two joined semicircles. The distinct curves of the bowls join through the s's straight spine.

The bottom bowl of the s is wider and taller than the top bowl.

gggggggg sssssss

ROGUES GALLERY

z

This z lacks an adjusted stroke axis, and its base is too narrow.

k

The unbalanced counters and high join of this k create an awkward figure.

p

Lack of an overshoot makes this p's bowl feel too small.

b

This b's bowl is the same size as the o's, and it lacks tapers at its joins.

g

The bowls of this g are too similar in shape and lack sufficient stroke thinning.

j

This j's dot is too small and high, while its wide tail causes spacing problems.

r

This r is too wide, and its join is too high, causing the letter to space and color unevenly.

t

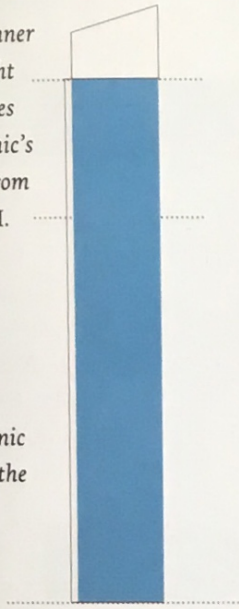
A symmetrical crossbar and extended tail make this t appear to tilt backward.

f

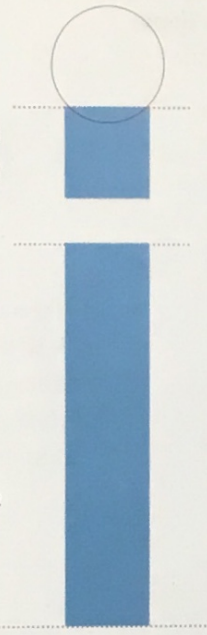
This f's crossbar extends too far leftward, while the terminal is too far right.

Many designers further differentiate the l by extending its ascender above the cap height or by adding a humanist angle to its peak.

A slightly thinner stroke weight differentiates Franklin Gothic's lowercase l from its capital I.



The dots of typefaces with large x-heights, like Franklin Gothic, are generally closer to the i's stem. Faces with short x-heights benefit from more generous space around the dot.

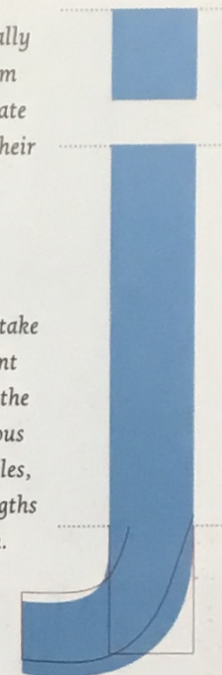


The i's stem is a shortened version of the l.

The narrow widths of the f, t, and r help reduce these asymmetrical characters' spacing problems.

Rounded dots usually overshoot the stem width to compensate for the softness of their circular form.

Type designers take many different approaches to the j's tail—various terminals, angles, curves, and lengths are common.



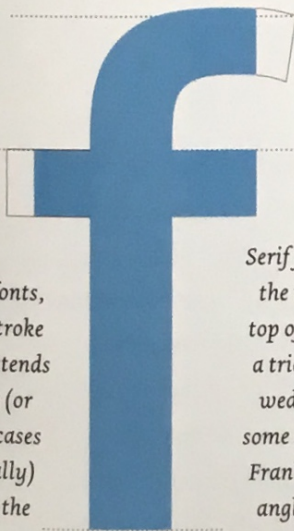
The j's curved descender distinguishes it from the similar i.

The tail of the j is often (although not always) similar to the y's descender.

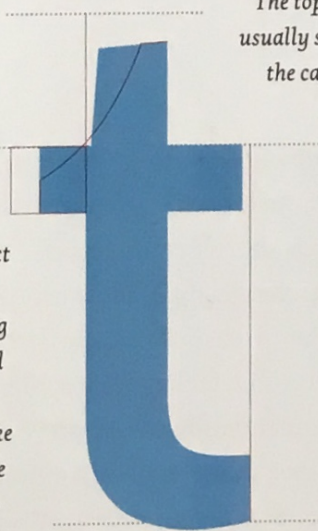
Serifed ls mimic the design of the h's stem.



In most fonts, the top stroke of the f extends slightly (or in some cases drastically) beyond the crossbar.

