

GLYPHS IN PROTOTYPE

The specification began with the requirement of no apparent change to the regular weight (CSS 400), which is to be assigned an optical size axis value of 14 pts. and 100% width, (CSS 100).

The contour point structure had to be designed to enable large amounts of weight and width to be possible as well be suitable outlines for all possible parametric axes.

The lone composite in the ASCII set, "%", is redesigned to match that of the figure zero, and is composed from a superior figure zero and fraction bar.

The alignments of the font match the original on a different size em, changing from 1000 to 2000 to ensure future accuracy of the broad design space.

The contours are native drawn quadratic beziers.

The figures are Tabular and the width of the default figures is 1/2 em.

opsz 14 @14pt

ABCDEFGHIJKLMNOPQRSTUV WXYZ&abcdefghijklmnopqrst uvwxyz0123456789.,:;!?()[] {}/|\#\$%@'"*~^_`=+<>-

opsz 14 @42pt

ABCDEFGHIJK LMNOPQRSTU VWXYZ&abcde fghijklmnopqr stuvwxyz0123 456789.,:;!?() []{}/|\#\$%@'" *~^ =+<>-

opsz 14 @14pt

Two ideas altered the design of the printing press radically: First, the use of steam power for running the machinery, and second the replacement of the printing flatbed with the rotary motion of cylinders. Both elements were first successfully implemented by the German printer Friedrich Koenig in a series of press designs devised between 1802 and 1818, with assistance from engineer Andreas Friedrich Bauer.

HHAHH HHBHH HHCHH HHDHH HHEHH HHFHH HHGHH HHHHH HHIHH HHJHH HHKHH HHLHH HHWHH HHWHH HHWHH HHXHH HHYHH HHXHH HHXHH HHYHH HHZHH nnann nnbnn nncnn nndnn nnenn nnfnn nngnn nnhnn nninn nnjnn nnknn nnlnn nnmnn nnonn nnpnn nngnn nnrnn nnsnn nntnn nnunn nnvnn nnwnn nnxnn nnynn nnznn 00000 00100 00200 00300 00400 00500 00600 00700 00800 00900 HH<HH HH(HH HH(HH HH(HH HH)HH HH)HH HH)HH HHXHH HXHH HHXHH HXHH HXH HXHH HXHH HXHH HXH HXHH HXHH HXHH HX

AXES IN ALPHA VF opsz

The design space began with envisioning and then drawing an unbalanced range of size masters upon which to base the weight and width axes. the optical size's "floor" at 8 point, and "ceiling" at 72 in the first design space is to provide more weight change at larger sizes, where it's possible to use very bold and very light instances, and less range as the optical size of use gets smaller.

opsz 72 @24pt

ABCDEFGHIJKLMNOPQ RSTUVWXYZ&abcdefg hijklmnopqrstuvwxyz0 123456789.,:;!?()[] {}/\#\$%@'"*~^_`= +<>-

psz 14 @24pt

ABCDEFGHIJKLMNOPQ RSTUVWXYZ&abcdefg hijklmnopqrstuvwxyz0 123456789.,:;!?()[] {}/|\#\$%@'"*~^_`= +<>-

opsz 8 @24pt

ABCDEFGHIJKLMNOPQ RSTUVWXYZ&abcdefg hijklmnopqrstuvwxyz0 123456789.,:;!?()[] {}/|\#\$%@'"*~^_`= +<>-

opsz 72 @72pt

ABCDEFGHIJKLMNOPQ RSTUVWXYZ&abcdefgh

opsz 14 @14pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ& abcdefghijklmnopqrstuvwxyz 0123456789.,;;!?() [] {} / |\ #\$%@""*~^_`=+<>-

opsz 8 @8pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ& abcdefghijklmnopqrstuvwxyz 0123456789.,;;!?() [] {}/\
#\$%@""*~^_`=+<>-

AXES IN ALPHA VF: MASTERS Default wght & wdth

The maximim and minimum weights and widths for 14 point were then drawn and tested at actual size.

opsz 14, wght and wdth masters @14pt

MEMORABLE Planning sessions

MEMORABLE Planning sessions

MEMORABLE Planning sessions

MEMORABLE Planning sessions

MEMORABLE Planning sessions

opsz 14 wdth 50 @24pt

ABCDEFGHIJKLMN OPQRSTUVWXYZ&a bcdefghijklmnopq rstuvwxyz0123456 789.,:;!?()[]{}/|\ #\$%@'"*~^_`=+< >- opsz 14 wght 900 @24pt

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ&abcdefghij
klmnopqrstuvw
xyz012345678
9.,:;!?()[]{}/|\#\$
%@'"*~^_`=+<>-

opsz 14 @24pt

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm nopqrstuvwxyz0 123456789.,:;!? ()[]{}/|\#\$%@'"* ~^`=+<>-

opsz 14 wght 100 @24pt

ABCDEFGHIJKLMN OPQRSTUVWXYZ& abcdefghijklmnop qrstuvwxyz01234 56789.,:;!?()[]{}/| \#\$%@'"*~^_`=+ <>- psz 14 wdth 125 @24pt

