reflections
on practical
experience

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Preface

The word-limit for this essay proved to be very restraining – obviously a lot more could be said and shown in the reflections on one year of highly intensive learning and work.

However I attempted to draw a concise picture of the most important experiences and decisions. To get most from the limited space available I decided to define this essay as the narration to the workfile and the latter as the separate appendix to this essay. Accordingly I chose the illustrations for this essay. Mainly images that are not shown in the workfile and have a direct relation to the text are used in these pages and images which can be accessed through the workfile are generally omitted.

Furthermore I decided to dedicate this essay to the description of aspects in the process that can not be gathered from images, but rather rely on a verbal description. I did not consider it of utmost importance to tell the story of changing shapes, but rather why and in what context changes happened.

For any details in the development of single shapes the workfile can give a more detailed insight – comments on the actual test-pages and additional notes added in retrospect give access to another level. Complementary to this archive are the notes I had taken throughout the year – impressions and thoughts from the actual working process.

Introduction

Although I had already months ago realized that I had never before learned so much, so specialized, in such a short period of time, it was intriguing for me to look at the notes I had taken throughout this year. Reading my assumptions, guesses and ideas from a few months ago, I became a witness of my own learning curve and development over the last couple of months. This in itself is a fascinating experience, as one does usually not document his progress as deliberately and detailed as we were asked to do. Though one knows that things have changed, one is rarely as conscious about them as I am now because of this documentation.

But not only the general experience of intense and structured learning becomes apparent, but also the peculiarities of our field of study. The note I took one early May evening describes my experience in one sentence: *"Since I had first heard about typeface design, I knew, or rather I was told, that it is a tedious craft that involves a fair amount of work, craftsmanship and endurance. Before I came to Reading, I never knew what this meant."*

The understanding of typeface design as a specialized craft, that combines a systematic approach, and technical knowledge with a well trained eye, artistic talent and a sense for the big cultural and historical picture, is the essence of my studies at this course. Furthermore, the capabilities one has to develop for the field in question, are not restricted to the craft of typeface design alone, but rather have a very fundamental merit. The approach needed for successful typeface design on a professional level can be adapted for a wide range of fields.

Most noteworthy in this context seems to me the understanding of a typeface as an intricate system of relationships and dependencies. The bigger the typeface (family) gets, the more typographic features, scripts and languages it supports, the more challenging the task. Almost every change triggers multiple reverberations throughout the system, every addition of a small, in itself unspectacular character might initiate an exponential growing number of additionally needed elements. The systematic approach and the clear head required to handle the development of a multi-language and multi-script typeface family with approximately 1400 individual glyphs in multiple weights is certainly an ability that lends itself to other tasks as well.

Since the main purpose of this essay is the documentation of my learning experience, I decided to design it in a two-dimensional way. One option to read through the process is to follow the main text. It summarizes the decisions taken, ordered by topic and illustrated with chosen examples from the last couple of months. This path is clearly structured and attempts to show the developments in a most accessible way. It is, however, written with hindsight and therefore highly filtered.

The other way is to follow the notes I have taken throughout the year. For the purpose of authenticity and to illustrate the learning process, these thoughts are only slightly edited. Although I do read some of the notes with scepticism today, I consider them valuable as they show the path that I took during this course.

Notes in chronological order

These notes were written at the time indicated and might not necessarily correspond to my current opinions anymore.

6.10.2005

Decided after Gerry's inspiring session to work on an Arabic script;
Found article on arabictypography.com
Milo – Authentic Arabic.
Read Fiona Ross' essay about non-Latin typeface design in "Language, Culture, Type".
A technical idea that came to my mind was to start a Latin/Arabic font couple not with a regular Latin style but a true cursive. The true Latin cursive has perhaps most similarities to the combining, therefore somehow cursive Arabic script. J.P. Gumbert: *'The word cursive has already too many meanings: It means a script that is "fast," or "careless," or "sloping," or "with loops," or with linked letters';* (Noordzij 2000, p. 12)
One further motivation for an Arabic typeface would be to give something valuable to one of the currently worst treated communities worldwide. Another aim would be to design an Arabic newspaper face – although this idea wouldn't go well with the idea of designing a true cursive counterpart.
Just found this:
newseum.org/todaysfrontpages/ – collection of downloadable newspaper front-pages
ronreason.com/ – commenting newspaper design

14.10.2005

Downloaded loads of newspaper specimens. What are the characteristics of a newspaper typeface?
Economy, legibility – with rather inferior printing (paper, speed) – in all kinds of light conditions while reading, objectivity, appealing for a certain audience, a newspaper font should ideally consist of a big set of weights/ styles to be useable for all layout problem.

The "Unger method"

Due to the research term of programme director Gerry Leonidas, our first steps of typeface design were supervised mainly by Gerard Unger.

