Syntax **Anatomy of Letterform**

a

Typography
Demonstrations
Fall 2011

http://www.papress.com/other/thinkingwithtype/letter/anatomy.htm

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University of San Francisco

CAP HEIGHT

X-HEIGHT

BASELINE

Fancy

STEM BOWL SERIF DESCENDER

LIGATURE ASCENDER

flesh

FINIAL

http://www.papress.com/other/thinkingwithtype/letter/anatomy.htm

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Syntax **Anatomy of Letterform**

dxp

Capline

Meanline

x-height

Baseline

Descender: A stroke on a lowercase letterform that falls below the baseline.

Ear: A small stroke that projects from the upper right side of the bowl of the lowercase roman *g*.

Eye: The enclosed part of the lowercase *e*.

Fillet: The contoured edge that connects the serif and stem in bracketed serifs. (Bracketed serifs are connected to the main stroke by this curved edge; unbracketed serifs connect to the main stroke with an abrupt angle without this contoured transition.)

Hairline: The thinnest strokes within a typeface which has strokes of varying weights.

Leg: The lower diagonal stroke on the letter *k*.

Link: The stroke that connects the bowl and the loop of a lowercase roman *g*.

Loop: See *Bowl*.

Serifs: Short strokes that extend from and at an angle to the upper and lower ends of the major strokes of a letterform.

Shoulder: A curved stroke projecting from a stem.
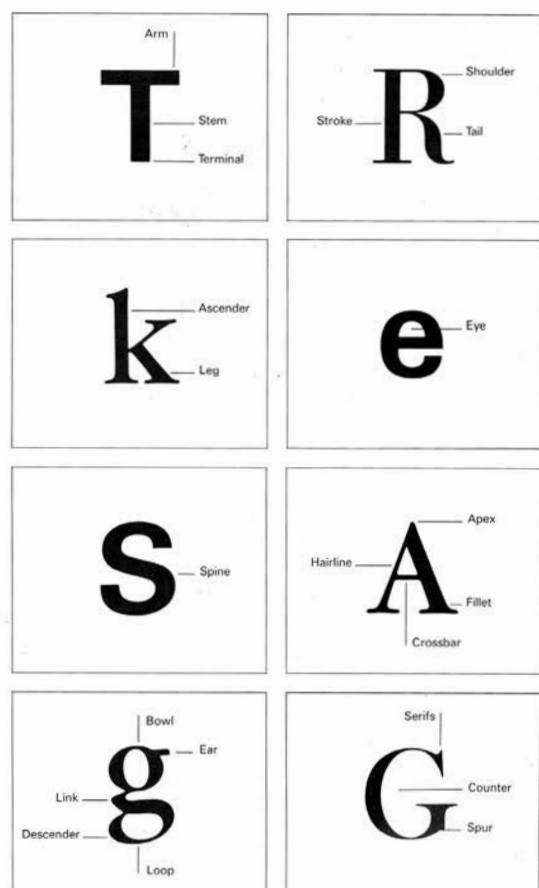
Spine: The central curved stroke of the letter *S*.

Spur: A projection—smaller than a serif—that reinforces the point at the end of a curved stroke, as in the letter *G*.

Stem: A major vertical or diagonal stroke in the letterform.

Stroke: Any of the linear elements within a letterform; originally, any mark or dash made by the movement of a pen or brush in writing.

Tail: A diagonal stroke or loop at the end of a letter, as in *R* or *j*.

