Vocabulary Sheet / Web Type, Part III / *Artful Options for Typography on the Web*

Variable Fonts Are Here To Stay by Dave Crossland and Laurence Penney. Includes links to additional resources at the bottom of the article.

CSS WEIGHTS & STYLES

Variable fonts' axes are based on number scales, such as:

100 = thin

200 = extra-light

300 = light

400 = normal, book

500 = medium

600 = demi-bold

700 = bold

800 = heavy

900 = black

v-fonts.com, an online inventory of variable fonts compiled by Nick Sherman.

VARIABLE FONTS

Typically, typefaces require different font files for each of the weights and styles within a family. As a recent extension of the OpenType file format, variable fonts are designed to provide great variety in weight and style for a typeface *within a single font file*. Since a wide range of weights, styles, and shapes can be programmed within individual variable font files, they can produce a much greater degree of visual variety than traditional font files. For the web, all of this means better page-load times, highly specific typesetting, and lots of creative potential.

HOW DO THEY WORK?

Variable fonts are built with axes in mind — sliding scales of default, minimum and maximum values for settings such as character set width, style, and weight.

AXIS TYPES *5 categories of axes are registered in the spec: weight (*`wght`*), width (*`wdth`*), italic (*`ital`*), slant (*`slnt`*), and optical size (*`opsz`*). Not all of them have to be used for a font to work; additional custom axis types are also possible (for serif shape adjustments, for example).*

HOW TO INCORPORATE VARIABLE FONTS: SYNTAX (STATIC EXAMPLES)

1) *Link to the fonts (code varies based on source of license and font files):*

If using Google variable fonts, follow the prompts to insert their <head> tag code in the HTML file. Ex.:

OR

```
<head>
    <link rel="preconnect" href="https://
fonts.gstatic.com">
    <link href="https://fonts.googleapis.
com/css2?family=Bitter:wght@100;200;300
;400;500;570;600;700;800;900&display=sw
ap" rel="stylesheet">
</head>
```

If you have font file(s), insert them into your project fonts folder and source them using @font-face in CSS. Ex.:

```
@font-face {
    font-family: MalvaVariable-Roman;
    src: url("fonts/MalvaVariable-Roman.ttf")
format('truetype');
    font-weight: 100 900;       }
```

2) *Then, in either case above, set the type with CSS settings, for example:*

```
a:link {  font-family: 'Bitter', serif;
          font-size: 1.25em;
          font-weight: 200;
          color: white;     }
a:hover {  font-weight: 800;
           color: #c46f28; }
```

```
h3 {  font-family: MalvaVariable-Roman;
          font-size: 3vw;
          font-weight: 200;
          color: gold;    }
h3:hover {  font-weight: 800;  }
```

HOW TO USE VARIABLE FONTS: SYNTAX (ANIMATED EXAMPLES)

1) *Link to the fonts* *(repeat choice of options on page 1, step 1).* Example below points to a font file in the project fonts folder with @font-face in css*:*

```
@font-face {
    font-family: Studio Feixen Sans Variable;
    src: url("fonts/Studio Feixen Sans Variable.ttf") format('truetype');
    font-weight: 100 400;    }
```

2) *Set the type and animations with css settings:*

Animate on hover example:

```
.variable_feixenSans {
        font-family: "Studio Feixen Sans Variable";
        font-size: 2.5vw;    }


.variable_feixenSans h3 {
        -webkit-transition: all .5s ease;
        -mozilla-transition: all .5s ease;
        -o-transition: all .5s ease;
        transition: all .5s ease;

        font-variation-settings: "wght" 100, "wdth" 0;
        color: gold;
        line-height: 1em;    }


.variable_feixenSans h3:hover {
        font-variation-settings: "wght" 400, "wdth" 100;
        color: aqua;    }
```

Automatically animate example (using a keyframe animation):

```
.variable_feixenSans_anim {
        font-family: "Studio Feixen Sans Variable";
        font-size: 2.5vw;    }


.variable_feixenSans_anim h3 {
        color: gold;
        line-height: 1em;

        animation-duration: 5s;
        animation-name: moveType;
        animation-iteration-count: infinite;    }


@keyframes moveType {
        0% { font-variation-settings: "wght" 100, "wdth" 0;    }
        30% { font-variation-settings: "wght" 250, "wdth" 50;  }
        60% { font-variation-settings: "wght" 400, "wdth" 100;  }
        100% { font-variation-settings: "wght" 100, "wdth" 0;    }
}
```
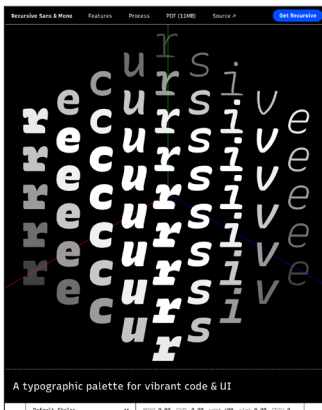

Recursive variable font by Arrow Type (with 5 axes). Arrow Type stems from the KABK (Royal Academy of Art) Type Design program in The Hague.