As a first exercise he introduced us to "the Unger method". This method is a scheme to develop a Bold variant from an existing Regular Latin typeface. The goal of this exercise was to get an understanding of the relationship of weight to character shape and the modifications one has to undertake in order to achieve a harmonious typeface family. Gerard defined the brief as follows: One should develop a few bold characters to

Century Schoolbook and introduce peculiarities not found in the Regular design, exaggerate features and develop something new from the model. Then, after some experiments, we were asked to revert that step and develop a Regular weight from the Bold. This step was meant to generate a new and independent design. Everything happened on tracing paper with thick felt-pens and razorblades.

Although this was not a necessity, I decided to use these exercises already as the foundation of my typeface design. Since I had already defined the brief of a newspaper typeface for Arabic and Latin script at a very early stage, I had no difficulties implementing first ideas and approaches. One of the fundamental

⌐ **The first sketches from the "Unger method"**

Did some more broad nib trials for Arabic. Found out that being left-handed I can draw most Arabic letters quite easily; Stuck on any attempt to get away from the handwritten look to a more contemporary and typographic look; Tried it with exaggeration but don't know what to think of the result;

19.10.2006
I had a short conversation with Fiona regarding my Arabic ambitions — these are the main points:
* I have to be sensitive with my choice of sources and people to ask for assistance. There seem to be some little type-culture-wars going on. I am not giving any names here.
* The goal of a newspaper typeface might prove to be a reasonable choice — it doesn't require an artistic approach, aiming for perfect traditional Arabic calligraphy.

* I need to train and learn the nature of letters. (As I already do!)
Having a newspaper typeface in mind a broad range of weights would be an essential part, especially, because there are mostly just two weights in Arabic typefaces. Perhaps very thin or bold letters wouldn't correspond to Ibn Muqlah's rules of proportions anymore.
Did some more Arabic sketching with the broad nib, from now on with the advise book of Mustafa Ja'far — I think it's going pretty well, so far only the Ra really gives me headaches. Drew Arabic letters according to writing lessons for children. After a couple of pages I didn't find these tricky enough and returned to Jafar's book. I worked through all single letters and started with combining forms. Read some more chapters of "Letterletter" and "Language Culture Type";

23.10.2005
Gerrit Noordzij's description of the so called *Burgundica,* its development and the differences between the construction of a running and an interrupted script made me draw some of his examples with my broad nib. While drawing I realized the strong similarities in shapes between these Bastarda letters and Arabic letters. The similiarity is strictly based on the same writing tool, but the interaction between curves, cuts, and contrast is astonishing. Apparently the stress is opposing, but when either of the shapes is rotated by 90° the similarities become obvious. Arabic is assumed to be a running script but actually one can find often interrupted stroke combinations. I am wondering if it would be possible to set Arabic alongside a Bastarda.

design features, the cuts inside of counters and half-counters, stems from these early sketches. The reasoning for this design was based on my observations of Arabic calligraphy and the ubiquitous sharp corners which stand in contrast to the smooth outer curves.

Although not much else, this feature survived from these first steps of typeface design with the "Unger method".

These first drawings also served as the basis for early trials in Font Lab — I redrew these very crude shapes with bezier curves and did all refinements on screen.

adhesion

⌐ **The Regular, derived from the Bold**

adhesion
adhesion

⌐ **First digitizations based on the feltpen drawings**

24.10.2005

Talked to Gerry about recent developments in the Arabic-type-scene. Got Nadine's essay and dissertation and Thomas Milo's critique of Huda Smitshuijzen's book "Arabic Typography".

Printed a couple of newspaper specimens — most seem to use *Yakout* as body face, in Farsi *Nazanin* is equally wide spread. I don't really like the Arabic headline faces — I guess there is a lot to develop in this area.

Read Tarif Al Amman's article about the historical development of the Arabic script in "Der Koran und die Schrift".

Read Fiona's article in *Typography Papers 3* and Hunziker's article about Arabic script reform in *Typographische Monatsblätter.* I consider the ideas and problems concerned with the Arabic script reform only of historical interest. Or at least of little interest for the type designer

since a simplification of the script isn't desirable in general.

Read "Die Arabische Schrift" and Nadine's essay about script reform.

Tried to get more deliberate shapes with my broad nib. Found it pretty difficult — I am not quite sure in which direction to go. Although I definitely prefer the calligraphic shapes, this might not be adequate for a newspaper typeface. I might try to find a solution that fulfills both aspects.

While looking through newspapers and specimens I took a closer look at the ultra black Arabic headline faces and what always was in the back of my head became apparent: I consider those things really ugly and lacking every sense of style. Instead of making a regular bold, these faces are often distorted in their very structure. Especially when only a fat combining-stroke is left with just marginal

ascending and descending elements.

