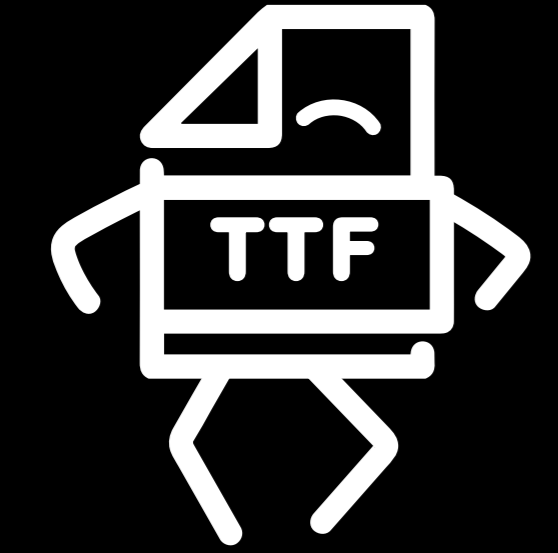
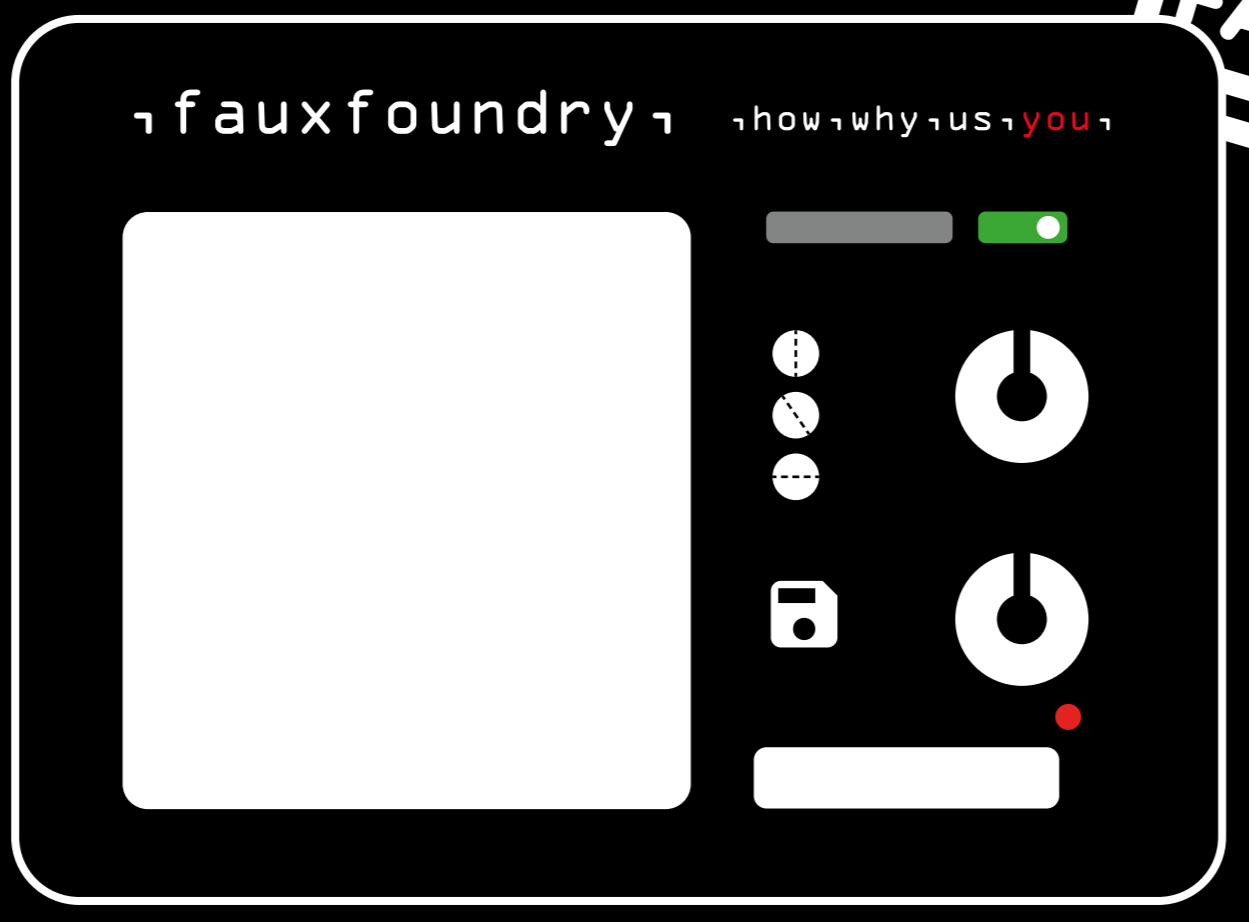