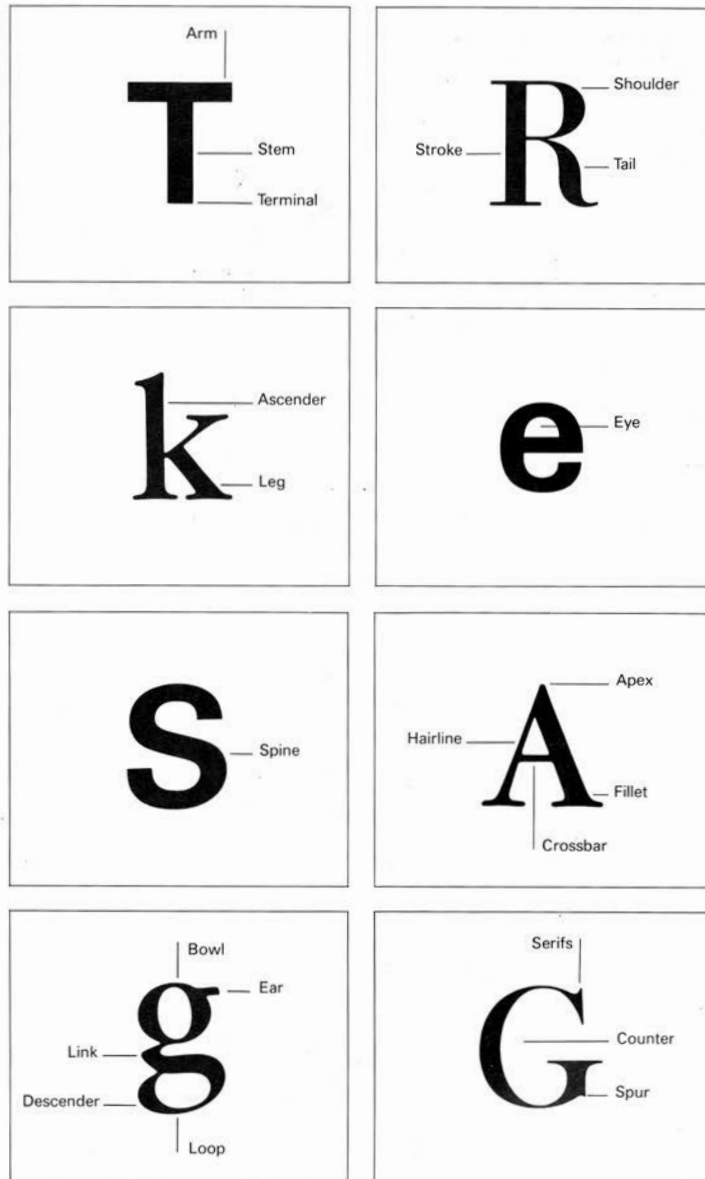*Terminal:* The end of any stroke that does not terminate with a serif.

T — Arm, Stem, Terminal

R — Shoulder, Stroke, Tail

k — Ascender, Leg

e — Eye

S — Spine

A — Apex, Hairline, Fillet, Crossbar

g — Bowl, Ear, Link, Descender, Loop

G — Serifs, Counter, Spur

4.

Syntax **Anatomy of Letterform**

T — Arm
— Stem
— Terminal

R — Shoulder
Stroke — — Tail

k — Ascender
— Leg

e — Eye

S — Spine

A — Apex
Hairline — — Fillet
— Crossbar

g — Bowl
— Ear
Link — — Descender — — Loop

G — Serifs
— Counter
— Spur

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Syntax **Anatomy of Letterform**