I made some sketches and now I know why they found this solution — it just takes much less space vertically! Still I find the solution not satisfying at all.

Bought 3 newspapers set in Arabic script (two Arabic newspapers and one Pakistani, i.e. Urdu). What I already knew from the PDFS became even more obvious in the printed versions — the use of the bold version for body text. This is very strange and astonishing for me. The already very densely set columns become even heavier and I assume also less legible.

Another impression is the density of content. There are very few advertisements, the layout is much less generous with space (even though these are broad sheets) and the articles seem to be generally longer! As I have noted before, the setting of headlines is often very unsatisfac-

Regular

The design of the Regular version directly derived from the Unger method. However also many other influences played a part in its development. Since we worked in parallel to the fonts on a newspaper design project we were exposed to typefaces conceived for newspaper production. Due to Gerard Unger's good relationship with the Font Bureau in Boston, Massachusetts, we even had the great opportunity to use a range of Font Bureau typefaces for this assignment. Naturally I had a close look at them and especially Cyrus Highsmith's *Prensa* inspired me. Apart from these typefaces, Gerard Unger's *Swift,* ubiq-

uitous in Reading, Christian Schwartz' and Paul Barnes' new *Guardian Egyptian* family, and Jeremy Tankard's *Enigma* were designs that served as inspiration and reference.

During the first weeks and months the main issue in the design process was to understand how shapes, defined by Bezier curves, drawn on a big, bright computer screen, translate into tiny toner particles on a sheet of paper. In the beginning I found it very complicated to anticipate how shapes would behave in small sizes on different media. Because one works with great precision, moving points on a 2048 unit grid by a few units, the results are often unexpected small. Initially it felt very exaggerated to change

Enigma Regular

⚑ **Enigma by Jeremy Tankard**

Impossible to relocate;
REGULAR

⚑ **Prensa by Cyrus Highsmith**

Guardian Egyptian Display Regular. Used for news headlines

Guardian Egyptian Text Regular. Used for text typesetting

Guardian Egyptian Condensed. Used in the Saturday Magazines

Guardian Agate Sans. Used for sports results, share prices and tables

Guardian Egyptian by Christian Schwartz and Paul Barnes ⬊

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tory. The Black typefaces seem to be very crude and brutish designs and digital distortion of these fonts is absolutely common in headlines. This includes condensing, expanding and even slanting! The lack of well built typeface families in Arabic is an obvious obstacle to fine newspaper design.

Another surprise is the usage of Latin figures inside Arabic text. This doesn't make a lot of sense to me and usually it is very badly implemented: the figures are way too big, don't fit the Arabic typeface and constitute a foreign body inside the text block that attracts attention and therefore is an obstacle to readability.

4.11.2005
Showed Gerry today what I have developed so far from the Unger method. My aim was to imply considerations for my final font project, i.e. a Newspaper font for Arabic and Latin

script. Gerrys reaction was less reassuring than Gerards critique, although I guess it could have been worse. What bothered me most was that my shapes are too close to "Swift" – I really want to avoid copying others.
I will try to emphasize the calligraphic background slightly more, an approach that might also be good to fit to the Arabic.

8.11.2005
Today we had the first Non-Latin session with Fiona. I already knew quite a lot of what she was talking about since the topic was Arabic, nevertheless the insights she gave into the design process of *Yakout* where very valuable. For my essay I am considering now to do an assessment of contemporary Arabic newspaper type. What is being used, how, why? I'd have to give a historic overview of the development of Arabic printing types to explain for the current

state of it. At least for the 20th century.

9.11.2005
I reworked most glyphs that I had developed so far with Gerry's objections in mind – at least what I remembered. I went into a more explicit calligraphic direction. It works rather convincingly in some glyphs, whereas others dont seem to be very coherent.
Emphasized horizontality again more and increased the serifs to get back some colour and line-build lost by "de-swiftizicing". Gerard didn't really agree with Gerry's remark of my design being to close to Swift and in a direct comparison there is indeed little similarity. However I am quite happy with the new, more calligraphic direction as it develops more character and is hopefully going to work better with Arabic than the sturdy first drafts.
I also tried a rather experimental lowercase

a shape dramatically on screen but eventually the output proved it right — in small sizes big changes become small as well.

Furthermore I had to learn how to see — it was astonishing to experience how one is able to train his eyes. Within a few months we developed the skills to see minute details we didn't even notice before — probably one of the essential characteristics of typeface designers: they care about stuff to which most people are totally indifferent.

The combined precision of eye and design tool leads one to the belief of control over the actual output. This in turn, is often very frustrating and the truth enlightening. When we got a new printer in February, nobody could believe the differences in output between old and new model. Although both printers were from the same manufacturer and followed the same technical standards, one printed the typeface as a Regular and the other as a Semi Bold.