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ&abcdefghi
jkImnopqrstuv
wxyz012345678
9.,:;!?0[{}/\#\$
%@'"*~^_`=+<>-

AXES IN ALPHA VF: MASTERS Paramteric Axes

Parametric axes. i.e. variations to the underlying single parameters that combine to make the changes from one style to another, and from one size master to another, were drawn. These include the six axes shown here. XTRA modifies the counter width of glyphs. YTUC changes uppercase height. YTLC changes lowercase height. XOPQ changes stem weight. YTAS changes lowercase ascender height and YOPQ changes hairline weight.

opsz 14 XTRA minimum

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z & a b c d e f g h i j k l m n o p q r s t u

ABCDEFGHIJKL MNOPQRSTUV WXYZ&abcdef

opsz 14 YOPQ minimum

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm opsz 14 YTUC minimum

ABCDEFGHIJKLM
NOPQRSTUVWXY
Z&abcdefghijklm

opsz 14 YTUC maximum
ABCDEFGHIJKLM
NOPQRSTUVWXY
Z&abcdefghijklm

opsz 14 @24pt

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm nopqrstuvwxyz0 123456789.,:;!? ()[]{}/|\#\$%@'"* ~^`=+<>-

opsz 14 YTAS minimum

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm

opsz 14 YTAS maximum

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm opsz 14 YTLC minimum

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm

opsz 14 YTLC maximum

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm

psz 14 XOPQ minimum

ABCDEFGHIJKLMN OPQRSTUVWXYZ&a bcdefghijklmnopqrs

opsz 14 XOPQ maximum

ABCDEFGHIJK LMNOPQRSTUV WXYZ&abcdefg

AXES IN ALPHA VF: Corners

Together with the wght and wdth masters, (grey), and the default in the middle, the combination of five masters define their combinations, (black). The parametric axes were used to make minor adjustments to the completed style of the 14 point master.

opsz 14, wght and wdth masters @14pt

MEMORABLE Planning sessions
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MEMORABLE Planning sessions

MEMORABLE Planning sessions MEMORABLE Planning sessions MEMORABLE Planning sessions opsz 14 wght 900 wdth 50 @24pt

ABCDEFGHIJKLM
NOPQRSTUVWXYZ
& abcdefghijklmn
opqrstuvwxyz012
3456789.,:;!?()[]
{}/\\#\$%@'"*~^=+<>-

opsz 14 wdth 50 @24pt

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z & a b c d e f g h i j k l m n o p q r s t u v w x y z 0 1 2 3 4 5 6 7 8 9 . , : ; ! ? () [] { } / | \ # \$ % @ ' " * ~ ^ _ ` = + < > -

opsz 14 wght 100 wdth 50 @24pt

ABCDEFGHIJKLMNO PQRSTUVWXYZ&abc defghijklmnopqrstu vwxyz012345678 9.,:;!?()[]{}/|\#\$% @'"*~^_`=+<>- opsz 14 wght 900 @24pt

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ&abcdefghij
klmnopqrstuvw
xyz012345678
9.,:;!?()[]{}/\#\$
%@'"*~^_`=+<>-

opsz 14 @24pt

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm nopqrstuvwxyz0 123456789.,:;!? ()[]{}/|\#\$%@'"* ~^ =+<>-

opsz 14 wght 100 @24pt

ABCDEFGHIJKLMN OPQRSTUVWXYZ& abcdefghijklmnop qrstuvwxyz01234 56789.,:;!?()[]{}/ \#\$%@'"*~^_`=+ <>- opsz 14 wght 900 wdth 125 @24pt

ABCDEFGHIJK
LMNOPQRSTUV
WXYZ&abcdef
ghijklmnopqr
stuvwxyz0123
456789.,:;!?()[]
{}/\\#\$%@'"*~^

opsz 14 wdth 125 @24pt

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ&abcdefghi
jklmnopqrstuv
wxyz012345678
9.,:;!?()[[{}/|\#\$
%(@'"*~^_`=+<>-

opsz 14 wght 100 wdth 125 @24pt

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm nopqrstuvwxyz0 123456789.,:;!? ()[]{}/|\#\$%@'"* ~^`=+<>-

AXES IN ALPHA VF

These weights and widths were then extrapolated to the optical size maximum for approval of the larger appearences. Projection of the lightest weight at 72 point was determined to be too light for some rendering, so the maximum optical size was doubled to 144 pt, in effect doubling the minimum weight at the maximum size.

onsz 144 @24n

ABCDEFGHIJKLMNOPQ RSTUVWXYZ&abcdefg hijklmnopqrstuvwxyz0 123456789.,:;!?()[] {}/\#\$%@'"*~^_`= +<>-

opsz 14 @24pt

ABCDEFGHIJKLM NOPQRSTUVWXY Z&abcdefghijklm nopqrstuvwxyz0 123456789.,:;!? ()[]{}/|\#\$%@'"* ~^ =+<>-

opsz 8 @24pt

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ&abcdefghij
klmnopqrstuvwx
yz012345678
9.,:;!?()[]{}/|\#\$
%@'"*~^_`=+<>

opsz 72 wght 100 wdth 125, 100 & 25 @72pt

ABCDEFGHUKLMNOPQRST abcdefghijklmnopqrstuvwxy

opsz 144 wght 100 wdth 125, 100 & 25 @144pt

ABODEFGHUK
PORSTUVVV
abodefghijkImr

AXES IN ALPHA VF

The same stage included designing the width axes to narrow more than the default 14 pt width axes narrows. So the 144 pt masters produce dense fonts with counters as small as most rendering allows.

