

REFLECTION ON PRACTICE:

Designing the Emrys Type-Family

Ben Jones, June 2011

University of Reading
Department of Typography and Graphic Communication
June 2011

Essay submitted in partial fulfilment of the
requirements for the MA in Typeface Design

LIST OF CONTENTS

1	Defining the Brief	page 3
2.1	Latin	3
2.2	Latin italic	4
3.1	Greek	5
3.2	Greek italic	6
4	Arabic	6
5.1	Cyrillic	8
5.2	Cyrillic italic	8
6	Armenian	8
7	Bolds	9
8	Technical Issues	9
9	Conclusion	10

1 DEFINING THE BRIEF

Emrys was initially conceived while designing a separate typeface during the first of Gerard Unger's workshops. The result of that workshop was a truly hideous typeface, designed for use at the smallest possible size on screen. Because of this constraint, the typeface was designed as a mono-linear sans-serif and fitted to a grid. However, in order to compensate for the optical effect of vertical stems appearing thinner than horizontal stems, despite having a mathematically identical thickness, the vector outlines had to be substantially modulated to produce the appearance of mono-linearity at such a small size and coarse resolution. This design led to an off the cuff remark by Gerard that there were "not many modulated sans-serifs".

Exploring any underpopulated niche or genre is likely to present a number of opportunities and challenges and, having researched existing modulated sans-serifs, it appears that there are broadly speaking, four categories into which they fall:

- the 'Art-Deco' style of display typeface, which can be largely and uncharitably described as Didone style typefaces with the serifs chopped off
- Sans-serif typefaces with a modulation so slight that it could almost be considered as optical correction
- Incised typefaces which, while prominently modulated, also tend to have serif-like structures
- Optima

It was this last category that presented the most interesting opportunity for development.

Optima is a hugely successful typeface (helped in no small part by its presence on almost every designer's computer as a system font) however, it has its limitations. Indeed, similar to the majority of sans-serif typefaces, Optima suffers from readability issues when used to set continuous text. Specifically, it is the homogeneity of the key structural elements of the letterforms (stems, counters, etc.) that produce a monotony in not only the black shapes, but also the white spaces between letters. The most notable difference between reading a block of text set in a sans-serif typeface and one set in a serif typeface is the texture. Serifs and stroke modulation help to define a greater variety of inter-letter white spaces which, in turn, assist readability by creating more distinctive, and hence, more discernible word-shapes (see *Image 1*).

Thus, the aim in designing Emrys was to create a typeface with as much texture as possible while still retaining the sans-serif aesthetic.

2.1 LATIN

In order to establish the design traits of the Latin, the project began with exploring as many mark-making tools as possible including broad-nib pens, felt tip pens, soft brushes, firm brushes, pencils, bits of wood and a metal spatula. While some tools were more successful than others, it was a short, firm brush that provided



Image 1 - The 'white' space between letters is very plain in Myriad (top), quite complex in Minion (bottom) and somewhere in between in Emrys (middle).



Image 2 - The original brush and ink sketch that provided the basis for the entire typeface. Shown at 100% size.

the most suitable mark and it was with this tool that a lowercase letter 'n' was written (*see Image 2*) that formed the starting point of the typeface.

It was this letter 'n' that informed many of the design fundamentals of the typeface, including the approximate ratio of thicks to thins and of stem width to x-height, as well as suggesting how the stem terminals could be handled.

The initial digitisation produced a perfectly reasonable, albeit remarkably dull, set of letterforms and subsequent attempts to refine the letters, including straightening the stems, adding the 'suggestion' of serifs and increasing the contrast, served to only further reinforce the blandness and 'vanilla' aspects of the letters (*see Image 3 - Left & Middle*).

After studying and comparing some of the more innovative work of past MATD students with the main competition in the modulated sans-serif genre (i.e. Optima), it became clear that adhering too closely to the initial model was hampering the development of the typeface.



Image 3 - The first digitisation.

Subsequent refinements culminating in a dull, generic set of letterforms.

Using a redefined 'tool' produced far more interesting shapes.