With hindsight I consider the learning of such issues as fundamental for this craft. And indeed I spent the first months searching and learning a lot by trying things. From a very early stage I printed few big character shapes, but rather text in small sizes. This approach resulted from the understanding of the typeface as a system of small elements, rather than single shapes.

The actual design very much developed according to the brief I had given myself — a newsface for Arabic and Latin script. Accordingly I chose a relatively low stroke contrast, strong and sturdy serifs and a rather tall x-height. Apart from the small formal feature of cuts inside most counters and half-counters I didn't try to use similar elements for the design of both scripts.

At the beginning of December, when my design had already developed most of its characteristics, the Multiple Master workshop with Miguel Sousa was very helpful. Primarily we learned how to use this technology effectively in the design process. But in addition I used these days and experiments to define the main proportions and weight of the Regular.

With the basic principles of my typeface settled, the rest basically designed itself. This does not mean that it was little work, but rather that the work consisted of the application of design principles throughout all characters.

The 3 versions

During the design process I became convinced that any attempts to harmonize Arabic and Latin script should be subordinate to cor-

Evolution of the 'a' ↘

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g — it was eventually discarded after I had printed it in small size.

19.11.2005
Today I received four Tunisian newspapers, three Tabloids and one Broadsheet. Whereas the broadsheet seems to target an "educated" audience the Tabloids are of a very "popular" design: An abundance of colours, massive headlines and very short articles. One of the papers has only 8 pages. Two papers aren't cut — one has to tear the pages apart by oneself. So far all newspapers for Arabic speaking audiences have *Yakout* or a clone as bodytype, the Farsi papers use *Nazanin*.

22.11.2005
Today I read Nadines dissertation. I was quite surprised by her outspoken support of script reform proposals that seemed completely strange and only experimental to me. One of the other things I am also doubtful about, are the reasons she gives for illiteracy in the Arab world — what is apparent in the statistics she offers, is that illiteracy is connected to poverty and traditional societies (Mauritania). The assumption that it comes from a too complicated script doesn't seem to be justified by any means.
I had a long and interesting talk with Gerry about the development of my font so far. This discussion was the most interesting and helpful so far concerning the practical work. Lots of new insights:
— inconsistency of outstrokes
— differing stress in various characters (speed of the tool)
— low resolution tricks (print twice the textsize and look at it from further away)
— inability of printer to show minimal changes of shapes which are therefore pointless

26.11.2005
I've just read Hrant Papazian's article in *Spatium, Gruppe 11* about Latinization. I think he has some rather inspiring thoughts about the issue. I also read Bigelow and Holmes' article *Design of a Unicode font* and contacted Kris Holmes concerning Arabic.

28.11.2005 23:52:39
Peter Bilak's lecture today made me consider some points regarding the design of Arabic typefaces. He had to increase ascenders in order to generate enough room for generous diacritical marks — a feature that is of importance for most slavic languages. My reasoning is, that the diacritical dots are also of utmost importance in Arabic, distinguishing up to 5 letters with the same basic shape. Therefore

rect and independent shaping of both.

One of the main differences that should not be equalized is the different use of space. Whereas Arabic, because of its consonantal nature, is very economical on the x-axis, it needs a lot more space on the y-axis due to the particular shapes and proportions of its letters. This characteristic is even more obvious in vocalized text because the vowel marks are placed above and below the consonants.

Because in Latin script very little crucial information for readability is "stored" on the y-axis, typefaces which are built to save space simply reduce the extenders without compromising legibility. At the same time, the Latin script can never achieve the economy of Arabic on the horizontal axis — it simply needs more elements after each other. These issues create problems in bi-script typesetting. Hence I tried to facilitate solutions by offering three different Latin styles with varying extender lengths. The reasoning for this approach is

Iṣfahān إصفهان

Iṣfahān إصفهان

Iṣfahān إصفهان

Iṣfahān إصفهان

Nassim One, Two and Three overlaid in all styles ↘

they shouldn't be neglected, but rather very conciously integrated into the design process. Is a larger "x-height" in Arabic really supporting legibility? With higher "teeth" less room is left for the abundance of diacritic dots and vocalisation marks; additionally the interlinear spacing might need to be increased, despite the Arabic script already being vertically very space intensive.