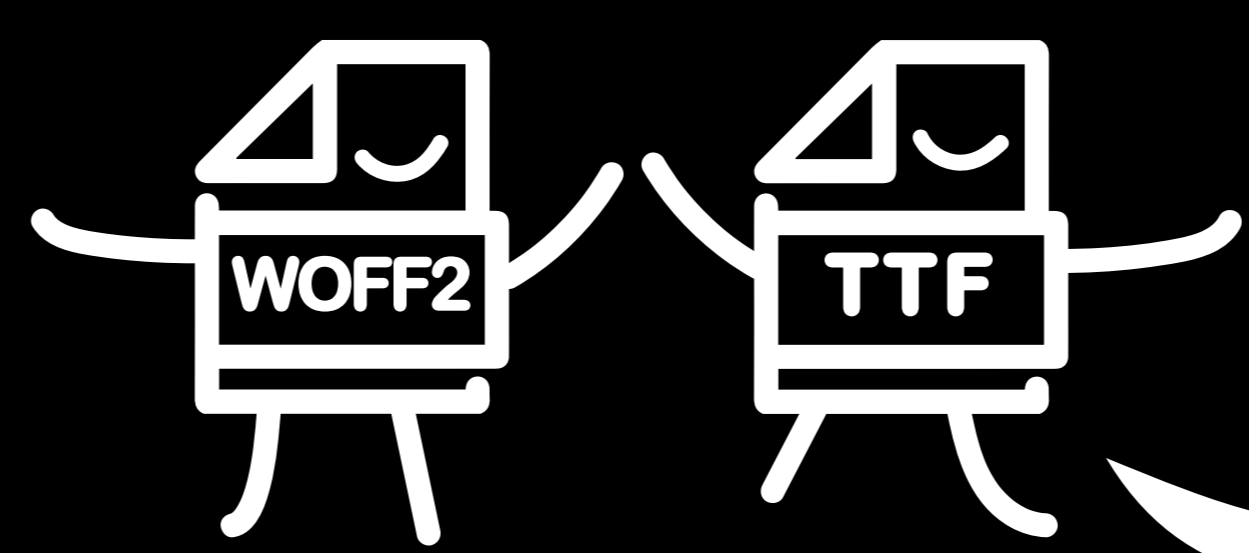
Hi! I'm Merriweather, a Latin-only font and I wish I had a Greek partner!



Hi! I'm FauxGrec and I'm a font chameleon! You cannot really meet me, I'm hidden inside FauxFoundry.



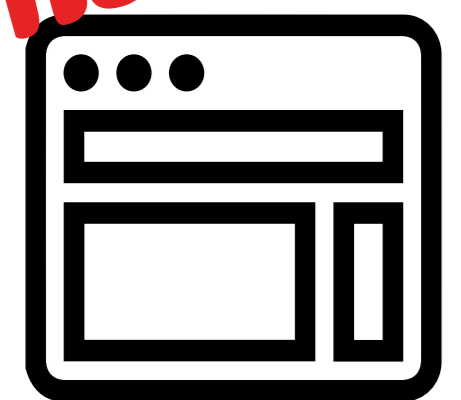
Γεια σας! Είμαι η ελληνική Merriweather και φτιάχτηκα στη στιγμή από το FauxFoundry!



Hi! I'm Merriweather, and now I do have a Greek partner!

THE MISSING GREEK!

1. INTRO



FauxFoundry, our web app, takes Latin fonts as input, measures key features, then generates synthetic but harmonious Greek fonts. These Greek

fonts work via the standard CSS font fallback mechanism.

This proposal addresses a common problem in contemporary computer typography, where typographic templates, such as those widely deployed in content management systems (CMS) for the World Wide Web (WWW), specify fonts that lack characters contained in the texts to be displayed using the templates. The character repertoire needed to display all the characters in a CMS, or even in user input, is inherently difficult to control. Computer systems typically include "fallback" mechanisms that ensure a system font is available to render characters not in the font specified. However, this introduces significant stylistic incompatibilities. The problem is widespread on the WWW, where non-Latin characters in documents often appear in unharmonious fonts.

The synthetic fonts are static instances of the parametric font (FauxGrec), using parameters supplied by the step that measures a specified Latin font. The resulting synthetic font is harmonious with the specified font, resulting in much improved typography when the user adds the CSS, supplied by FauxFoundry, to their website code.

2. METHOD

FauxFoundry consists of three main components: i. FauxGrec, the parametric variable font ii. CounterFitter, the in-browser measuring module iii. FauxForger, the webfont generation module

This system of parametric axes is already used for the building of the fonts Amstelvar and Roboto Extremo. These axes, in very basic terms, control the opaque (black) and transparent (white) parts of letters.