By redefining the hypothetical tool used to create the letterforms from a normal brush to one capable of folding over itself (to produce strong cuts in the corners and impossibly straight lines that converge with swelling stems) the typeface took on a far richer texture (*see Image 3 - Right*) and engaging tone of text-block. It could be argued (indeed, it was) that this produced too much texture and created an intolerable amount of 'sparkle' in the text, so some modifications to the hypothetical tool were needed to reduce the amount of contrast and soften some of the more abrasive angles present in the letterforms. These modifications were

also necessary to better balance the Latin with the Greek (see below) but once refined, this hypothetical tool came to inform the construction of all the letters as the character set was built up from the basic ‘adhesion’¹ to, at first, the full lowercase alphabet and then the uppercase and small caps. (The main lesson learnt from designing the Latin was that in type design, 50% of the work lies in defining the rules and the other 50% is in applying them. The same ratio however, is not applicable to the time involved).

2.2 LATIN ITALIC

The Latin italic followed a remarkably similar path as the upright but for different reasons. The initial attempt was made by simply sloping the upright and then ‘italicising’ it. The result was a dull, awkward, highly derivative (and derided) italic (*see Image 4 - Left*). Following in the footsteps of the most successful text typefaces, the italic was completely drawn from scratch (*see Image 4 - Right*) and digitised using a sloped copy of the upright for vertical alignment and proportions only.

Again the concept of the hypothetical tool (only this time set to ‘high-speed inebriation’) was essential in creating consistent letterforms and finding solutions to the idiosyncrasies of each letter. In addition to remodelling the letter (and sloping it) the character width was decreased and some of the more mechanical elements were removed (to move towards a more cursive construction).

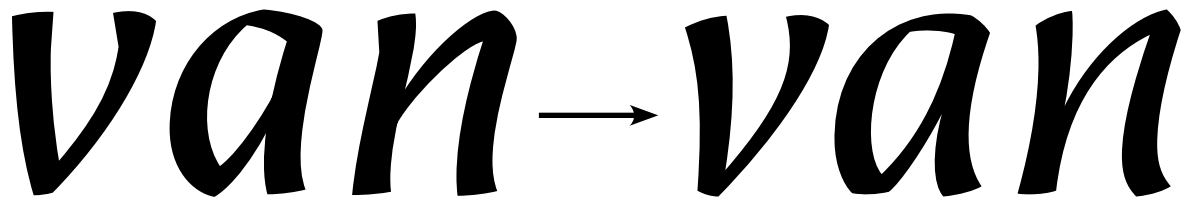


Image 4 - The initial attempt at an italic was, like the initial upright, dull.

Completely redrawing the italic using a modified concept of the ‘tool’ proved more successful.

3.1 GREEK

The Greek workshop began (as did all the non-latin workshops) with the exercise of actually hand-writing the script. This was indescribably useful as it provides an understanding of how the letters are created (the ductus) and therefore the correct application of modulation and stem terminals. This, coupled with the study of existing Greek typefaces (both old and new) and some of the history of Greek letterforms provided the knowledge necessary to produce an at least structurally correct Greek lowercase (and thereby avoid ‘doing a Van-Krimpen’).

Of the two ductus models present in Greek typefaces (one having a vertical stress with thin horizontals and thick verticals and the other model predominant-

¹ The word ‘adhesion’ is a compact, sensible collection of letters that best represent the various structures present in a complete alphabet.

ly having the reverse) it was the second, arguably more challenging but historically faithful ductus that I chose to follow in the design of the Greek.

Initially, simply applying the hypothetical tool to the Greek letterforms created an alphabet that superficially matched the Latin but produced an unbearably ‘sparkly’ text (see Image 5). This effect was largely due to the fact that there is more to swapping the thicks and thins in a letterform than simply swapping the thicks and thins. Heavy horizontal strokes can create banding in the text and, in a letter like ε, can lead to a dark, cramped shape with comparatively weak verticals. It was only by adapting the tool to the specific requirements of each letter (but still using the same tool) that enabled an alphabet with a good match to the Latin and had a high legibility. The most prominent modification was the reduction of contrast needed to make the letterforms legible. This in turn led to a reduction of the contrast present in the Latin in order to better marry the two scripts. It is also worth noting that the solution to some of the design problems inherent to Greek found their way back into the Latin (for example, the arm of the Latin ‘a’ was the direct result of the swelling strokes applied to Greek letters like γ or ν).