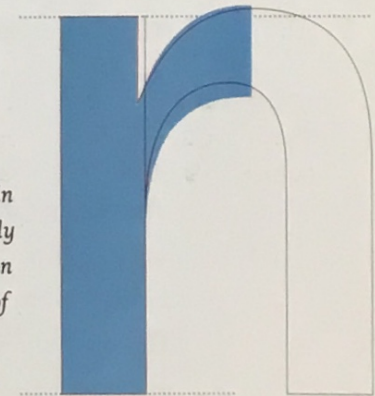


Serif faces often connect the t's crossbar to the top of its stem, forming a triangular or cupped wedge shape. Even in some sans serif fonts like Franklin Gothic, subtle angles pay homage to this calligraphic legacy.



The top of the t is usually shorter than the cap height.

The r's join is generally lower than the join of the n.



The tail of the t is slightly longer than its crossbar.

The crossbars of the f and t are disproportionately to the right of the stem, to balance the letters' negative space and emphasize their forward motion. This asymmetry is even more pronounced in serif typefaces.

In lieu of a terminal, the r's stroke flares out to add mass to the right side of the letter. In serif faces, terminals are usually held close to the stem or tucked below the stroke to reduce the character's awkward negative space.

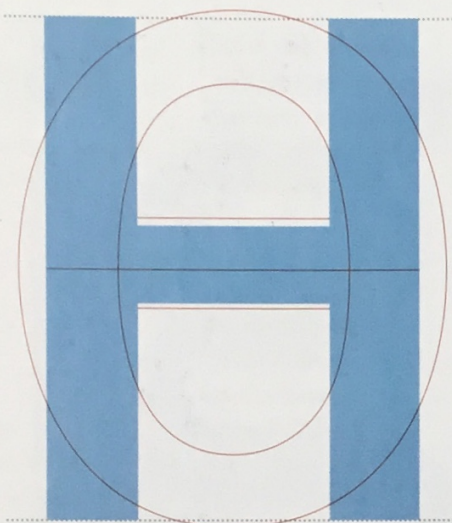
The H is narrower than the round O.

The H is a control character for the uppercase, and its attributes set the standard for all of the square capitals.

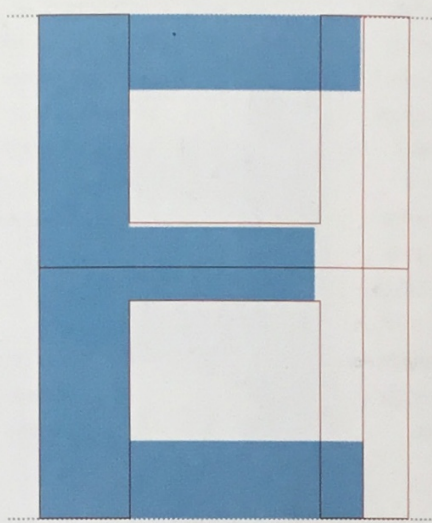
The E is narrower than the H, compensating for its open right side.

The center arm of the E is noticeably shorter and somewhat thinner than the top and bottom arms.

The H's crossbar in most typefaces is placed slightly higher than half of the cap height.



Like the crossbar of the H, the E's middle arm is slightly above the center line.



The bottom arm of the E usually extends beyond the top two arms.

Horizontal strokes are thinner than verticals. Even in typefaces with no apparent contrast, a slight emphasis on the verticals is necessary to counter the illusion that horizontal strokes are thicker than stems.

HHHHHHHEEEEEEE

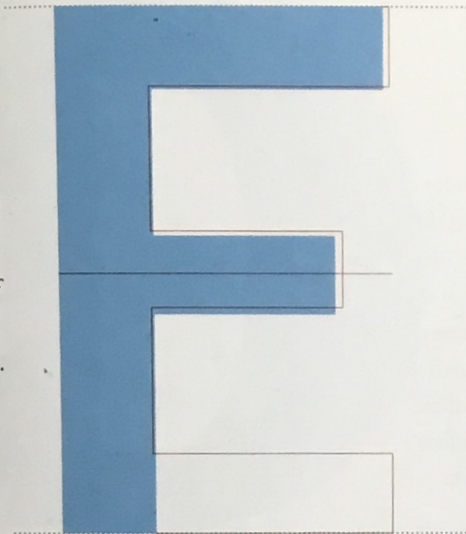
UPPERCASE

Maintaining the relationship of proportions between uppercase and lowercase usually means that a font's capitals, customarily taller than the lowercase, are also wider and occupy more space than their shorter counterparts. To compensate for this additional area and white space, the stroke weight of most capital letters is slightly heavier than that of the lowercase. Uppercase characters with the same stroke thickness as their lowercase counterparts often feel light by comparison. Type designers typically condense the uppercase characters slightly, to prevent the capitals from dominating the smaller lowercase alphabet and to maintain more consistent widths throughout the font. The lowercase ascenders do not necessarily define the cap height—the uppercase of many fonts is shorter than the height of the ascenders.

