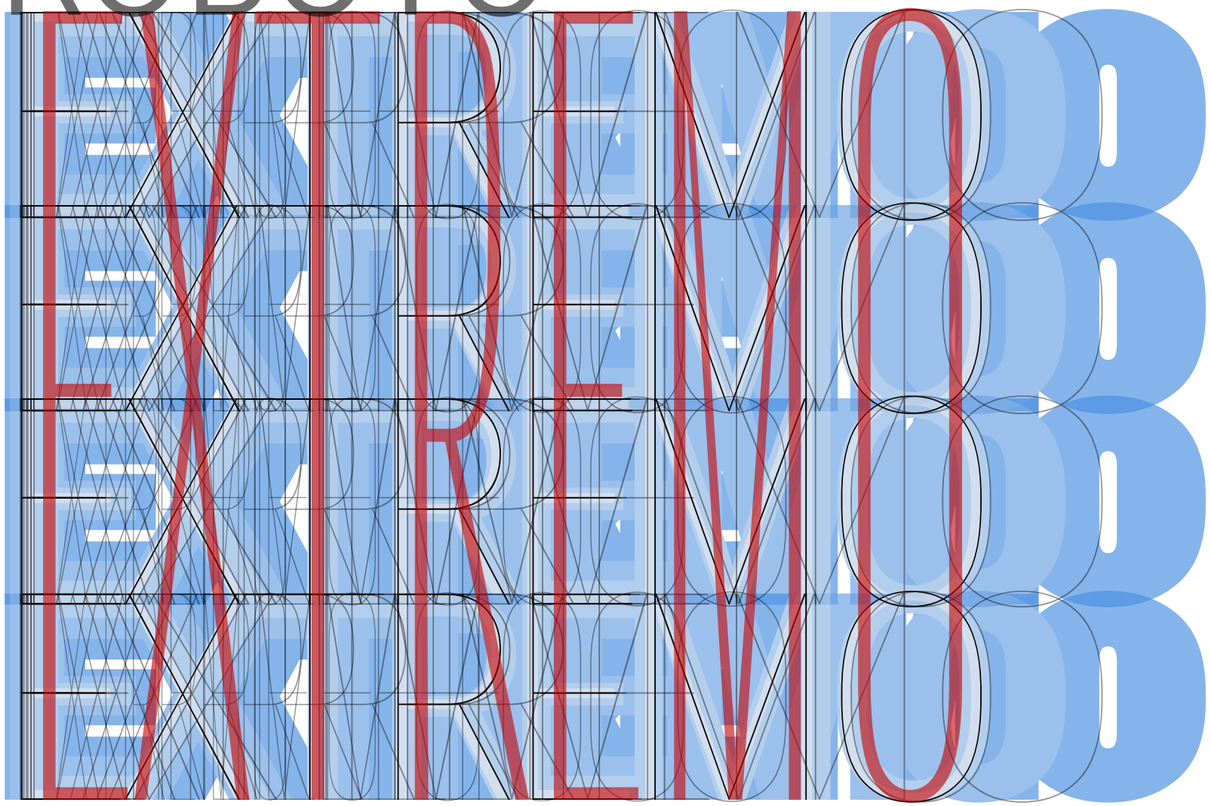
ROBOTO



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 wdth).

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 restructured 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.

The Regular style is a nearly identical match when swapped with the existing Roboto.

opsz 14 @14pt

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 @42pt

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 @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 HHMHH HHNHH HHOHH HHPHH HHQHH HHRHH HHSHH HHTHH HHUHH HHVHH HHWHH HHXHH HHYHH HHZHH nnann nnbnn nncnn nndnn nnenn nnfnn nngnn nnhnn nninn nnjnn nnknn nnlnn nnmnn nnnnn nnonn nnpnn nnqnn 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 HH%HH HH&HH HH?HH HH! HH HH/HH HH|HH HH\HH HH"HH HH~HH HH`HH HH*HH HH^HH HH'HH HH:HH HH;HH HH.HH HH,HH HH)HH HH]HH HH}HH HH>HH