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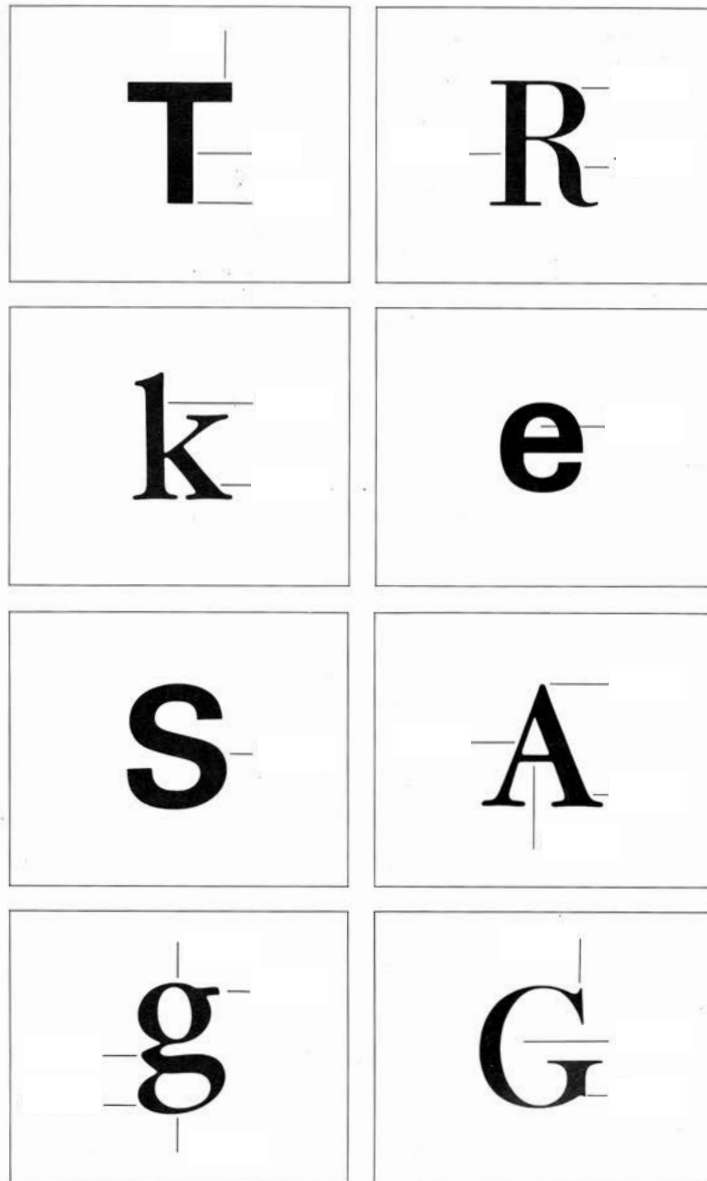
Syntax **Anatomy of Letterform**

Syntax **Classification**
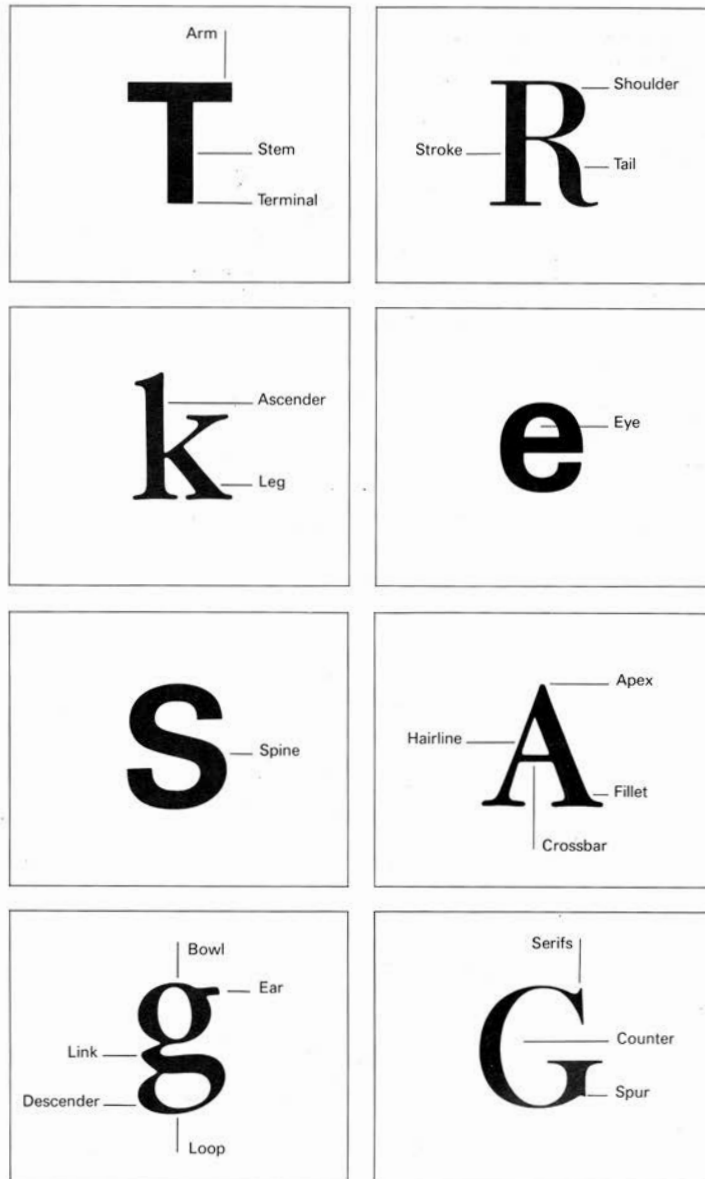
Basic classification of typefaces