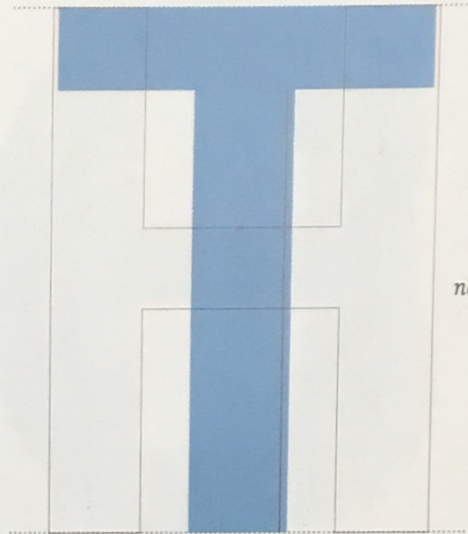
A narrow width and slightly heavier stroke weight help offset the F's irregular shape.

Serif typefaces often reduce the awkward spacing of the E, F, T, and L with enlarged and heavy serifs that fill some of the space within each character.

The center arm of the F is slightly lower than that of the E, to balance the negative space.



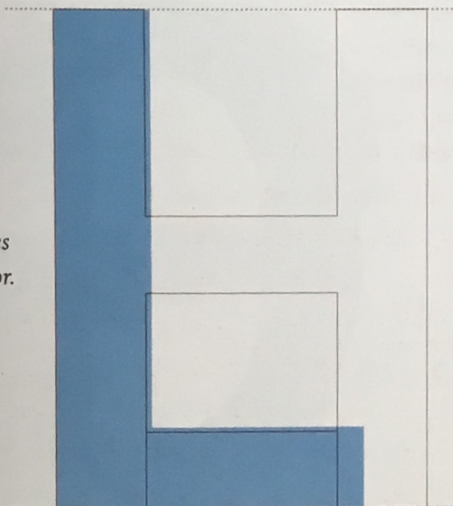
The T is narrower than the H.



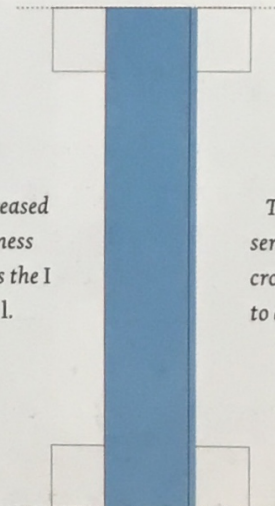
The stroke weight of the stem is increased to balance the T's overall lightness.

FFFFF FTTT LLLLL IIIII

A thicker stroke weight compensates for the L's light color.



Slightly increased stem thickness differentiates the I from the l.



The I in some sans serif fonts has a short crossbar or slab serifs to distinguish it from the lowercase l.

The L is a problematic character for type designers because of its large, asymmetrical open space. Making the L significantly narrower improves (but does not eliminate) spacing issues.

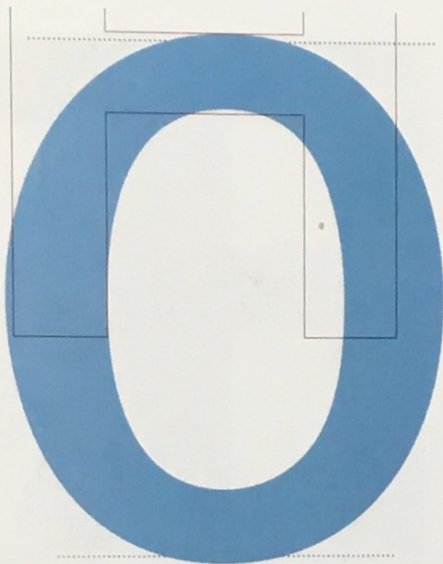
In serif fonts the I's serifs mimic the top of the L and bottom of the T.