PROTOTYPE In UI

Deployed

Google Slides

- Docs
- Sheets
- Slides
- Forms
- Settings
- Help & Feedback
- Drive

Extremo

Matching size and weight

Google Slides

- Docs
- Sheets
- Slides
- Forms
- Settings
- Help & Feedback
- Drive

14 pt opsz14 wght550 wdth115

AXES IN ALPHA VF opsz

The design space began with envisioning and then designing an unbalanced range of size masters upon which to base the weight and width axes. the optical sizes floor at 8 point, and ceiling at 72 in the first design space. o as 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.,:;!?()[]
{}/|\#$%@'"*~^_`=
+<>-

opsz 72 @72pt

ABCDEFGHIJKLMNOPQRST
WXYZ&abcdefghijklmnopqr

opsz 14 @24pt

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

opsz 14 @14pt

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

opsz 8 @24pt

ABCDEFGHIJKL
MNOPQRSTUVW
XYZ&abcdefghij
klmnopqrstuvwx
yz0123456 78
9.,:;!?()[]{}/|\#$
%@'"*~^_`=+<>
-

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 wght 900 @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 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 @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 wdth 125 @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 @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 . , : ; ! ? ( ) [ ] { } / |
\ # $ % @ ' " * ~ ^ _ ` = +
< > -

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 stye 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 cjhanges uppercase height. YTLC changes lowercase height. XOPQ changes stem weight. YTAS changeslowercase 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

opsz 14 XTRA maximum

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

opsz 14 YTUC 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

opsz 14 YTUC maximum

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

opsz 14 YTLC 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

opsz 14 YTLC maximum

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

opsz 14 @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 YOPQ 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

opsz 14 YOPQ maximum

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

opsz 14 YTAS 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

opsz 14 YTAS maximum

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

opsz 14 XOPQ 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

opsz 14 XOPQ maximum

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

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 for the completed style sof the 14 point master.

opsz 14, wght and wdth masters @14pt

MEMORABLE Planning sessions
MEMORABLE Planning sessions
MEMORABLE Planning sessions
MEMORABLE Planning sessions

MEMORABLE Planning sessions
MEMORABLE Planning sessions
MEMORABLE Planning sessions

opsz 14 wght 900 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 900 @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 900 wdth 125 @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 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 @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 wdth 125 @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

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 @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 125 @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 . , : ; ! ?
( ) [ ] { } / | \ # $ % @ ' " *
~ ^ _ ` = + < > -

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 opticala size was doubled to 144 pt, in effect doubling the minimum weight at the maximum size, far safe rendering on all modern platforms.

opsz 144 @24pt

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

ABCDEFGHIJKLMNOPQRST
abcdefghijklmnopqrstuvwxyz

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

ABCDEFGHIJK
PQRSTUVWXY
abcdefghijklmn

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 presents 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 wght 400 wdth 25 @144pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ&

opsz 144 wght 400 wdth 100 @144pt

ABCDEFGHIJK

opsz 144 wght 900 wdth 25 @144pt

ABCDEFGHIJK

PQRSTUVWXY

abcdefghijkl

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.

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 around more than 3 characters in the same short string, (yellow arrows).

opsz 14 wght 400 wdth 151 @144pt

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

opsz 144 wght 400 wdth 151 @144pt

ABCDEFG

opsz 14 wght 400 wdth 100 @14pt

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

opsz 144 wght 400 wdth 100 @144pt

ABCDEFGHIJK

opsz 14 wght 900 wdth 151 @14pt

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

opsz 144 wght 900 wdth 151 @144pt

ABCDE

PQ HIJKLM

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, and with axes name abbreviation for x/y direction, opaque/transparent, the glyph group, uc/lc/figures, and more in some cases of axes names.

An example shown here, is the detailed variation of the 14 pt regular, top loine at left, to the 8 pt regular, bottom line at left, (i.e. from the default opsz to the opsz minimum that will be 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 x-transparency, (XTRA), so the spaces of the 8 pt will be shrinking less aas 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 set of 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

A B C D E F G H I J K L M N O P Q R S T U V

opsz 14 @14pt

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 @72pt

Alpine

XOPQ 94, XTRA 359, YOPQ 78, YTLC 514

Alpine

XOPQ 100, XTRA 359, YOPQ 78, YTLC 514

Alpine

XOPQ 100, XTRA 381, YOPQ 78, YTLC 514

Alpine

XOPQ 100, XTRA 381, YOPQ 84, YTLC 514

Alpine

XOPQ 100, XTRA 381, YOPQ 84, YTLC 532

opsz 8 @72pt

Alpine

XOPQ 100, XTRA 381, YOPQ 84, YTLC 532

opsz 8 @8pt

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

Captions can add a lot to reading as they can tie text matter to one or more of the nany other forms of media. Many practical uses

opsz 8 @8pt

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 . , : ; ! ?