The comparative line lengths show that the 14 pt has narrowed around 2 characters from A to T, while the 144 pt has narrowed around 10 characters over the same text, (yellow arrows).

The boldest most condensed 144 pt (far right), shows the impactful density of black allowed in the design and spacing at large sizes, compared to the boldest most condensed 14 pt (left and enlarged below), where more generous interior and inter-character spaces present the user with better readability.

opsz 14 wght 400 wdth 25 @144pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ& abcdefghijklmnopqrstuvwxyz 0123456789 . , : ; !? () [] {} / | \ #\$%@'''*~^_`=+<>-

opsz 14 wght 400 wdth 100 @14pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ& abcdefghijklmnopqrstuvwxyz 0123456789 . , : ; !? () [] {} / | \ #\$%@""*~^_`=+<>-

opsz 14 wght 900 wdth 25 @14pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ&
abcdefghijklmnopqrstuvwxyz
0123456789.,:;!?()[]{}/|\
#\$%@""*~^_`=+<>-

opsz 14 wght 900 wdth 25 @144

PQ

opsz 144 waht 400 wdth 25 @144pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ&

opsz 144 waht 400 wdth 100 @144pt

ABCDEFGHIJK

opsz 144 wght 900 wdth 25 @144pt

ABCDEFGHJK PQRSTUVVX abedefghijk

AXES IN ALPHA VF

The same stage included designing the width axes to widen more than the default 14 pt width axes. So the 144 pt masters produce fonts with counters as large as the design allows. While no technical specification exists for what "too wide" is, the design can be guided by the idea that an "O" can only expand so wide, before it begins to appear more like the shpae of a tomato, than an O, which Robot Extremo approaches and then slightly surpasses in the widest 144 pt design.

The comparative line lengths show that the 14 pt has widened around 1/2 character from A to F, while the 144 pt has widened more than 3 characters in the same short string, (yellow arrows).

opsz 14 wght 400 wdth 151 @144pt

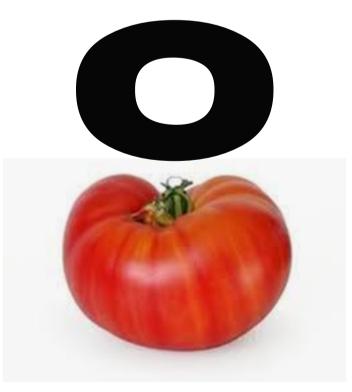
ABCDEFGHIJKLMNOPQRSTUVWXYZ& abcdetghijklmnopgrstuvwxyz 0123456789.,:;!?() [] {}/|\ #\$%@<mark>'</mark>"*~^_`=+<>-

opsz 14 wght 400 wdth 100 @14pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ& abcdefghijklmnopgrstuvwxyz 0123456789.,:;!?()[]{}/|\ #\$%@""*~^_`=+<>-

opsz 14 wght 900 wdth 151 @14pt

ABCDEFGHIJKLMNOPQRSTUVWXY Z& abcdefghijklmnopqrstuvwxyz 0123456789.,:;!?()[[{}/|\ #\$%@""*~^_`=+<>-



opsz 144 wght 400 wdth 151 @144pt

opsz 144 wght 900 wdth 151 @144pt

AXES IN Beta VF opsz minimum

Variable fonts with Parametric axes allow a font developer, and potentially the user, to make adjustments to every instance in a variable font. These axes were developed and added to Extremo with this in mind, with axes name abbreviations for x/y direction, opaque/transparent, the glyph group, uc/lc/figures, and more in some cases.

An example shown here, is the detailed variation of the 14 pt regular, top line at left, to the 8 pt regular, bottom line at left, (i.e. changes from the default opsz to the opsz minimum to become a new extreme instance in the variable font).

This starts from 14 pt with a slight increase in the main stem weight, (XOPQ), to compensate for a smaller size needing to be a little bolder to look like the 14 pt weight. Then the 8 pt needs to be a little wider, increasing the width, (XTRA), so the spaces of the 8 pt will be shrinking less as well. The secondary stem weight controlling the lighter stem is increased (YOPQ),to maintain proper balance with the main stem weight. Finally the lowercase height is slightly raised, (YTLC), to compensate for the smaller type size, and the other changes. The result, from a carefully chosen set of slightly more robust parameters, the smallest regular optical size is more readable as are the other sizes ranging down form 14 pt to 8.

Each 8 pt master for width and weight can be defined similarly.