O is the second uppercase control character. The curvature and width of the O influence the design of other round capitals.

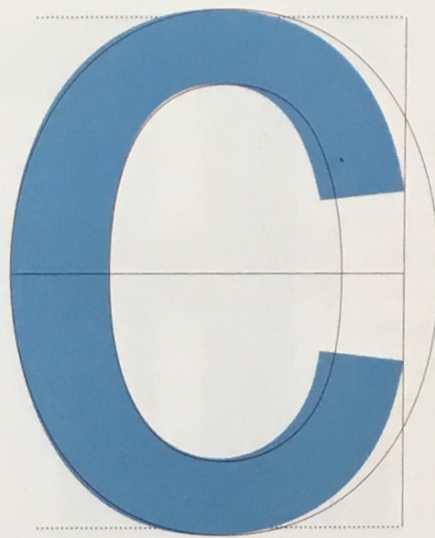
Like other rounded characters, the O, C, Q, and G overshoot the cap height and baseline.

The overhang or terminal of the C does not extend beyond the lower stroke.

As a rounded character, the O is wider than the H, especially in faces with a circular, geometric O.



The counter shape and the axis of stroke emphasis of the O, like those of the o, are critical manifestations of the typeface's system.

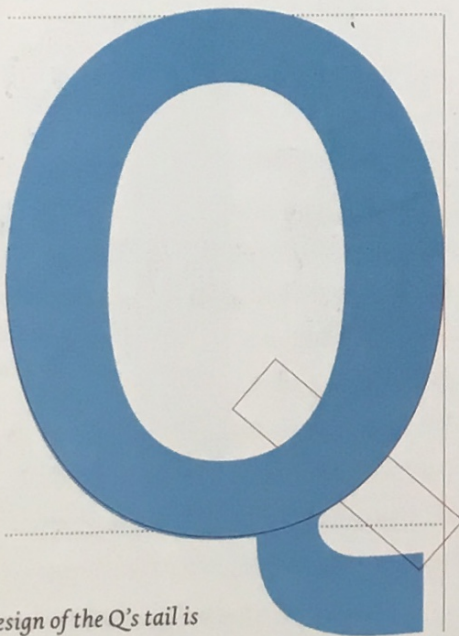


The O possesses a rounded, modulated stroke. At its heaviest, the O's stroke is wider than the stem of the H, while at its narrowest, the stroke is thinner than the H's crossbar.

Like its lowercase counterpart, the C is narrower than the O.



The bowl of the Q is typically similar to that of the O, although not always identical.



The style and design of the Q's tail is often a distinctive feature of a typeface. Designers approach the tail in a variety of ways, especially in serif fonts. Unlike Franklin Gothic, many other transitional sans serifs have a straight stroke that extends into the bowl.

Some Gs replace the crossbar with short serifs or even do without any horizontal element.



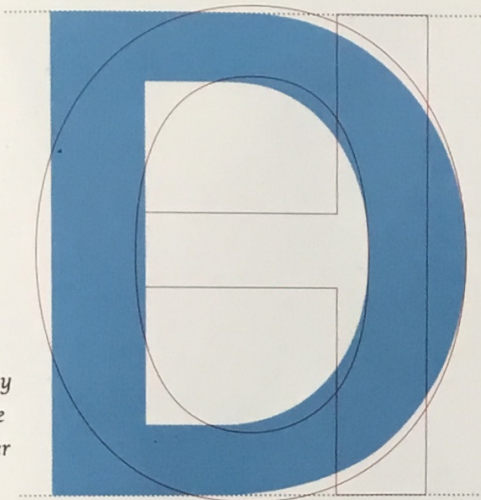
The G is wider than the C.

The crossbar or serif height falls below the letter's centerline.

To maintain legibility and color, the G's crossbar is thinned and does not extend past the middle of the letter.

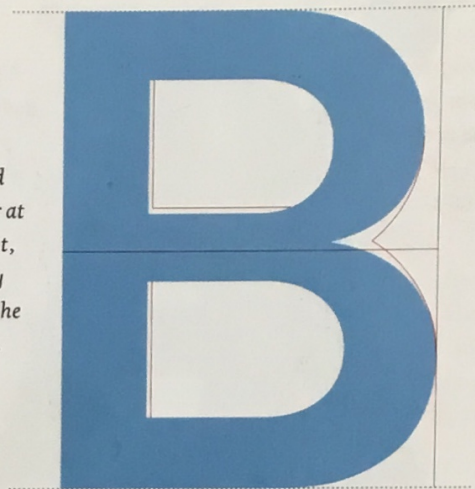
Some Gs have a spur at their lower right corner.