Captions can add a lot to reading as they can tie text matter to one or more of the nany other forms of media. Many practical uses of this can be found.

opsz 8 @8pt

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

Captions can add a lot to reading as they can tie text matter to one or more of the nany other forms of media. Many practical uses of this can be

opsz 8 @8pt

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 . , : ; ! ? ( )

Captions can add a lot to reading as they can tie text matter to one or more of the nany other forms of media. Many practical uses of this can be found.

opsz 8 @8pt

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

Captions can add a lot to reading as they can tie text matter to one or more of the nany other forms of media. Many practical uses

AXES IN Beta VF
Transparently available
size-safe styles

The specification 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 reagrdelss of their choice of width weight or other instances along other axes, the style would work a 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 abiltiy to safely select weights and widths befitting their topic matter, template, scale and customize compositions with such selections can produce a much imprived typographic result.

The Most Compressed “A” of the design space

144 pt

120 pt 120 pt

96 pt

72 pt

36 pt

18 pt

14 pt

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 heirarchy of fonts helping the reader naviaget notre complet 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 non-variable version of the same font.

EXTREMO

144pt 200 wght 70 wdth
REFRESHER

36pt 250 wght 90 wdth
REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

18pt 400 wght 100 wdth
Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

13pt 400 wght 100 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. 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.

9 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. ,

36 pt 200 wght 70 wdth
REFRESHER BUILDS SOFTWARE

16 pt 400 wght 100 wdth
Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

13 pt 400 wght 100 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.

24 pt 200 wght 70 wdth
REFRESHER BUILDS SOFTWARE

13 pt 400 wght 100 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
13 pt 200 wght 70 wdth
Two ideas make talking software with REFRESHER, well you know...

ROBOTO "Classic"

144 pt Roboto Thin
REFR

36 pt Roboto Light
Tracked a lot
REFRESHER BUILDS PEOPL TALKING SOFTWARE TO YO

18 pt Roboto Regular
Tracked quite a bit
Networked landscapes with operational tone of voice in multiple-platform type is not a thing of the past.

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

9 pt Roboto Regular
* Not valid engineering in Connecticut, California, Massachusetts, Minnesota, Mississippi, North Carolina, Pennsylvania, Tennessee, Washington, West Virginia or American Samoa. P Iowa, Texas, Ohio and Maine. ,

36 pt Roboto Thin
REFRESHER BUILDS SOFTW

16 pt Roboto Regular
Networked landscapes with operational tone of voi multiple-platform type is not a thing of the past.

13 pt Roboto Regular
Two ideas altered the design of the printing press radically: Firs of steam power for running the machinery, and second the repl of the printing flatbed with the rotary motion of cylinders.

24 pt Roboto Light
REFRESHER BUILDS SOFTWARE

13 pt Roboto Regular
Two ideas altered the design of the printing press radically: Firs of steam power for running the machinery, and second the repl of the printing flatbed with the rotary motion of cylinders.

13 pt Roboto Regular
13 pt Roboto Light
Two ideas make talking software with REFRESHER, well you

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 proportionally smaller sizes for another, without any style, spacing or other refinements. Larger sizes used at left 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 shown at right.

144pt 200 wght 70 wdth

REFRESHER

36 pt 250 wght 90 wdth

REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

18pt 400 wght 100 wdth

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

13pt 400 wght 100 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. 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.

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. ,

57 pt 200 wght 70 wdth

REFRESHER

21 pt 250 wght 90 wdth

REFRESHER BUILDS PEOPLE-TALKING SOFTWARE TO YOU

14pt 400 wght 100 wdth

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

11pt 400 wght 100 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. 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.

8 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. ,

AXES IN Beta VF Tabular Figures Introduction

Tabular figures, where the numbers of a font style, with other glyphs sometimes 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 values or whole columns of values. Most tabular composition is done in smaller size uses, 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 wieghts? 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

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 14 @42

01 01

opsz 14 @42

01 01

opsz 14 @42

01 01

opsz 144 wght 500 wdth 100 @278 pt

00

opsz 144 wght 100 to 900

0

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

11

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	wdth 100	wdth 150
wght 900	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 400	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 100	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123

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	wdth 100	wdth 150
wght 900	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 400	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 100	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123

opsz 14@42

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	wdth 100	wdth 150
wght 700	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 400	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 100	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123

AXES IN Beta VF
Tabular figures 36 pt

At 36 point the figures above wght 700 are, 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	wdth 100	wdth 150
wght 700	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 400	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123
wght 100	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123	0123456789 1234567890 2345678901 3456789012 4567890123

AXES IN Beta VF
Tabular figures 144 pt

The 144 point optical size is designed for users seeking large impactful numbers, and tabular versions of those are secondary. The extreme range of the weights and widths, make for very small segments of tabular figures that in the bolder and condensed areas of the in the 144 pt. The light and wide range, i.e. 100 to 400 wght and 100 to 150 wdth, remain tabular.