An infinite variety of type styles is available today. Digital typography, with its simple and economical introduction of new typefaces, has made the entire array of typefaces developed over the centuries available for contemporary use. Numerous efforts have been made to classify typefaces, with most falling into the following major categories. Some classification systems add a decorative, stylized, or novelty category for the wide range of fanciful type styles that defy categorization.

Old Style

Old Style type began with designs of the punchcutter Francesco Griffo, who worked for the famous Venetian scholar-printer Aldus Manutius during the 1490s. Griffo's designs evolved from earlier Italian type designs. His Old Style capitals were influenced by carved Roman capitals; lowercase letters were inspired by fifteenth-century humanistic writing styles, based on the earlier Carolingian minuscules. Old Style letterforms have the weight stress of rounded forms at an angle, as in handwriting. The serifs are bracketed (that is, unified with the stroke by a tapered, curved line). Also, the top serifs on the lowercase letters are at an angle.

&

Italic

Italic letterforms slant to the right. Today, we use them primarily for emphasis and differentiation. When the first italic appeared in the earliest "pocket book," printed by Aldus Manutius in 1501, it was used as an independent typestyle. The first italic characters were close-set and condensed; therefore, Manutius was able to get more words on each line. Some italic styles are based on handwriting with connected strokes and are called scripts.

&

Transitional

During the 1700s, typestyles gradually evolved from Old Style to Modern. Typefaces from the middle of the eighteenth century, including those by John Baskerville, are called Transitional. The contrast between thick and thin strokes is greater than in Old Style faces. Lowercase serifs are more horizontal, and the stress within the rounded forms shifts to a less diagonal axis. Transitional characters are usually wider than Old Style characters.

&

Syntax **Classification**

Modern

Late in the 1700s, typefaces termed Modern evolved from Transitional styles. These typefaces have extreme contrasts between thick and thin strokes. Thin strokes are reduced to hairlines. The weight stress of rounded characters is vertical. Serifs are horizontal hairlines that join the stems at a right angle without bracketing. The uppercase width is regularized; wide letters such as *M* and *W* are condensed and other letters, including *P* and *T,* are expanded. Modern-style typefaces have a strong geometric quality projected by rigorous horizontal, vertical, and circular forms.

&

Egyptian

In 1815, the English typefounder Vincent Figgins introduced slab-serif typestyles under the name Antique. At the time, there was a mania for ancient Egyptian artifacts, and other typefounders adopted the name Egyptian for their slab-serif designs. These typestyles have heavy square or rectangular serifs that are usually unbracketed. The stress of curved strokes is often minimal. In some slab-serif typefaces, all strokes are the same weight.

&

Sans Serif

The first sans serif typestyle appeared in an 1816 specimen book of the English typefounder William Caslon IV. The most obvious characteristic of these styles is, as the name implies, the absence of serifs. In many sans serif typefaces, strokes are uniform, with little or no contrast between thick and thin strokes. Stress is almost always vertical. Many sans serif typefaces are geometric in their construction; others combine both organic and geometric qualities.