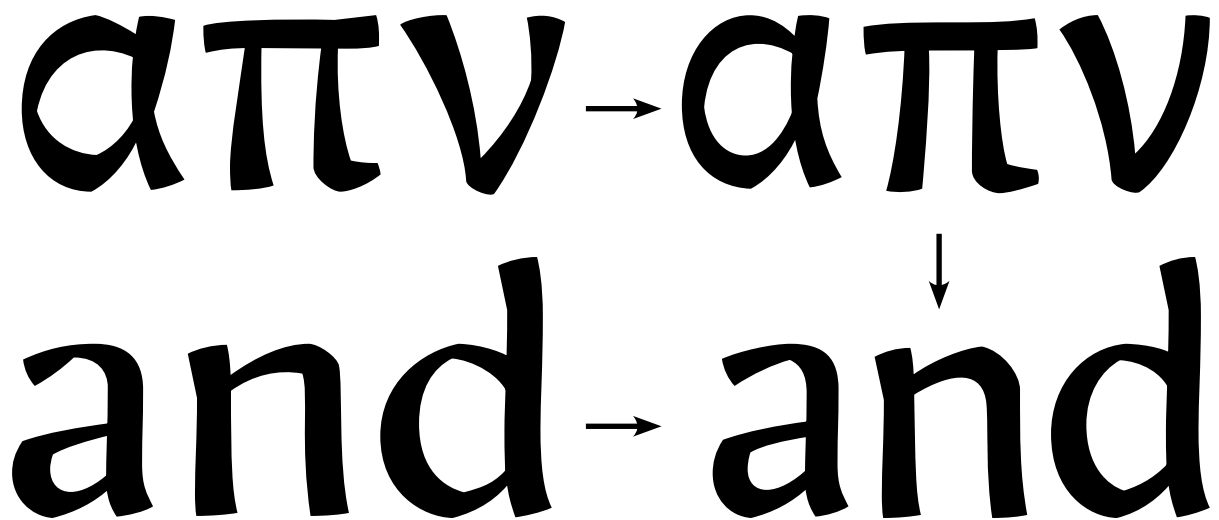


Image 5 - Too much angularity and contrast in the Greek (Top Left) created an uncomfortable texture when set in text.

Reducing the contrast and smoothing some of the features created a much more legible text (Top Right). This also had a direct effect on the Latin which was adjusted to match (Bottom Right).

3.2 GREEK ITALIC

The design of the Greek italic combined the lessons learnt from the Latin italic and the Greek upright but, as with many scripts, has challenges of its own. Specifically, while the initial attempts at a Greek italic were reasonably well formed, the cursive nature of the upright Greek meant that applying the rules for an italic Latin created an italic Greek that was far too similar to its upright counterpart. To

create a successful Greek italic, the procedures used to create the Latin italic had to be exaggerated (e.g. increasing the slope angle beyond the Latin, even further reducing the character width and rounding almost all the hard corners).

If placed on a spectrum of cursivity, the distance between the Latin upright and italic would be greater than that between the Greek upright and Italic, but to create a Greek italic with an equal degree of differentiation would push it too far from the Latin and as the typeface was designed as a multi-script typeface this is a suitable compromise.

4 ARABIC

If Greek can be described as being in the same ballpark as Latin, then Arabic is an entirely different sport. The challenges present in designing Greek (the different handling of stroke terminals, the balance of thicks and thins, the stroke connections) are multiplied a hundred-fold, turned in the opposite direction and then connected together in Arabic. This is probably best illustrated by stating that the first challenge, long before designing anything, was simply to be able to distinguish different letters (which, thanks to the Arabic workshop, was tackled fairly quickly). Understanding how the script actually works is equally important (from concepts such as the isolated, initial, medial and final forms of each letter (which are analogous to swash lowercase in the Latin script) and the exceptions to the rule to the angle at which the pen is typically held or the treatment of vowels and consonants). Beyond that, it is simply a matter of developing an ‘eye’ for Arabic by studying as many examples of Arabic type and lettering as possible to understand and appreciate the relative proportions, inter-letter relationships, inessential and essential structural elements (i.e. what can be ‘stylistically enhanced’ and what shouldn’t be messed with) and so on. This is an unsurprisingly long and, indeed, ongoing process.