10.12.2005 21:05:14
Over the last days I read Samir Amin's "Eurocentrism", Thomas Grace's dissertation, an article in *Eye* magazine. Found it only of limited use to me. But I had some interesting email correspondence with Fiona and Gerry. Both supported my aim to include linguistic material into my argument.
The practical work was now very strongly influenced by the MM workshop. This influ-

ence was as well of technical nature, in terms of how we're going to design our font family, as well as of more general re-evaluation. Miguel emphasized more than once, that he considers it not wise to do as many glyphs as Jérémie, Mitja and I have done. He rather suggested to refine the basic 'adhesion'. So this is what I am doing. The colour of my typeface is going into a slightly darker direction.
I made a comparison with other newspaper typefaces and it seems that for now my design isn't very bad in terms of economy. I think the ascenders could still be shorter. The Arabic is giving me somehow headaches — I dont really know where to start and will therefore continue (or start) looking intensely on existing typefaces.
I read parts of "Arabic Typography" and found the arguments very contradictory. Printed samples of the case studies I want to analyse

for my essay. The new *Adobe Arabic* typeface by Tim Holloway is outstanding.

14.12.2005 16:13:49
Gerry observed some problems with the n. He considers it too wide and proposed to fiddle around with it. He also mentioned the e as slightly too condensed and generally proposed to try textsetting with more tracking and to use a darker version for the textsize. MM 200 version. He didn't really comment on the ascender trials I did today. But given how little he objected I am not too desperate.

10.01.2006 22:00:36
Back from vacation and back to the typeface. Not working on the typeface for quite some time because of the essay and the holidays had the benefit of a fresher view. I implemented the suggestions Gerry made during his last crit as

Isfahan اصفهان

شهر اصفهان مرکز استان اصفهان و شهری است
در بخش مرکزی ایران که پایتخت چند دودمان از
پادشاهان پیشین ایران – به‌ویژه صفویان – بوده
است. اصفهان سومین شهر بزرگ کشور از نظر
جمعیت (پس از تهران و مشهد) و از شهرهای
تاریخی ایران است. آب و هوای آن معتدل
و دارای فصول منظم است. از فراورده‌های آن
می‌توان به پنبه، تنباکو، غلات، برنج و صیفی و از

Isfahan or Eşfahān (historically also ren-
dered as Ispahan, Old Persian Aspadana,
Middle Persian Spahān, Persian: اصفهان),
located about 340 km south of Tehran, is
the capital of Isfahan Province and Iran's
third largest city. Its population in 2000
was 2,040,000. The Naghsh-i Jahan
Square in Isfahan has been designated

– Nassim One –

شهر اصفهان مرکز استان اصفهان و شهری است
در بخش مرکزی ایران که پایتخت چند دودمان از
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– Nassim Two –

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Square in Isfahan has been designated

– Nassim Three –

The three Regular versions in parallel to Farsi text ↘

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far as I remembered them. Generally I am now working on a heavier textweight. The s has lost its serifs and the resulting countershapes need a lot of work to get right. It is especially complicated to keep the cuts and still distribute the weight evenly. Nevertheless I think the new s is more adequate in character for my font.
I also re-introduced some new glyphs. I based them on the designs of the pre-MM-workshop version. I added bdpq, but I am not quite sure about their shaping. Therefore I focused on glyphs which are less dependent on others and made c,f,j,t.
I also did a new a-outstroke but I am less satisfied with the new version.

13.01.2006 00:48:19
Today we got Gerry's critique. He considered the weight right and also supported me extending my characterset. That's very

encouraging. We talked mainly about the joins of bdpq, about the g and the s. Especially the s is in a very complicated stage. I am a bit stuck. Right after the critique I made some fairly big changes: The outstroke of the a changed a lot in order to correspond to the ear of the g and the cuts inside the round counters bdpq were abolished. I reduced the space between upper and lower part of the g (eventually it stood out on the printouts) and played around with f and t. Not to forget: Gerry also pointed at the (still!) inconsistent shaping of the outstrokes.

17.01.2006 22:34:18
Today we handed in the essay, I went to the crap magistrates court hearing about the council tax and the spring term can finally begin. Gerard is in and gave only very brief comments on my work today – he also sees the basics as quite developed and only suggests some fine

tuning. One point is the top stroke of the a. Although I liked my smooth flowing a I tried to apply Gerards suggestion to bring in the cut-feature of the other characters. At first I wasn't very convinced, but finally I found a fairly satisfying solution. I also showed him my new f and he obviously considered it quite boring – I can only agree and changed it back to a more daring shape.
The s is still in trouble – Gerard suggested serifs – I just choped them off a week ago!

20.01.2006 20:20:59
End of the week – massive developments: my typeface is advancing at light speed! I worked mostly on single shapes – exemplary are a, s and f. Especially the introduction of serifs on the s proved to be a very good idea (thank you Gerard!) – I just needed some trials to find out how to do it. Gerry pointed me to problems

that comfortable leading for the Arabic script gives the equally leaded Latin more interlinear space than usually required. Especially for a newsface like Nassim with short extenders, the leading might look superfluous or even exaggerated. For this scenario Nassim Two and Nassim Three were conceived. The elongated ascenders and descenders not only reduce the perceived interlinear space, but also give a different feel to the typefaces which makes them usable in more applications.