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TYPE FAMILY: ADOBE GARAMOND

Adobe Garamond was designed by Robert Slimbach in 1988.

The idea of organizing typefaces into matched *families* dates back to the sixteenth century, when printers began coordinating roman and italic faces. The concept was formalized at the turn of the twentieth century.

The roman font is the core or spine from which a family of typefaces derives.

ADOBE GARAMOND REGULAR

The roman form, also called "plain" or "regular," is the standard, upright version of a typeface. It is typically conceived as the parent of a larger family.

Italic fonts, which are based on cursive writing, have forms distinct from roman.

ADOBE GARAMOND ITALIC

The italic form is not simply a mechanically slanted version of the roman: it is a separate typeface. Note that the letter a has a different shape in the roman and italic variants of Adobe Garamond.

SMALL CAPS HAVE A HEIGHT THAT IS SIMILAR TO *the lowercase* X-HEIGHT.

ADOBE GARAMOND EXPERT (SMALL CAPS)

Small caps (capitals) are designed to integrate with a line of text, where full-size capitals would stand out awkwardly. Small capitals are slightly taller than the x-height of lowercase letters.

Bold (and semibold) **typefaces are used for emphasis within a hierarchy.**

ADOBE GARAMOND BOLD AND SEMIBOLD

Bold versions of traditional text fonts were added in the twentieth century to meet the need for emphatic forms. Sans-serif families often include a broad range of weights (thin, bold, black, etc.).

Bold *(and semibold)* ***typefaces each need to include an italic version, too.***

ADOBE GARAMOND BOLD AND SEMIBOLD ITALIC

The typeface designer tries to make the bold versions feel similar in contrast to the roman, without making the overall form too heavy. The counters need to stay clear and open at small sizes.

A full type family has two sets of numerals: *lining* (123) and *non-lining* (123).

ADOBE GARAMOND REGULAR AND EXPERT NUMERALS

Lining numerals occupy uniform units of horizontal space, so that the numbers line up when used in tabulated columns. Non-lining numerals, also called "text" or "old style" numerals, have a small body size plus ascenders and descenders, so that they mix well on a line with lowercase letters.

A *type* **family** CAN BE faked by *slanting,* or **inflating**, or SHRINKING letters.

ITALIC   BOLD   SMALL CAPS

TYPE CRIME:
PSEUDO ITALICS
The wide, ungainly forms of these skewed letters look forced and unnatural.

TYPE CRIME:
PSEUDO BOLD
Padded around the edges, these letters feel blunt and dull.

TYPE CRIME:
PSEUDO SMALL CAPS
These shrunken versions of full-size caps are puny

This page from *Thinking with Type* is provided as a PDF to facilitate classroom discussions. The PDF can be viewed on screen and blown up as needed.

http://www.papress.com/other/thinkingwithtype/text/kerning.htm

JACQUES DERRIDA's theory of *deconstruction* asks how

small caps

representation inhabits reality. How does the external image of things get inside their internal essence? How does the surface get under the skin? WESTERN CULTURE since PLATO has

caps

been governed by such oppositions as *inside/outside* and *mind/body*. If writing is but a copy of spoken language, typography is even further removed from the primal source of meaning in the mind of the author. Typography includes not only the letters of the alphabet but also numerals (1, 2, 3, 7, 8, 9 or 1, 2, 3, 7, 8, 9).

old style or non-lining numerals   lining numerals

DERRIDA used the term *grammatology* to name the study of writing

small caps, upper and lower case

as a distinctive form of representation.

http://www.papress.com/other/thinkingwithtype/letter/anatomy.htm

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12 points
equal 1 pica

6 picas
(72 points)
equal 1 inch.