Although D and O are similar, the D's curve and counter shape differ from those of the O.



The D is usually wider than the H but narrower than the O.

Stroke thinning keeps the B's interior from becoming too dark.

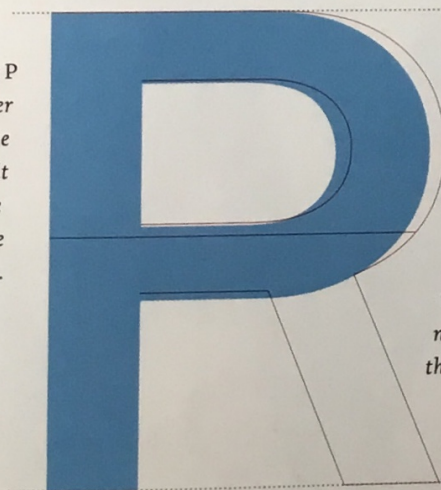


The curved strokes taper at the B's waist, where they meet above the centerline.

The lower bowl of the B is slightly wider and taller than the top bowl, placing the letter's crossbar above the centerline.

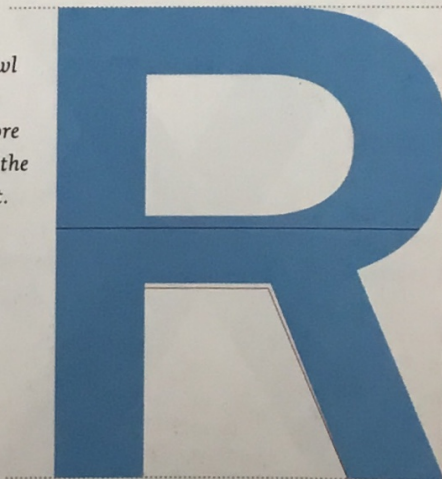
DDDDDDDBBBBBBBBBPPPPPPRRRRRRRR

The bowl of the P is usually larger than that of the R or B so that it occupies more of the negative space below it.



The P is narrower than the R.

The R's bowl occupies slightly more than half of the cap height.



The crossbar of the R thins to maintain even color.

On some old style and transitional typefaces, the bottom of the P's bowl does not connect to the stem.

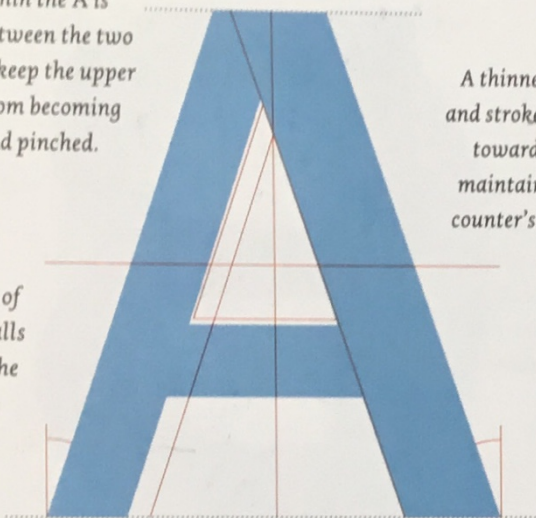
The R's leg tapers into the bowl. The location of this join varies from font to font, but it is rarely at the intersection of the stem.

In most fonts, the R's leg extends past the letter's bowl. Franklin Gothic's compact R is an exception to this custom.

The right diagonal is slightly thicker than the left diagonal. This difference is more pronounced in typefaces with greater contrast.

The amount of negative space within the A is balanced between the two counters to keep the upper counter from becoming tight and pinched.

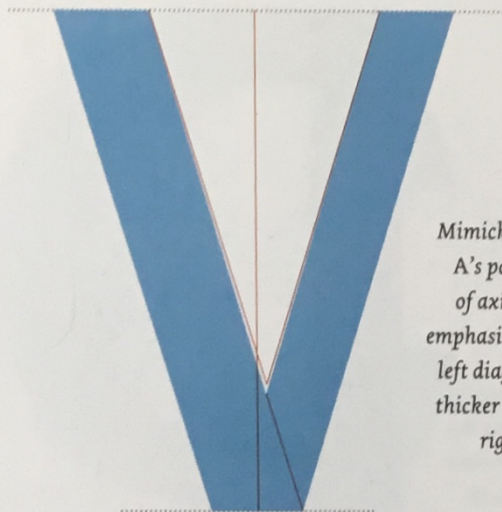
The crossbar of a typical A falls well below the centerline.