The formula for each instance in the font can be found in the ParametricRoundup file at [link to final file, current at: github.com/ TypeNetwork/Parama-roundup/tree/master/ export].

opsz 144 @144pt

opsz 14 @14pt

ABCDEFGHIJKLMNOPORSTUV WXYZ&abcdefghijklmnopgrst uvwxyz0123456789.;;!?()[]{}/|\#\$%@'"*~^_`=+<>-

opsz 14 @72pt

XOPQ 100, XTRA 381, YOPQ 84, YTLC 532

opsz 8 @8pt wght 400 wdth 25 ABCDEFGHIJ Captions can add

KLMNOPQRS reading as they TUVWXYZ&a can tie text matter to one or more of bcdefghijkl mnopqrstuv forms of media. Many practical w x y z 0 1 2 3 4 5 uses of this can be 6789.,:;!?()

opsz 8 @8pt wght 900 wdth 100

ABCDEFGH Captions can add a lot to IJKLMNOP reading as they QRSTUVWX can tie text YZ&abcdef or more of the ghijklmno nany other forms of pqrstuvwx media. Many yz0123456 practical uses

opsz 8 @8pt waht 400 wdth 100

ABCDEFGHI Captions can add a lot to JKLMNOPO reading as they RSTUVWXY can tie text matter to one or Z&abcdefgh more of the nany ijklmnopqr other forms of media. Many stuvwxyz01 practical uses of 2345678 this can be

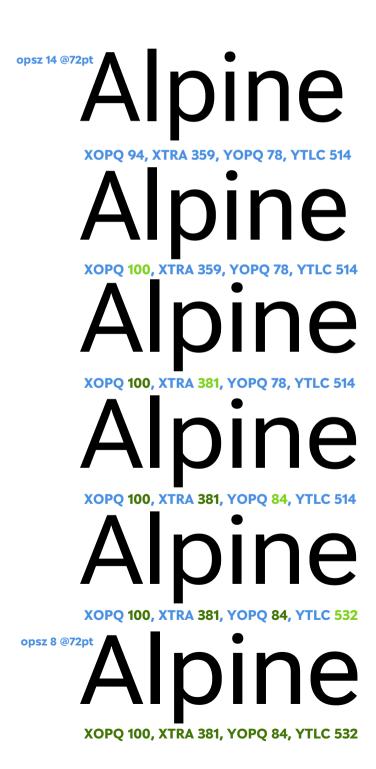
opsz 8 @8pt wght 100 wdth 100 ABCDEFGHIJ Captions can add KLMNOPQRS reading as they TUVWXYZ&a can tie text matter to one or more of the nany other mnopqrstuv forms of media. Many practical wxvz01234 uses of this can be 56789.,:;!?

opsz 8 @8pt wght 400 wdth 151

ABCDEFGH Captions can add a lot to IJKLMNOP reading as QRSTUVW they can tie XYZ&abcd one or more of efghijklmn the nany other forms of opgrstuvw media. Many xyz012345 practical uses

AXES IN Beta VF Optimal use of design space

This illustration is very important because it shows how duplicate data is created in the OTvl.8 format, because we can't have 'instances as masters' and have to 'double delta' those instances to be real masters.



AXES IN Beta VF Transparently available size-safe styles

The design brief began with envisioning a design space where the quality of every instance was as good as the default, and that the user would be able to use all the styles in the space safely, with the knowledge that regardless of their choice of width weight or other instances along other axes, the style would work at the chosen size, if the same optical size was also used. While the type designer cannot help if the user overlaps styles or uses black type on a dark blue background, the casual user having the ability to safely select weights and widths befitting their topic matter, template, and scale and to customize compositions with such selections, can produce a much improved typographic result.

AXES IN Beta VF Editorial Scaleability

The combination of optical size and fluid weight and widths (left), allow the composition to "collapse" editorially from a full hierarchy of fonts helping the reader navigate from complete textual content, down to a single line of information, for a link or ad e.g. without completely losing a typographic identity in the process.

The left side shows the need to make adjustments, if possible, including changes to style, size and tracking, when using the styles of Roboto. The right side, using Roboto Extremo.

Below these two examples, are the editorial content collapsing in stages to a single line of information.

ROBOTO "Classic"



REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

36 pt Roboto Light Tracked

Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

18 pt Roboto Regular

Two ideas altered the design of the printing press radically: First, the use of steam power for running the machinery, and second the replacement of the printing flatbed with the rotary motion of cylinders. Both elements were first successfully implemented by the German printer Friedrich Koenig in a series of press designs devised between 1802 and 1818, with assistance from engineer Andreas Friedrich Bauer.* Koenig and Bauer sold two of their first models to The Times in London in 1814, capable of 1,100 impressions per hour. The first edition so printed was on 28 November 1814.

13 pt Roboto Regular

* Not valid engineering in Connecticut, California, Massachusetts, Minnesota, Mississippi, New Hampshire, North Carolina, Pennsylvania, Tennessee, Washington, West Virginia or American Samoa. Pending in Idaho, Iowa, Texas, Ohio and Maine.