Big

A typeface is measured
from the top of the capital
letter to the bottom of
the lowest descender, plus
a small buffer space.
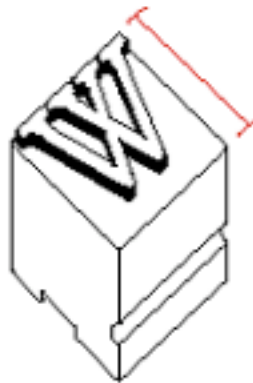
In metal type,
the point size
is the height
of the type slug.

Make it bigger. Paula Scher

Amateur typographers
tend to make their type
too big. In contrast,
experienced typographers
tend to make it too small.
Clients will often ask you to
"Make it bigger."

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Syntax **Classification**

Typographic measurement

19.

1. Face (printing surface)
2. Counter
3. Beard
4. Shoulder
5. Feet
6. Groove
7. Nick

8. Point size (body size)
9. Type-high (.918'' height)
10. Set width

Our measurement system for typography was originally developed for the handset metal type invented by Johann Gutenberg around A.D. 1450. The rectangular metal block of type (Fig. **19**) has a raised letterform on top, which was inked to print the image.

Metal type measurement
The small sizes of text type necessitated the development of a measuring system with extremely fine increments. There were no standards for typographic measurements until the French type designer and founder Pierre Simon Fournier le Jeune introduced his point system of measurement in 1737. The contemporary American measurement system, which was adopted during the 1870s, has two basic units: the point and the pica (Fig. **20**). There are approximately 72 points in an inch (each point is 0.138 inches) and 12 points in a pica. There are about six picas in an inch.

Metal type exists in three dimensions, and an understanding of typographic measurement begins with this early technology. The depth of the type (Fig. **19**, caption 8) is measured in points and is called the point size or body size. All metal type must be the exact same height (Fig. **19**, caption 9), which is called typehigh (.918 inch). This uniform height enabled all types to print a uniform impression upon the paper. The width of a piece of type is called the set width (Fig. **19**, caption 10) and varies with the design of each individual letter. The letters *M* and *W* have the widest set width; *i* and *l* have the narrowest. The length of a line of type is the sum of the set width of all the characters and spaces in the line. It is measured in picas.

Before the development of the point and pica system, various sizes of type were identified by names, such as brevier, long primer, and pica; these became 8-point, 10-point, and 12-point type. The chart in Figure **21**, reproduced from a nineteenth-century printers' magazine, shows the major point sizes of type with their old names. Type that is 12 point and under is called text type

0 1 2 Inches

0 1 2 3 4 5 6 Picas	6 Picas = 1 Inch
0 12 72 Points	12 Points = 1 Pica
	72 Points = 1 Inch

20.

AMERICAN SYSTEM OF INTERCHANGEABLE TYPE BODIES.

1	American	14	English	40	Dbl. Paragon
1½	German				
2	Saxon	16	Columbian		
2½	Norse				
3	Brilliant	18	Great Primer	44	Canon
3½	Ruby				
4	Excelsior	20	Paragon		
4½	Diamond	22	Dbl. Small Pica	48	Four-Line Pica
5	Pearl				
5½	Agate	24	Double Pica		
6	Nonpareil			60	Five-Line Pica
7	Minion	28	Double English		
8	Brevier				
9	Bourgeois	32	Dbl. Columbian		
10	Long Primer			72	Six-Line Pica
11	Small Pica	36	Dbl. Grt. Primer		
12	Pica				

21.
Reproduced actual size from *The Inland Printer*, April 1885.

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Syntax **Classification**

19.	1. Face (printing surface)
	2. Counter
	3. Beard
	4. Shoulder
	5. Feet
	6. Groove
	7. Nick
	8. Point size (body size)
	9. Type-high (.918" height)
	10. Set width

0   1   2 Inches

0 1 2 3 4 5 6 Picas
0 12   72 Points

6 Picas = 1 Inch
12 Points = 1 Pica
72 Points = 1 Inch

20.