A thinned crossbar and strokes that taper toward the apex maintain the upper counter's open space.

The A's outer angles are similar, to maintain a sense of symmetry and to approximate the angles of the V.

The V is slightly narrower than the A.



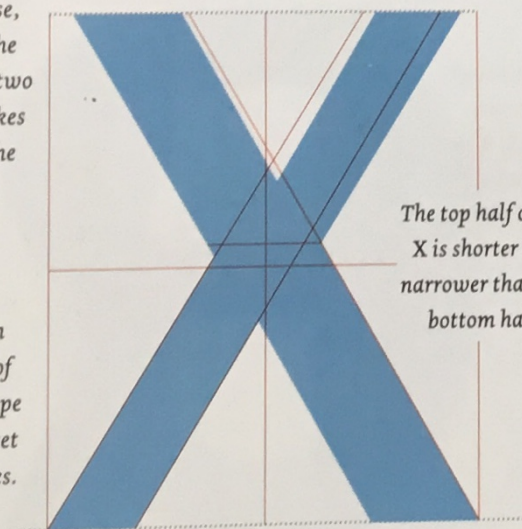
Mimicking the A's pattern of axis and emphasis, the V's left diagonal is thicker than its right.

The V's strokes taper as they approach the join. Bolder weights often employ ink traps where the strokes meet.



Although this is rarely the case, the X gives the impression of two diagonal strokes crossing in the center.

To maintain the illusion of symmetry, type designers offset the X's strokes.

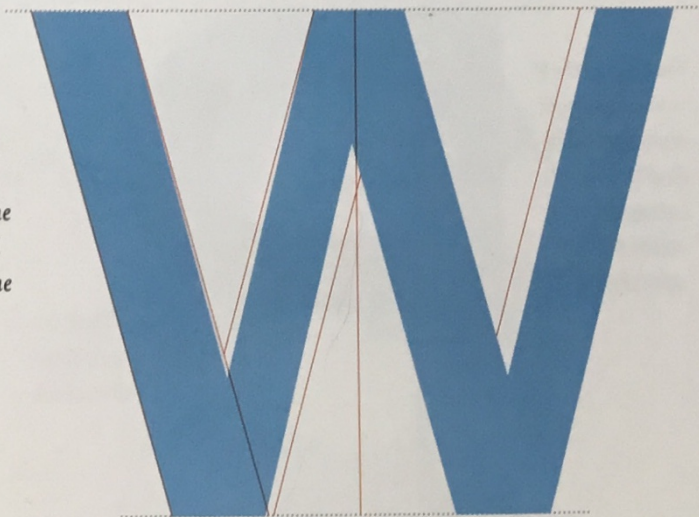


The top half of the X is shorter and narrower than the bottom half.

As stroke contrast between the two diagonals increases, greater offsetting is necessary.

Stroke tapering keeps the center of the character from becoming too heavy.

Unlike the lowercase w and m, the capital W is often wider than the M.



Prominent thinning and tapering, especially on the inner strokes, keep the W's color consistent.

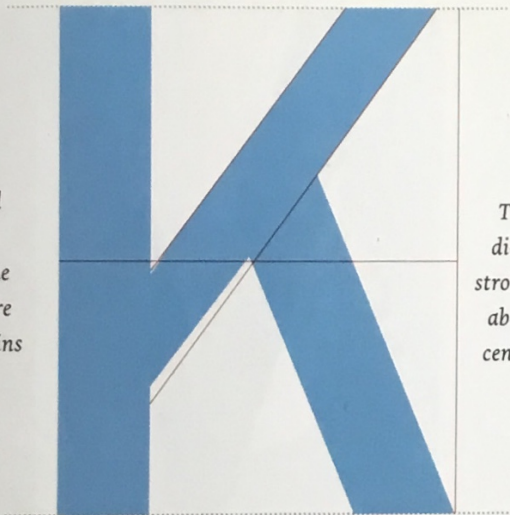
The two inner diagonals may be drawn at different angles from the outer strokes.