9 pt Roboto Regular

REFRESHER BUILDS SOFTWARE

Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

16 pt Roboto Regular

Two ideas altered the design of the printing press radically: First, the use of steam power for running the machinery, and second the replacement of the printing flatbed with the rotary motion of cylinders.

13 pt Roboto Regular

REFRESHER BUILDS SOFTWARE

24 pt Roboto Light

Two ideas altered the design of the printing press radically: First, the use of steam power for running the machinery, and second the replacement of the printing flatbed with the rotary motion of cylinders.

13 pt Roboto Regular

ROBOTO EXTREMO

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REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

36pt 250 wght 90 wdth

Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

8pt 400 wght 100 wdth

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13pt 400 wght 100 wdth

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9 pt 400 wght 100 wdth

REFRESHER BUILDS SOFTWARE

36 pt 200 wght 70 wdth

Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

16 pt 400 wght 100 wdt

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13 pt 400 wght 100 wdth

REFRESHER BUILDS SOFTWARE

24 pt 200 wght 70 wdth

Two ideas altered the design of the printing press radically: First, the use of steam power for running the machinery, and second the replacement of the printing flatbed with the rotary motion of cylinders.

13 pt 400 wght 100 wdth

Two ideas make talking software with REFRESHER, well you know...

AXES IN Beta VF Portal Scaleability

The combination of optical size and fluid weight and widths allows the composer of responsive typography to safely scale type from a series of sizes for one portal or page, to a series of larger or smaller sizes for another portal or page, without any style, spacing or other refinements. Larger sizes used at left portal scale more than smaller sizes with the optical size axis providing a smooth transition for the type from one portal size to another, the smaller portal shown at right.

REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

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RFFRFSHFR

REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

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AXES IN Beta VF Portal Scaleability

Here are the values...

REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO Y

36 pt 250 wght 90 wdth

144pt 200 wght 70 wdth

18pt 400 wght 100 wdth

Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

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13pt 400 wght 100 wdth

9.5 pt 400 wght 100 wdth

* Not valid engineering in Connecticut, California, Massachusetts, Minnesota, Mississippi, New Hampshire, North Carolina, Pennsylvania, Tennessee, Washington, West Virginia or American Samoa. Pending in Idaho, Iowa, Texas, Ohio and Maine.

21 pt 250 wght 90 wdth

REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

Networked landscapes with operational tone of voice in multiple-platform type is

14pt 400 wght 100 wdth not a thing of the past.

Two ideas altered the design of the printing press radically: First, the use of steam power for running the machinery, and second the replacement of the printing flatbed with the rotary motion of cylinders. Both elements were first successfully implemented by the German printer Friedrich Koenig in a series of press designs devised between 1802 and 1818, with assistance from engineer Andreas Friedrich Bauer.* Koenig and Bauer sold two of their first models to The Times in London in 1814, capable of 1,100 impressions per hour. The first edition so printed was on 28 November 1814.

11pt 400 waht 100 wdth

* Not valid engineering in Connecticut, California, Massachusetts, Minnesota, Mississippi, New Hampshire, North Carolina, Pennsylvania, Tennessee, Washington, West Virginia or American 8 pt 400 wght 100 wdth Samoa. Pending in Idaho, Iowa, Texas, Ohio and Maine.

AXES IN Beta VF Tabular Figures Introduction

Tabular figures, (the numerals of a font style and sometimes other glyphs on the same width), are common in fonts today and are the default in Roboto Extremo. This feature allows composition of figures in columns, making it easier for the reader to locate and read values more easily.

Font families with multiple weights, usually have tabular figures that share the same width, giving the composer the ability to remove and add emphasis to individual values, or whole columns or rows of values. Most tabular composition is done in smaller size use, rather than in headlines, as the spacing of zero and 1 on the same width leaves the visual impression at large sizes, that there is too much space between some figures, and not enough between others.

Variable fonts can bring the issue of tabular figures into new opportunities, but also can present challenges in variable fonts with broad ranges of optical size, weight and width. What tabular width should be defined for the weight axis of each optical size? Can that same width be shared over an entire range of sizes and all their weights? What tabular width should be defined for the all the weights of each width in the width axis of each optical size?

In Roboto Extremo the user can find matching widths of figures where they are needed most.

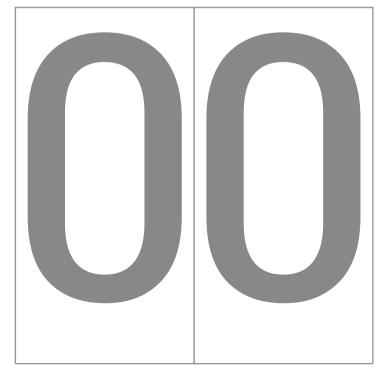
opsz 14 @42

0123456789 1234567890 2345678901 3456789012 4567890123

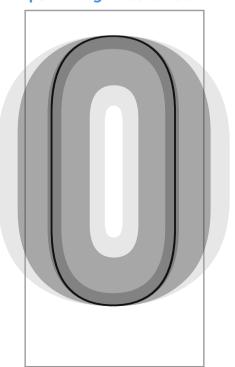
opsz 24 @24 200, 400, 600 overlay

| -p | ,, | | |
|------|-----|----|-----|
| 2048 | 192 | 94 | 192 |
| 2048 | 192 | 94 | 192 |
| 2048 | 192 | 94 | 192 |
| 2048 | 54 | 27 | 545 |
| 2048 | 350 | 77 | 350 |
| 2049 | 192 | 94 | 192 |
| 2048 | 192 | 94 | 192 |
| 2048 | 192 | 94 | 192 |
| | | | |