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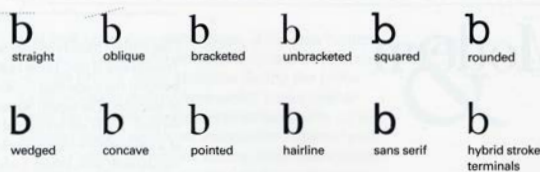University of San Francisco
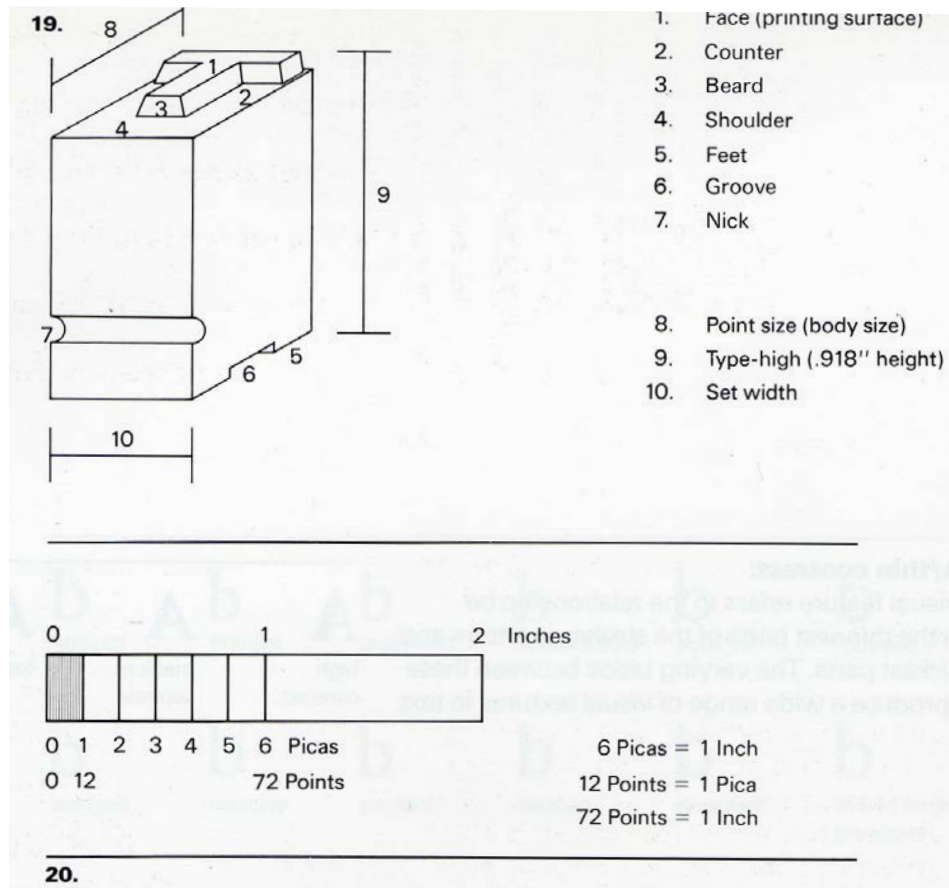
Typographic **Variations**

mon to letters throughout the typeface kingdom. It may be used for comparative purposes to pinpoint the most dominant traits of specific typefaces. Type designers use these variations to create a family of typefaces. The type family is discussed on pages 37-39.

Serifs:
Serifs provide some of the most identifiable features of typefaces, and in some cases they reveal clues about their historical evolution. The serifs shown are those that appear most frequently in typefaces.
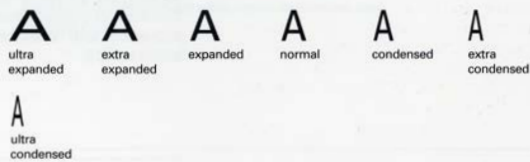
b	b	b	b	b	b
straight	oblique	bracketed	unbracketed	squared	rounded

b	b	b	b	b	b
wedged	concave	pointed	hairline	sans serif	hybrid stroke terminals

Weight:
This is a feature defined by the ratio between the relative width of the strokes of letterforms and their height. On the average, a letter of normal weight possesses a stroke width of approximately 15% of its height, whereas bold is 20% and light is 10%.