Some designers add ink traps to relieve heaviness at the W's joins.

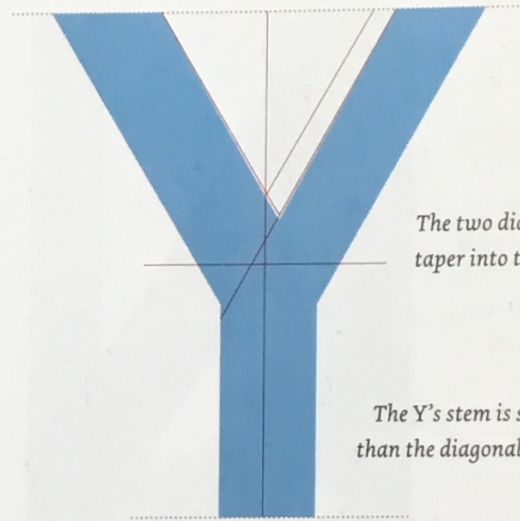
The K's three counter spaces are made relatively equal in area, to maintain visual balance.

Like other diagonal characters, the Y has a left diagonal that is slightly heavier than its right one, maintaining proper stroke emphasis.

Significant thinning and a subtle ink trap reduce the darkness where the diagonal joins the stem.



The K's diagonal strokes meet above the centerline.



The two diagonals taper into the join.

The Y's stem is shorter than the diagonal strokes.

The leg of the K extends farther than its arm and is noticeably heavier.

KKKKKKKKKKYYYYYYYY

ROGUES GALLERY

H

This wide H has a too-heavy crossbar.

E

This symmetrical E has arms of equal length, making it look awkward.

F

The lower arm of the F is too high and wide.

T

This T's stem is light, and its crossbar is too wide.

L

This L's broadness accentuates its uneven negative space.

G

This G's crossbar is wide and placed too high; its top curve extends past its base.

C

This C is too wide, and the top stroke hangs beyond its base.

B

This symmetrical B has bowls of equal size, giving it a top-heavy look.

P

This P's bowl is too high and pinched.

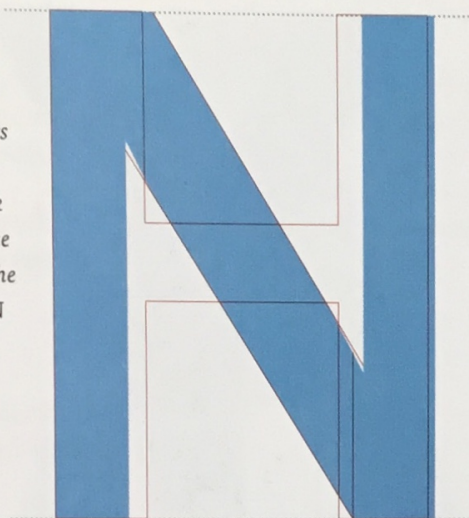
R

The long leg and small bowl of this R distribute the negative space unevenly while darkening the join.

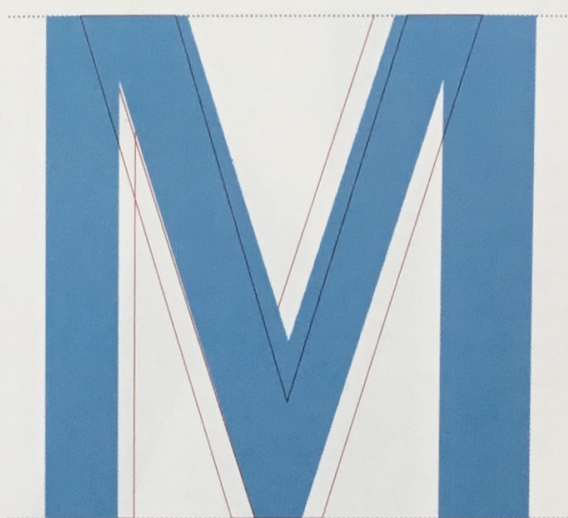
Because of their diagonal strokes and thick joins, the N and M present challenges to creating characters of a consistent stroke weight.

The M's diagonals meet at a similar angle to those of the V, but with subtle attenuation of the strokes.

Type designers frequently introduce ink traps to reduce heaviness at the joins of the N and M.



The N's diagonal stroke is heavier than its thinned verticals.



The stems of the N and M are often narrower than their apices, to allow increased negative space within these letters.