3. ELEMENTS

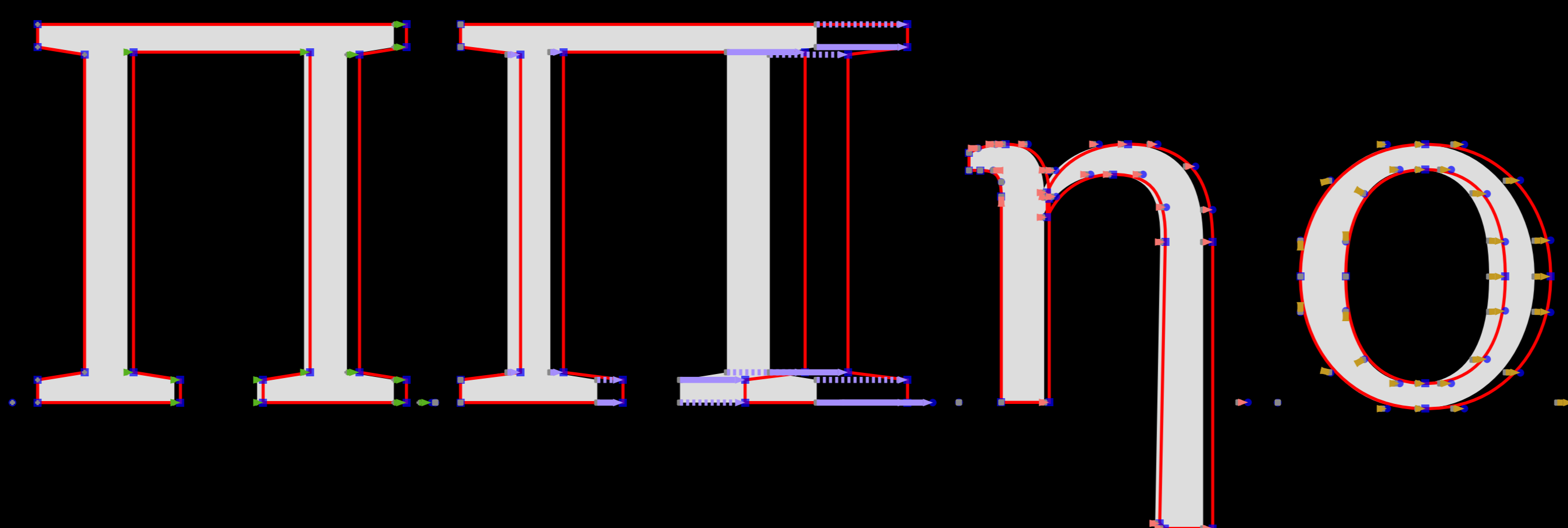
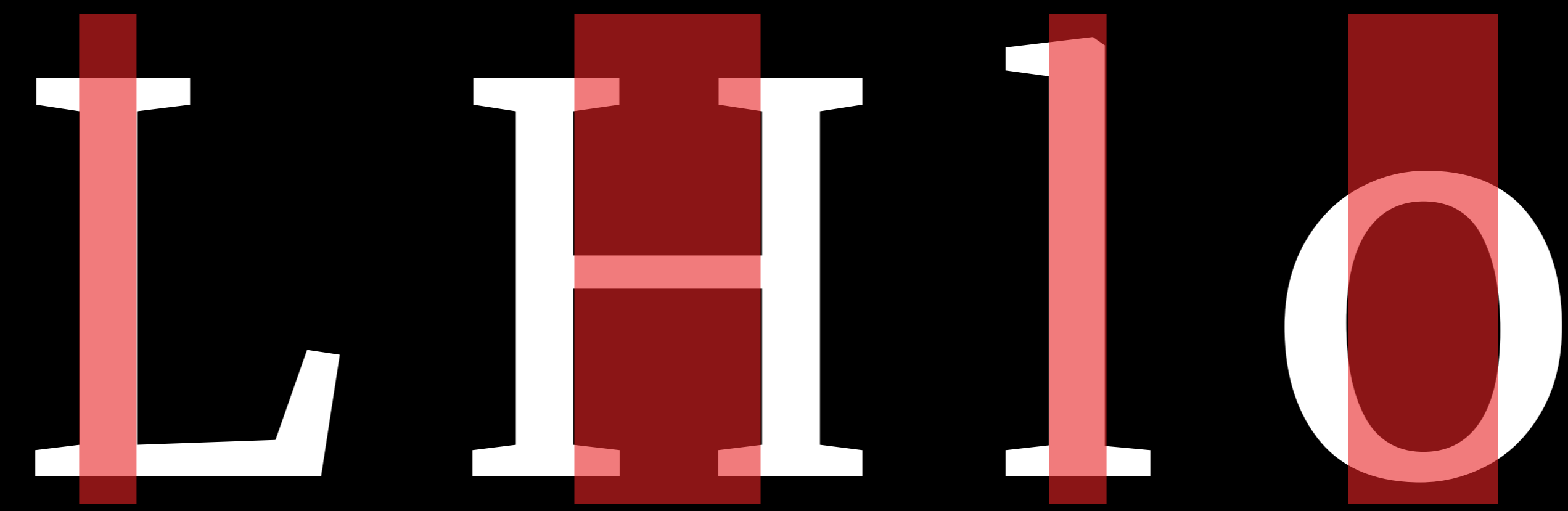
A. FAUX GREC
FauxGrec is our parametric variable font, built to the OpenType 1.8 Variations specification. Its variation axes are based on those proposed by Type Network in 2017. We use a serif model for FauxGrec, a more interesting challenge than a sans-serif due to the complexity of the skeleton, varieties of contrast, and variation of serifs. The design is strongly influenced by default serif fonts in office/design applications. Adding 16 parametric master designs to this default style, we produce a variable font that, via 12 variation axes, allows precise adjustments to width, weight, contrast, x-height, serifs, ascenders and descenders.