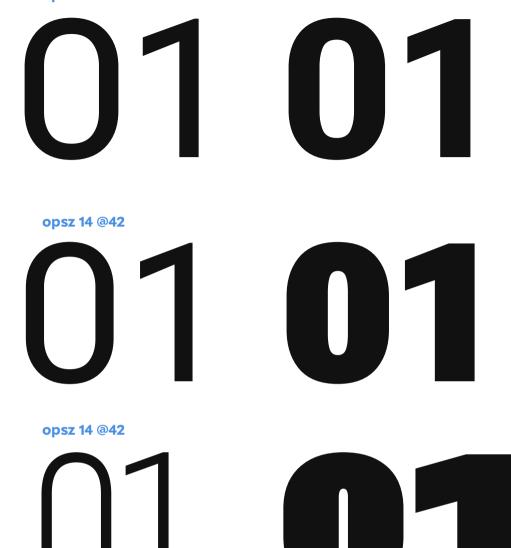
opsz 144 wght 500 wdth 100 @278 pt



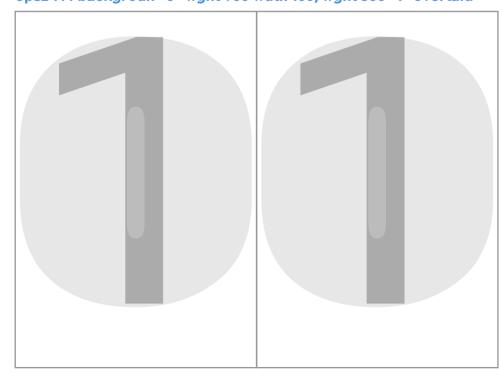
opsz 144 wght 100 to 900



opsz 14 @42



opsz 144 backgroun "0" wght 900 wdth 100, wght 500 "1" overlaid



AXES IN Beta VF Tabular figures 8 pt

In Roboto Extremo the user can find matching widths of figures In all the widths and weights of optical size 8. Each width has all matching tabular figures of all the weights.

opsz 8 @42

wdth 25

wght 900

AXES IN Beta VF Tabular figures 14 pt

In the 14 point the default optical size, all of the widths have matching tabular figures for all weights. This, along with the same situation in the minimum optical size, (opsz 8), make all the the tabular figures from 8-14 match across all the widths of each optical size.

| wdth 25 0123456789 12345678901 23456789012 4567890123 | 0123456789 12345678901 23456789012 4567890123 | 0123456789 1234567890 2345678901 3456789012 4567890123 |
|---|--|--|
| 0123456789 12345678901 23456789012 4567890123 | 0123456789 12345678901 23456789012 4567890123 | 0123456789 12345678901 23456789012 4567890123 |
| Vight 100 0123456789 1234567890 2345678901 24567890123 | 0123456789 12345678901 23456789012 4567890123 | 0123456789 12345678901 23456789012 4567890123 |

AXES IN Beta VF Tabular figures 24 pt

At 24 point, figures above wght 700 are not tabular as the style range of both weight and width begin to serve the uses of display type. But from wght 100 to 700 and for all widths, the figures remain tabular.

opsz 24 @42

wdth 25

wght 700

AXES IN Beta VF Tabular figures 36 pt

At 36 point the figures above wght 700 are, like the 24 point, not tabular. The tabular width is properly narrower, and with the style range of both weight and width bolder, lighter, wider and more condensed than 24 point the figures on the fringe of 36 pointare stressed, but functional tabular figures.

All the figures from 100 to 700 wght and from 36 pt to 144 pt are also tablular at each size in that range for all the weights and widths.

opsz 36 @42

wdth 25 wght 700

wdth 100

 wdth 150

wght 400

 waht 100

AXES IN Beta VF Tabular figures 144 pt

The 144 point optical size is designed for users seeking large impactful numbers, and while they are tabular in all style, matching versions of those in all other weights and widths is not always possible at the same place in the width axes. The extremes of the weights and widths make possible only very small segments of tabular figures in the bolder and condensed areas of the 144 pt design space. The light and wide range, i.e. 100 to 400 wght and 100 to 150 wdth, remain tabular across weights, (yellow rectangle).

opsz 144 @42

wdth 25

wght 700

0123456789 89 1234567890 90 2345678901 01 3456789012 12 4567890123 23

wght 400

wght 100









wdth 100

0123456789 1234567890 23456789012 4567890123 0123456789 1234567890 2345678901

wdth 150

3456789012 4567890123

0123456789 1234567890 2345678901 3456789012 4567890123

AXES IN Beta VF Tabular Figure Finding

While 144 point has space without tabular figures, at all weights within the combination of weight and width at opsz 144, the user can find tabular figures for any weight they choose, from the other widths of 144 point.