Like the N's stems, those of the M are significantly thinned—in some fonts the stems also taper into the joins.

The vertex of the M is narrow, and even pointed in some typefaces.



ROGUES GALLERY



Diagonals of equal length and lack of tapering make this K dark and top-heavy.



Overextended serifs cause spacing problems.



Inverted emphasis makes this A appear backward, while a too-high crossbar pinches its upper counter.



This Y's stem is too tall, and its stroke emphasis is backward.



Four similar diagonals increase the W's width and create dark areas at the joins.



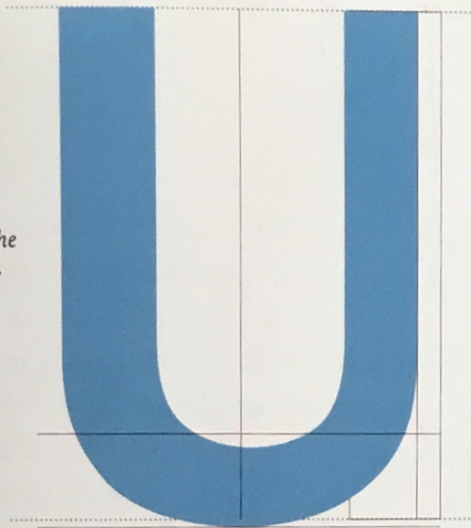
The Z's top is narrower than its base.

Like the lowercase z's diagonal, the capital Z's does not conform to the rules of stroke emphasis and axis visible in other diagonal characters. The Z's diagonal is similar in stroke weight to the right diagonal of the A, referencing a change in axis of the broad-nibbed pen. This adjustment maintains the Z's color.

In typefaces with high stroke contrast, the right stem of the U is thinner than the left. In Franklin Gothic there is only moderate differentiation.

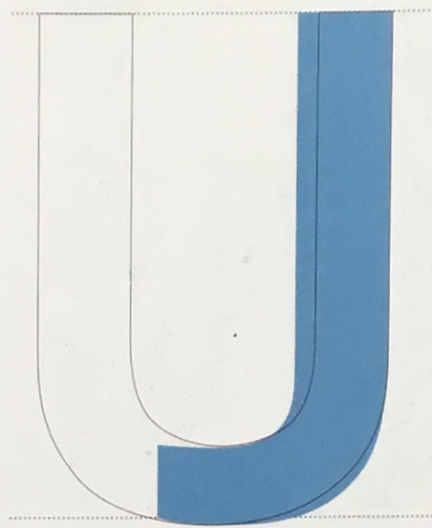
The J is one of the narrowest capital letters. As its tail gets wider and more hooked, the J's left side become less balanced and more difficult to space.

To reduce its large counter, the U is narrower than the H.



Like other characters, the U's stroke weight lightens in the horizontal portions of the stroke.

The lowercase j and y and the capital S's lower bowl provide models for the J's tail.

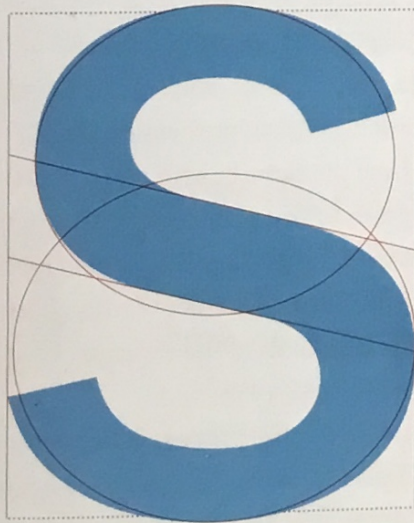


On serif faces, the tail often ends with a terminal or flare.

The tails of humanist Js sometimes descend below the baseline.



The design of the uppercase S is similar to that of the lowercase.



Stroke thinning is applied to the top and bottom bowls but less drastically than on the lowercase form.

Like its lowercase counterpart, the S is not two joined semicircles. Its straight spine connects the distinct curves of the two bowls.

The bottom bowl of the S is wider and taller than the top bowl, preserving the letter's stability.

ROGUES GALLERY



Lack of thinning and of ink traps causes the N to become too dark.



This Z lacks an adjusted stroke axis, and its base is too narrow.



Reversed stroke emphasis on this too-wide U makes it seem backward.



This J's wide hook creates spacing problems.



This symmetrical S with a horizontal spine appears top-heavy and disjointed.