Arabic Transliteration

When dealing with the Arabic script from a Latin script influenced perspective, transliteration of the Arabic characters into Latin characters is a necessity. Even more so, in the design of a typeface that covers both scripts in an attempt to generate a harmonious image in bi-script textsetting. Texts in Arabic and Latin script that also require a transliteration are a very likely scenario — dictionaries are the most obvious example.

A wide range of transliteration methods are used today — for example the Buckwalter system only needs the characters available in the ASCII codepage. However, the need for more accurate representation of Arabic characters relies on more sophisticated methods.[1]

I decided to implement the most recent transliteration system from the International Organization for Standardization — the ISO

233 norm from 1984. This method needs a number of accented and special characters in addition to the regular Latin alphabet. During the process of designing and implementing these characters I discovered that two characters lack Unicode values in their capital form — Latin small letter t with dieresis (U+1E97) and Latin small letter h with line below (U+1E96) have no Uppercase equivalents. I did some research and consulted Thomas T. Pedersen to find out wether the Uppercase versions are actually used. Quoting the ISO-233 standard he answered me: *'… (a conversion system should) specify (a) way of distinguishing words and of using separation signs and capital letters". This means that even if the standard only shows lowercase letters one should make the assumption that these characters could also appear as uppercase.'* (Pedersen, 2006)

Therefore I had to implement an additional Open Type feature — the Glyph Composition/Decomposition feature "ccmp". Adobe describes it like this: *"To minimize the number of glyph alternates, it is sometimes desired to decompose a character into two glyphs. Additionally, it may be preferable to compose two characters into a single glyph for better glyph processing. This feature permits such composition/decompostion"* (Adobe, 2002).

However, as Adam Twardoch points out in an article on the FontLab forum website (Twardoch, 2004), this feature can also be used to dynamically build characters without precomposed Unicode values.

Unfortunately at the time of writing only few applications support dynamic Glyph composition and decomposition.

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1   For further information see the more detailed discussion of Arabic transliteration by Thomas Pedersen in the appendix.
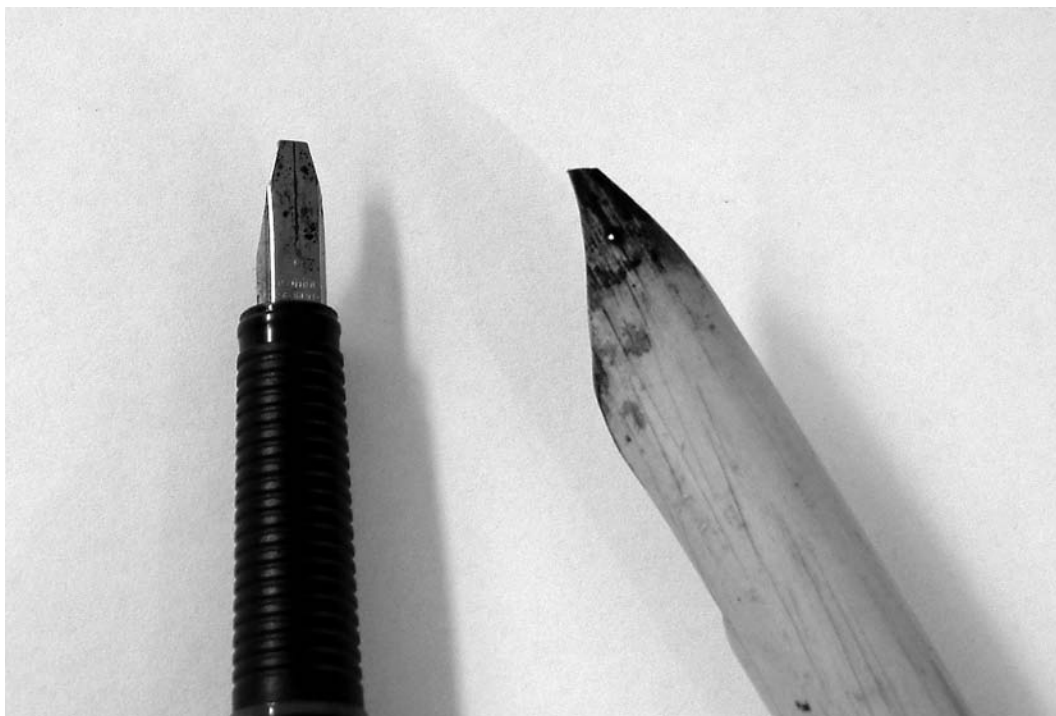
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of the open half-counters in small sizes — this caused the change of the top stroke of the a. Also the head of the r was to small — it got fatter now.
After solving some of the problems I expanded the characterset and added r, k, u, v. Another problem occured with the g — Gerry recommended to raise the lower bowl. That's what I did and additionally I opened the bottom counter — a very welcome repetition of the ear was the result.
On a more general level I decided to increase the contrast slightly — convincing results. Today I added y, w and x — a real beast! Because of the x I realised that the overshoot over the x-height was not enough — v, w, x, y and u looked big — therefore I lowered the x-height sligthly. Further I opened the halfcounters of e and c a little bit and made the upstroke of the k slightly lighter. Finally Gerry looked at the