Below, e.g. the 400 wght, 25 wdth has tabular figures too wide to match the 100 wght, 25 wdth, but wdth 39.25 a set of matching 100 wght tabular figures to the 400 wght minimum width, (25).

wght 400 wdth 25

wght 100 wdth 25

opsz 144 @42

waht 610 wdth 42

waht 688 wdth 73

0123456789 1234567890 2345678901 3456789012 4567890123

waht 770 wdth 122

0123456789 1234567890 2345678901 3456789012 4567890123

wght 400 wdth 25

wght 373 wdth 77

wght 400 wdth 100

0123456789 1234567890 2345678901 3456789012 4567890123

wght 400 wdth 151

0123456789 1234567890 23456789 3456789 45678901



wght 100 wdth 39.25

wght 100 wdth 80

wght 100 wdth 108

wght 100 wdth 151

AXES IN Beta VF single parametric axes use

Parametric axes may be used individually to refine type manually or automatically. The example illustrates the programmatic use of one parametric axis, XTRA, in conjunction with two composition parameters, (letterspacing and word spacing), to smooth out the text justification of a column. At different sizes, the program makes different decisions about the ranges of the parameters to favor lettershape preservation at large sizes, and letterspace preservation at smaller sizes.

Justification via wordspacing alone

YOPQ 50; CW 40; LH 1.18

I remembered the case well, for it was one in which Holmes had taken an interest on account of the peculiar ferocity of the crime and the wanton brutality which had marked all the actions of the assassin. The commutation of his death sentence had been due to some doubts as to his complete sanity, so atrocious was his conduct. Our wagonette had topped a rise and in front of us rose the huge expanse of the moor, mottled with gnarled and craggy cairns and tors. A cold wind swept down from it and set us shivering. Somewhere there, on that desolate plain, was lurking this fiendish man, hiding in a burrow like a wild beast, his heart full of malignancy against the whole race which had cast him out. It needed but this to complete the grim suggestiveness of the barren waste, the chilling wind, and the darkling sky. Even Baskerville fell silent and pulled his overcoat more closely around him.

Justification via word space, letterspace and XTRA

YOPO 50; CW 42; LH 1.18

ws 91

ws 158

ws 36

ws 42

ws 693

ws 361

ws 594

ws 553

ws 122

ws 63

ws 77

ws 204

ws 274

ws 229

ws 85

ws 399

ws 82

ws 38

ws 361

ws 292

ws 789

I remembered the case well, for it was one in which Holmes had taken an interest on account of the peculiar ferocity of the crime and the wanton brutality which had marked all the actions of the assassin. The commutation of his death sentence had been due to some doubts as to his complete sanity, so atrocious was his conduct. Our wagonette had topped a rise and in front of us rose the huge expanse of the moor, mottled with gnarled and craggy cairns and tors. A cold wind swept down from it and set us shivering. Somewhere there, on that desolate plain, was lurking this fiendish man, hiding in a burrow like a wild beast, his heart full of malignancy against the whole race which had cast him out. It needed but this to complete the grim suggestiveness of the barren waste, the chilling wind, and the darkling sky. Even Baskerville fell silent and pulled his overcoat more closely around him.

```
xtra 346 ws 0 ls 0
xtra 385 ls 39 ws -3
xtra 365 ws 0 ls 1
xtra 365 ws 0 ls 0
xtra 385 ls 50 ws 283
xtra 385 ls 28 ws -4
xtra 351 ws 0 ls 0
xtra 385 ls 9 ws 6
xtra 368 ws 0 ls 0
xtra 385 ls 46 ws -3
xtra 363 ws 0 ls 1
xtra 346 ws 0 ls 0
xtra 385 ls 36 ws -4
xtra 385 ls 31 ws -4
xtra 346 ws 0 ls 0
xtra 385 ls 5 ws -3
xtra 377 ws 0 ls 1
xtra 363 ws 0 ls 0
xtra 368 ws 0 ls 1
xtra 368 ws 0 ls 1
```

AXES IN Beta VF parametric custom ID

Users can customize Roboto Extremo to a "regular" anywhere in the designspace, here shown step-by-step from Roboto to a wider "—Custom Regular", parameter by parameter in five steps, ending with a taller lowercase height for a more modern look.

From there, the typographer/user can employ the weight axis to define a "—Custom Bold". The optical size axis (opsz), can also be used to define versions for small uses and small bold use.

CSS Custom Properties can then be defined so the user references those design space locations easily, with names like "—Regular", "— Small Regular" or any names they wish.

The bottom samples show the original Roboto and Bold, and beside them, Custom Small and Custom Small Bold at the Small size, (opsz 12).