A	A	A	A	A	A
ultra bold	extra bold	bold	normal	light	extra light

A					
ultra light					
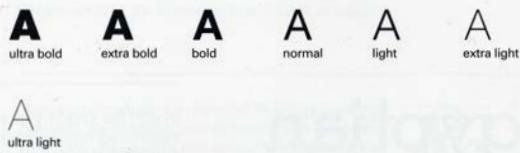
Width:
Width is an expression of the ratio between the black vertical strokes of the letterforms and the intervals of white between them. When white intervals appear larger, letters appear wider. A letter whose width is approximately 80% of its height is considered normal. A condensed letter is 60%, and an expanded letter is 100% of its height.

A	A	A	A	A	A
ultra expanded	extra expanded	expanded	normal	condensed	extra condensed

A					
ultra condensed					

Posture:
Roman letters that slant to the right but are structurally the same as upright roman letters are referred to as oblique. Italic letters, which are based on handwriting, are structurally different from roman letters of the same type family. Italic letters with connecting strokes are called scripts. The angle of posture varies from typeface to typeface; however, a slant of approximately 12% is considered to be normal.

h	h	h
italic	oblique	script

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A *type* **family** CAN BE faked by *slanting*, **inflating**, or SHRINKING letters.

| | | |
ITALIC BOLD SMALL CAPS

TYPE CRIME: **PSEUDO ITALICS**	**TYPE CRIME:** **PSEUDO BOLD**	**TYPE CRIME:** **PSEUDO SMALL CAPS**
These skewed letters are wide, ungainly, and unnatural.	*Padded letters look blunt and dull.*	*Shrunken caps appear puny and starved.*

Adobe Garamond type family, designed by Robert Slimbach, 1988

The roman font is the core or spine from which a family of typefaces derives.
Adobe Garamond Regular

Italic fonts, which are based on cursive writing, have forms distinct from roman.
Adobe Garamond Italic

SMALL CAPS HAVE A HEIGHT THAT IS SIMILAR TO *the lowercase* X-HEIGHT.
Adobe Garamond Expert (Small Caps)

Bold (and semibold) **typefaces are used for emphasis within a hierarchy.**
Adobe Garamond Bold and Semibold

Bold** (and semibold) **typefaces each need to include an italic version, too.
Adobe Garamond Bold and Semibold Italic

A full family has two sets of numerals: *lining* (123) and *non-lining* (123).
Adobe Garamond Regular and Expert numerals

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Typographic **Variations**

Thick/thin contrast:
This visual feature refers to the relationship between the thinnest parts of the strokes in letters and the thickest parts. The varying ratios between these parts produce a wide range of visual textures in text type.

A — high contrast
A — medium contrast
A — low contrast
A — no contrast

x-height:
This proportional characteristic can vary immensly in different typefaces of the same size. Typically, x-heights are considered to be "tall" when they are at least two-thirds the height of capital letters. They are "short" when they measure one-half the height of capital letters.

d — extra tall
d — tall
d — medium
d — short
d — extra short

Ascenders/descenders:
Ascenders and descenders may appear longer in some typefaces and shorter in others, depending on the relative size of the x-height. Descenders are generally slightly longer than ascenders among letters of the same typeface.

dp — extra long
dp — long
dp — medium
dp — short
dp — extra short

Stress:
The stress of letters, which is a prominent visual axis resulting from the relationships between thick and thin strokes, may be left-angled, vertical, or right-angled in appearance.

O — left-angled
O — vertical
O — right-angled

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A a *a*

ADOBE GARAMOND PRO

CAP HEIGHT

X-HEIGHT

BASELINE

Draw these letterforms!

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