stuff I did and was happy with the progress my typeface made. Points he mentioned are:
* the way the stems of n, m, h, u join is not corresponding to the tool. The top curve should actually be heavier than the stem — this would also emphasize the inherent forward-drive of my design.
* the serifs aren't supportive of this drive either — I should extend the right serif, perhaps reduce the left one.
* the k is heavy
* the ink-traps at the stems are too smoothly spread across the stems and should rather be restricted to the very area where the shapes join.

24.01.2006 21:08:45
After the fast steps of last week my typeface is now taking a little rest. On the weekend I added the z and during the last days I added

the first diacritic — the dieresis. Both work reasonably fine and the recently implemented ß is also heading in a good direction. Tricky letter — it took me about half a day to arrive at this stage. I think that the top bowl is a bit too open and makes it look fairly big in text.
I spent some time to get (again) more into the Arabic. Indeed I think that some sketches look promising and I am very much looking forward to Gerry's and Fiona's critique on Thursday — that should give me new impulses on where to go now. I am also looking on italic handwritings but I am not yet sure wether to continue with the Uppercase of the Roman or the Lowercase Italic.
Fiona encouraged me to start working on the Arabic in FontLab. Basically to get away from single glyphs and shapes towards a font — a system of characters. Happily I started digitizing and was very enthusiastic about the new

Arabic

Although I had minimal experience with the Arabic script before coming to Reading, the decision to design an Arabic typeface was rather daring and challenging. Without speaking the language and almost no knowledge of the script I had to start my attempts from the very bottom – learning to write. Actually I had already learned how to write Arabic in a language course, but at that time the main focus was not on the shape and construction of letters. Therefore I used teaching booklets for children combined with calligraphy exercises for beginners to get to grips with the formation of the Arabic script. I wrote dozens

I wrote dozens of pages to become more familiar with the way Arabic letters are shaped ↘

world of shapes and curves. Because I knew already more or less in what direction I'd like to go I had no trouble to digitize a few glyphs that I had already sketched:
Isolated forms of Gim, Teh, Yah, Aleph, the initial form of Ha and the medial and final version of Teh – my first joining sequence in Arabic!

28.01.2006 12:42:24
I am busy looking at Arabic and Persian manuscripts and made some observations:
* The initial Kaf has often two distinct variants – one with a top stroke that extends well down to the joining line – it is used before ascending characters like Lam and the Lam-Aleph ligature. Quite often it even touches the following character at the point where the direction of the stroke changes. The other version is used before teeth or characters that do not ascend

very high. In this case the topstroke of the Kaf changes the direction much earlier – it is very open and the part of the stroke after the direction change is often taller than the top-part. Right now I am considering to have two alternate versions as an OT feature.
* The medial Heh is quite rare and in the examples I looked at the open variant occurs more often than the one with counters (butterfly shaped). *Nazanin* has a very nice solution with a counter on top and none below. Although I very much like the shape I haven't seen it in any manuscript.
Regarding the Arabic-Latin harmonization I consider to generate two different variants of the Latin font. One with tall ascenders and decenders, to be used with the Arabic – because of the necessarily more generous line-spacing in bi-script setting this more elegant design could work nicely. And the

basic version, I am working on at the moment could be used for plain Latin typesetting – the emphasis lies here on space saving.

31.01.2006 10:02:04
After our peer-critique yesterday and Sophia's and Juliet's remarks I re-introduced the cuts inside the round characters bdpq. Although less elegant they might better suit the general character of the typeface. Before that I was mainly working on the Arabic. After a first review I realized that the Arabic was too small besides the Latin and some proportions inappropriate. I scaled the Arabic characters by 105% and reduced the weight afterwards, it seems to be quite close. The Gim character became much bigger, although it still doesn't comply with the calligraphic standard (5 rhombic dots fit inside the bowl). The final version of the Heh got completely reshaped

Comparison of the two tools ↘

of sheets, copied examples and tried to get a feeling for the shapes. However, I made two fundamental mistakes: First, I used a Latin broad nib pen and second, I tried to write characters in one fluid motion. Although the calligraphy exercises described some characters as combinations of more than one stroke, I couldn't imagine how much freedom calligraphers actually have to achieve their shapes.