docs.google.com/spreadsheets/d/1OS9wOXAB6zeoXy7tf7m8Du4zzMmAQYLCJktehCSZ-T8/edit#gid=1691942538

Column D-M contains the figure widths of eveery existing instance in the design space.

opsz 144 @42

wdth 25

wght 700
wght 900

0123456789
1234567890
2345678901
3456789012
4567890123

wdth 100

0123456789
1234567890
2345678901
3456789012
4567890123

wdth 150

0123456789
1234567890
2345678901
3456789012
4567890123

wght 400

0123456789
1234567890
2345678901
3456789012
4567890123

0123456789
1234567890
2345678901
3456789012
4567890123

0123456789
1234567890
2345678901
3456789012
4567890123

wght 100

0123456789
1234567890
2345678901
3456789012
4567890123

0123456789
1234567890
2345678901
3456789012
4567890123

0123456789
1234567890
2345678901
3456789012
4567890123

AXES IN Beta VF
Tabular Figure Finding

While 144 point has no documented tabular figures, within the combination of weight and width at opsz 144, the user can find tabular figures for any weight or width the choose, from among the weights and widths of 144 point. This can either be accomplished by “fishing” or

https://docs.google.com/spreadsheets/d/1OS9wOXAB6zeoXy7tf7m8Du4zzMmAQYLCJktehCSZ-T8/edit#gid=218167143

“Index Refs” tab are the glyphs, indentities and index point numers within those glyphs, that supply the parametric values of each axes.

“Measurements” tab, Column T: is the measure all of the tabular widths of the figures of the instances that make up the design space.

This same value is also found in the same sheet, in “Widths”, where Column D lists the figure 0 and the rest of the tabular figures match that.

opsz 144 @42

wght 453 wdth 25

0123456789
1234567890
2345678901
3456789012
4567890123

wght 610 wdth 42

0123456789
1234567890
2345678901
3456789012
4567890123

wght 688 wdth 73

0123456789
1234567890
2345678901
3456789012
4567890123

wght 770 wdth 122

0123456789
1234567890
2345678901
3456789012
4567890123

wght 360 wdth 35

0123456789
1234567890
2345678901
3456789012
4567890123

wght 373 wdth 77

0123456789
1234567890
2345678901
3456789012
4567890123

wght 400 wdth 100

0123456789
1234567890
2345678901
3456789012
4567890123

wght 400 wdth 151

0123456789
1234567890
2345678901
3456789012
4567890123

wght 100 wdth 46

0123456789
1234567890
2345678901
3456789012
4567890123

wght 100 wdth 80

0123456789
1234567890
2345678901
3456789012
4567890123

wght 100 wdth 108

0123456789
1234567890
2345678901
3456789012
4567890123

wght 100 wdth 151

0123456789
1234567890
2345678901
3456789012
4567890123

AXES IN Beta VF single parametric axes use

Parametric axes may be used individually to refine type manually or automatically. The top example shows a custom style of Roboto Extremo that is also very tightly linespaced, (top), and how a slight manual raising of the descenders (bottom), can help alleviate the tightness between the lines.

The bottom 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.

YTDE -203

Hyperbolic amphibian

YTDE -150

Hyperbolic amphibian

Justificaiton 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.

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

Justificaiton via word space, letterspace and XTRA

YOPQ 50; CW 42; 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.

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 to a wider “—Regular” with a taller lowercase height for a more modern look. Then by addition from the weight axis to “—Bold”. Weight and other axes can be used to form a small family of styles which can be defined in CSS with simple style names, e.g. “—SmallBold”, despite having complex numerical locations in Extremo’s variable design space.

--Regular

HanSeatic Furniture

--Bold

HanSeatic Furniture

--Large

HanSeatic Furniture

--Small

HanSeatic Furniture

--Small Bold

HanSeatic Furniture

--Elegant

HanSeatic Furniture

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 on the Em, to appear similar to the Latin. Given separate, interoperable alignment values, the scripts within a font could 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 paramters to produce most 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.

شكلها 14

شكلها 24

شكلها 48

opsz 14 @72

Hhpx شكلها

opsz 14 @24

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

opsz 48 @72

Hhpx شكلها

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

opsz 48 @72 XTRA 382

Hhpx شكلها

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

opsz 48 @72 XTRA 382 YTLC 430

Hhpx شكلها

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

opsz 48 @72 XTRA 382 YTLC 430 YTUC 644

Hhpx شكلها

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

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

Hhpx شكلها

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

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

Hhpx شكلها

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