B. COUNTERFITTER
When a user visits FauxFoundry, the web app performs the following steps:
• Accepts a user-specified font via drag-drop.
• Renders key characters as bitmap images on an HTML <canvas>.
• Measures 12 features (stem widths, x-height, cap height, etc.) in pixels.
• Converts those values to font units.
• Requests synthetic font from FauxFoundry server using these 12 parameters.

C. FAUXFORGER
When FauxFoundry receives a synthesis request, it applies the 12 parameters to the FauxGrec parametric font to synthesize a new font the using fontmake font compiler. The resulting TrueType file (static, not variable) is then compressed in the WOFF2 format, resulting in a 5kB file accessible as a webfont. CSS is supplied to the user which creates the @font-face webfont rule with the URL of the synthetic font for use as their Greek fallback font.

FauxFoundry

αβγδεζηθικλμνξοπρστυφχψω
ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡ
ΣΤΥΦΧΨΩ



4. DISCUSSION & CONCLUSION

ETHICS
Objections can be raised regarding the generation of accurate Greek matches for Latin designs. Anecdotally, in the 1990s Adobe chose to limit the variation possibilities of their own parametric fallback fonts, Adobe Serif MM and Adobe Sans MM, for this reason. We have not encountered such objections with font synthesis intended for script expansion. We limit our parametrization to 12 well-documented axes in the hope and expectation that such measurement, while capable of generating harmonious fonts, will not be considered cloning. Furthermore, FauxFoundry's Terms of Use forbids use on Latin fonts for which a Greek set already exists. By raising awareness of poor support of non-Latin type design, we hope to encourage type foundries and corporations to improve their script coverage.

TECHNICAL DECISIONS
Currently FauxGrec is not accessible directly, only the instances that are produced from it. Reasons: we keep control of the intellectual property; it avoids misuse of the parametric font being used beyond its design scope; the font files supplied are very small. These factors are not necessarily compelling. We acknowledge two major benefits of direct access to a parametric font: synthesis measured in milliseconds, and the possibility to cache the same font for use on multiple websites. Note that, in the web environment, parametric fonts can be controlled using CSS 'font-variation-settings'.

AESTHETIC QUALITY OF SYNTHETIC FONTS
No detailed analysis has been conducted, but the font appears to perform well when given a wide range of serif fonts as input. From light to extra-bold, with low and high x-heights, with various serif designs, we obtain harmonious synthetic Greek fonts.

USAGE
Underware for their Greek FontFiction website. Creta Dental.

DEPLOYMENT BEYOND BROWSERS
FauxFoundry outputs CSS which a designer-typographer incorporates into their own website. We can consider the benefits of the same functionality being built into browsers. Should every browser ship with a parametric font and a glyph measuring mechanism? The functionality may be useful enough to be built into an OS. We imagine a time may come when system fonts are expected to be parametric.

The best solution for multilingual typesetting remains a typeface that supports all the scripts being used. Our purpose is not to replace true multiscript typeface design but to offer a "better than nothing" solution when there is no alternative, providing readers a less compromised reading experience.

FURTHER WORK
Spacing synthesis can be improved. We intend to add a spacing axis, its value derived from the Latin font's spacing. Sans-serif fonts are beyond the current scope, but we see no obstacles in synthesizing them. We believe automated classification into Geometric, Grotesque and Humanist categories will be possible and useful. Italic fonts are beyond the current scope, but David Berlow shows with Amstelvar Italic that such fonts can be synthesized well. Polytonic Greek is expected to be a simple enhancement to FauxGrec. Script expansion would go beyond Greek. We invite type designers with an interest in parametric design and proficiency in other non-Latin scripts to contact us.

5. REFERENCES

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- *Variations Proposal Introduction*, presenting the Type Network parametric axes. David Berlow, Type Network, July 2017
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6. CONTACT

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