When designing a particular feature, it was often the case that, despite having found a permissible example of its use, the degree of nuance with which I had implemented it was insufficient for a text typeface (for example, designing a medial qaf or sad (see Image 6) with such strong angles did not, at the time, strike me as being a structurally distracting choice).

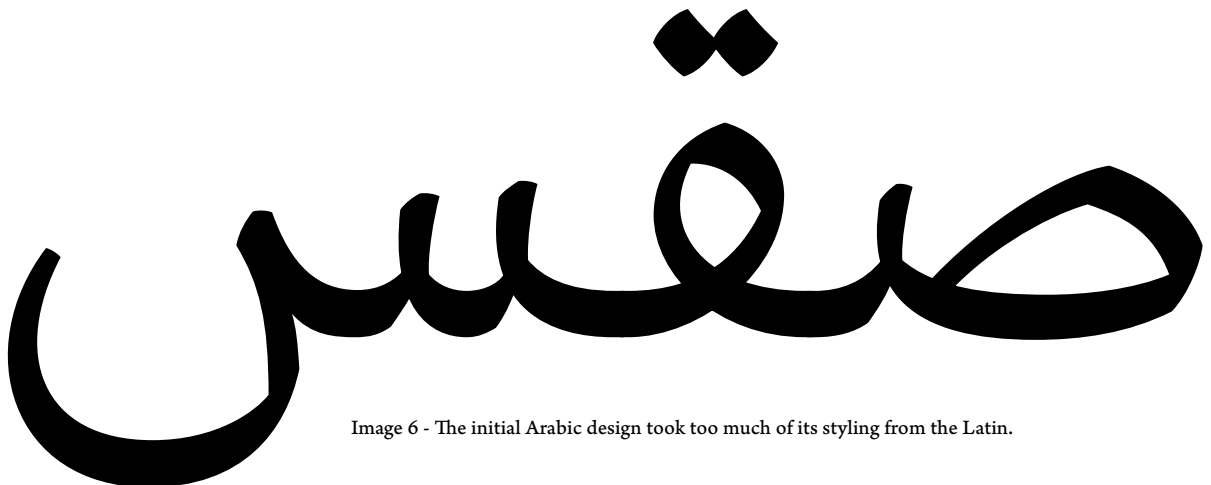


Image 6 - The initial Arabic design took too much of its styling from the Latin.

Understanding the relative vertical alignments is also crucial (and not nearly as simplistic as the Latin script). Again, studying and comparing examples of existing Arabic typeface, particularly those in the Linotype collection, was indispensable in achieving this. Obviously, while the actual distances and proportions differ between typefaces (as is the case with Latin typefaces) it is the consistent relationships between characters across multiple typefaces that provide the information key to designing an appropriately proportioned set of glyphs (for example, and generally speaking, the rah descends approximately half the distance of the ain which, in turn, descends approximately the same distance as the djim, despite all three characters having very different shapes, stroke thickness and proportions from one typeface to the next). It was observations like this (for all aspects of the Arabic script, not just the vertical alignments) as and when they presented themselves (or were pointed out) that drove the development of the Arabic component of the typeface as well as an understanding and appreciation of the Arabic script itself.

5.1 CYRILLIC

The design of the Cyrillic came sufficiently late in the development (after the Latin and Greek were reasonably well established) to become essentially a construction job, simply reusing the various elements and the application of the rules therein defined (as, historically, the Cyrillic alphabet is). Of course, the precise structure of each letter has to be referenced from external sources (using a hypothetical tool is a useful device but it cannot dictate entire letterforms). As simplistic as designing Cyrillic may sound, this was a thorough and useful test of the rules established during the design of the Latin and Greek, proving (or occasionally disproving) the robustness of the tool model.

5.2 CYRILLIC ITALIC

Designing a Cyrillic italic presents a similar challenge to the Cyrillic upright and is greatly benefitted by taking the experience from the Latin and Greek and applying it to the Cyrillic italic letterforms (after first learning what they are; similar to Latin italics, the italic forms of some Cyrillic letters are different to the upright) .