--Roboto Regular

HanSeatic Furniture

-Custom Regular wdth +13.5%

HanSeatic Furniture

Custom Regular wdth +13.5% XTRA +74

HanSeatic Furniture

--Custom Regular wdth +13.5% XTRA +74 XOPO +23

HanSeatic Furniture

-Custom Regular 60 pt wdth +13.5% XTRA +74 XOPO +23 YOPO +27

HanSeatic Furniture

--Custom Bold 60 pt waht 525

HanSeatic Furniture

--Small opsz 12

HanSeatic Furniture

--Small Bold wght 600

HanSeatic Furniture

Roboto Regular & Bold @12 pt

HanSeatic Furniture comes from the finest materials, designers and manufacturers, bringing you the look and feel of the north without the cold.

--Custom Small, Regular and Bold

HanSeatic Furniture comes from the finest materials, designers and manufacturers, bringing you the look and feel of the north without the cold.

AXES IN Beta VF Parametric step-by-step to another of the world's scripts: Arabic

The OpenType font standard contains only alignment values for Latin and similar scripts, like the uppercase and lowercase heights. Other scripts in the same font are typically aligned, and assigned weights and widths as well as possible in the same font, to appear similar to the Latin. Given separate, interoperable alignment values, the scripts within a font can adjust to the reader's preference of scripts within that font for a better composition and reading experience.

There is also the issue of matching fallback fonts when a script is not available in a font. Here the composer with a Latin font that has parametric flexibility, can adjust that font to another script's parame ters to produce harmonious typography.

This harmonization may start with deciding that for body type, the Arabic should be used at a larger size than Latin or other similar alphabets.

- ميكلها شكلها
- 24 شکلها
- 48 شكلها

psz 14 @72

شکلها Hhpx

opsz 48 @72

شکلها Hhpx

opsz 48 @72 XTRA 382

شکلها Hhpx

opsz 48 @72 XTRA 382 YTLC 430

شکلها Hhpx

opsz 48 @72 XTRA 382 YTLC 430 YTUC 644

شکلها Hhpx

opsz 48 @72 XTRA 382 YTLC 430 YTUC 644 YTAS 677

شکلها Hhpx

opsz 48 @72 XTRA 382 YTLC 430 YTUC 644 YTAS 677 YOPQ 58

شکلها Hhpx

opsz 14 @24

كلما تغيرت الأشياء كلما بدا شكلها Rememberance مختلفًا. الشيء المهم هو أن تبقي عينيك مفتوحة.

James Maydon 1806

كلما تغيرت الأشياء كلما بدا شكلها Rememberance مختلفًا. الشيء المهم هو أن تبقي عينيك مفتوحة. James Maydon 1806 —

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James Maydon 1806 —

AXES IN Beta VF Editorial Scaleability

The combination of optical size and fluid weight and widths (left), allow the composition to "collapse" editorially from a full hierarchy of fonts helping the reader navigate from complete textual content, down to a single line of information, for a link or ad e.g. without completely losing a typographic identity in the process.

The right side shows the need to make adjustments, if possible, including changes to style, size and tracking, when using a nonvariable version of the same font. Below shows the editorial content collapsing in stages.

EXTREMO wght 750

wdth 46

PLANT CROSSING EYE OF STORM OVER DOVER Mansfield and Goodwin Builders Files Depicted Pattern of Plain Stipulation ORION MANUFACTURING & SUPPLY CORPORATION CROSSING ASSESSING TO BE SUPPLY CORPORATION ORION MANUFACTURING & SUPPLY CORPORATION CROSSING ASSESSING TO BE SUPPLY CORPORATION OR A SUPPLY CORPORATION CROSSING ASSESSING TO BE SUPPLY CORPORATION OF THE SUPPLY CORPORATION OR THE SUPPLY CORPORATION OF T

Classic comedy involving an all-star cast of characters frolicking in Rome Having been east, west and north, he boarded a southbound train that had a sign for Ypes NORTHWESTERLY WINDS THIS EVENING UNTIL MORNING AT 10 - 20 MPH WITH GUSTS UP TO 35 MPH Valid in all Connecticut, California, Massachusetts, Minnesota, New Hampshire, Tennessee, Washington, West Virginia or American Samoa, and Pending in Puerto Rico, Idaho, Iowa, Texas, Ohio & Maine counties that begin and end with a vowel. OPERA SINGER FALL FROM STAGE AT EDGE OF CONTINENTAL DIVIDE AND LANDS IN BUSY BAY WHERE RESEARCHERS ARE BAITING SHARKS. Crammming for exams made some students turn to massive inhalations of sugar, coffee and a kind of quickly-made sandwiches called "sliders" Glad to see them, we threw out bats and mitts in

and fluid weight and widths (left), allow the composition to "collapse" editorially from a full hierarchy of fonts helping the reader navigate from complete textual content, down to a single line of information, for a link or ad e.g. without completely losing a typographic identity in the process.

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waht 750 **BASIC Functions BASIC Functions** BASIC Functions BASIC Functions

BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions

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waht 750

BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions BASIC Functions

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waht 750

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EXTREMO waht 750