6 ARMENIAN

Designing the Armenian was essentially undertaken on a whim (two weeks of the Easter vacation spent researching for a dissertation will tend to do things like persuading you that starting an entirely unfamiliar script is a good idea). However, it transpired that Armenian is a hugely interesting and rewarding script to design.

Initially Armenian appears similar to Cyrillic in its 'derived from the Latin' construction but it quite quickly reveals an unanticipated degree of nuance and complexity (the 'Westernisation' by Peter the Great has somewhat hampered Cy-

rillic in this respect). Applying the rules and the tool-construct developed with the Latin is not as straight forward as it appears as each letter imposes different demands on the model. For example, some letters such as the n or u are extremely similar to Latin letters, others such as the ը, the բ or the ճ, appear similar but in fact require a great deal of attention in order to correctly balance them, while letters such as ծ, զ or ՚ are entirely different and present a real challenge, thoroughly testing the integrity of the model and its application.

This is especially true of the italic. Of the two schools of thought on Armenian italic (one saying that Armenian deserves a true italic, in keeping with advanced, modern day typography, the other saying it should simply be a sloped upright) it was the more challenging former that was chosen to accompany the upright (at this point the Arek typeface by Khajag Apelian must be mentioned as a tremendous source of inspiration for showing what is possible in an Armenian italic).

7 BOLD

The creation of an extra weight for each script was included in the original brief, however, due to time constraints, only the Latin, Greek and Cyrillic were completed. This was achieved, for the most part, by following the Ungerian method of widening the thick stems and then proportionally adjusting the thin stems to match (see Image 7). For Latin, Cyrillic, presumably Armenian and certain Greek letters the ‘thick stems’ equate to the vertical stems. For other Greek letters the method needed to be adapted by selectively adding some weight to the thick horizontals and disproportionately more weight to the thin verticals to create a letter perceptively bold enough to match the rest of the alphabet.



Image 7 – The bold (grey) was created from the regular (black) by extending the inside and outside of the thick stems.

A bold weight for the Arabic was attempted but came too late in the project (one week before submission) and received too little development to warrant

inclusion. Similarly, but with more success, a bold italic Latin was designed using the same method.

8 TECHNICAL ISSUES

Having already amassed a number of years of experience using Fontlab, its various foibles and intricacies were not an issue while maintaining a logical, accurate and valid set of ancillary files (an encoding page, alias.dat and corresponding .nam file).

However, the Adobe Font Development Kit (FDK) was entirely new to me. The most difficult, and ultimately useful, concept to grasp was that of the fragmentation of the workflow. Rather than having all the data relating to a font contained within the vfb itself, the FDK separates the kerning data, the OpenType features, the naming information, the mark positioning, etc., into external files, many of which can be generated automatically via a set of included python scripts (but crucially, all of which can, if necessary, be manually edited and maintained through a simple text editor). This allows for consistency across multiple fonts within a typeface, as they can all reference the same OpenType features file or vertical metrics definition for example, and it allows for efficient debugging as all the data is present in the plain text files, rather than, as in Fontlab, being presented through a sometimes awkward user interface. The ability to manually edit the files was especially useful when it came to Arabic class kerning as Fontlab (version 5.0.4) is incapable of producing it and the only other option is to use the Microsoft Visual OpenType Layout Tool (VOLT), which only runs on the Windows operating system and has a frankly horrific user interface. FDK allows for the kerning to be completed in Fontlab, output as a text file and then simply formatted (via regular expressions) into valid, right-to-left kerning. Similarly, mark positioning can be completed using Fontlab's own anchors and then converted via a python script, again circumventing VOLT.

The externalising of these resources also allows for the re-use of previously defined code with other, future typefaces.

9 CONCLUSION

At the outset to the year, my aim was to learn as much as possible about designing non-Latin scripts. However, my focus was on learning the idiosyncrasies of specific scripts. In designing Emrys, not only did I achieve that aim but also learnt techniques that allow for the design of any non-Latin script (or at least, how to approach designing them), how to produce consistency across multiple scripts and how to produce a coherent, functional family of fonts.