Only after I saw Mustafa Ja'far's calligraphy demonstration at the British Library I really grasped how some shapes could be achieved with a pen. I realized that many shapes of Arabic calligraphy are actually drawn, instead of written. For example it is totally accepted and valid to outline a shape with the corner of the pen and fill it in. And most shapes derive from many strokes, touching up the skeleton.

From that point I also replaced my steel-nib pen with a bamboo pen I had cut according to my own requirements. Although more difficult to handle, I gained confidence because I saw how specific shapes could be achieved. Parallel to these exercises I started to experiment with letter-shapes. After first experimental trials I adopted a more modest and rational approach – I simply aimed to design authentic Arabic shapes which are related to my Latin

for it looked very mannered and the joining sequence of the four Beh versions became much tighter.
Further I worked a little bit on the Italic – I made the e wider and changed the serifs (in- and outstrokes) towards a much smoother shape. Slightly increased the weight on top of a and n and introduced i and s. The latter comes from the Roman and looks heavy.

01.02.2006 21:22:19
Greek typeface design workshop this week and it is intense! Should complete the whole lowercase until Friday! Nonetheless I managed to get a critique from Gerry on my Latin design. His remarks become more and more detailed, hopefully a sign for the generally satisfying development. Today he found that the tail of the g doesn't harmonize very well with the other characters, the space between the two

parts of the k is too big, the v too narrow, the w unbalanced, the z too wide and the r somehow derivative (like a choped n). His questioning of the other German native speakers about my Umlauts and the Eszet was very satisfying for me – they found them fine and common. Only the dieresis might be slightly too heavy. The only structural change he suggested was to eradicate the cuts in the o! Now that's unexpected and strange. He understood my objection that it is basically the design feature of the font and might lead to inconsistency – however it is worth a try.
Concerning the Italic he didn't really reflect on design issues, but rather encouraged me to go a more unconventional way, do something less expectable. Something that doesn't only show I can design a reasonable Italic, but rather contribute a new interpretation to the field. I interpret this as a compliment and am happy

that he seems to have enough confidence in my abilities to go the step further.

06.02.2006 18:01:35
The Greek week was a full success – Gerry found some very encouraging words for our group. He strongly advised, or encouraged us to keep on working on the Greek stuff for it is much easier to find someone who can design decent Latin type than somebody who can design good Greek and Latin.
Over the weekend I worked mostly on my Arabic – I worked on the neighbours list for FontLab – a feature that proves to be much more valuable for Arabic than for Latin because it enables one to design the glyphs in direct relation to possible joining letters. I immediately kept on designing with the new "tool". I made a few new glyphs (Lam, Kaf) and added some contextual variants of already designed

design. As one of my goals was to design an Arabic typeface with a peculiar Farsi-flavour, I looked a lot at the drawings for *Nazanin* by Mr. Haghighi and *Mitra* by Tim Holloway (it was a great joy to use the excellent large scale drawings from the Linotype non-Latin collection of the department). Later during the year, the new *Adobe Arabic* by Tim Holloway was released and served as a key reference.

During the early design phase the feedback from my Arabic supervisor Fiona Ross was fairly reserved. Instead of advising me directly to alter shapes, she rather suggested material and sources to consult. Accordingly I regularly went back to study calligraphic examples on paper, pottery and tile-works and did pen-trials during the complete design process of the basic shapes.

The preliminary process of getting to grips with the script itself was probably the most time-consuming part of the Arabic design. At the point were I started to build the actual typeface, I had already developed the basic skills for the Latin part. Therefore I was able to advance faster with the Arabic than I did initially with the Latin part.

As an extremely lucky coincidence in April Kitabat, the first large conference for Arabic typography and calligraphy took place in Dubai. With the generous support of the Department for Typography and Graphic Communication through the "Ernest Hoch Award" I was able to participate.

Looking back it certainly was the most fruitful and important single event during
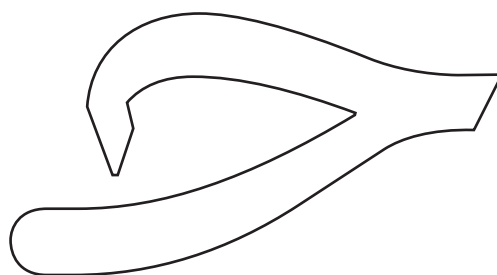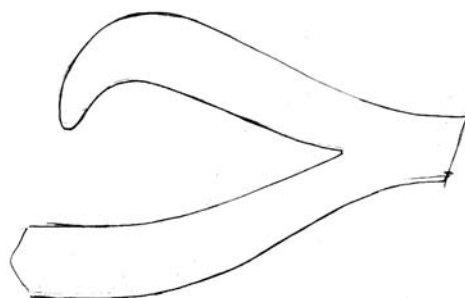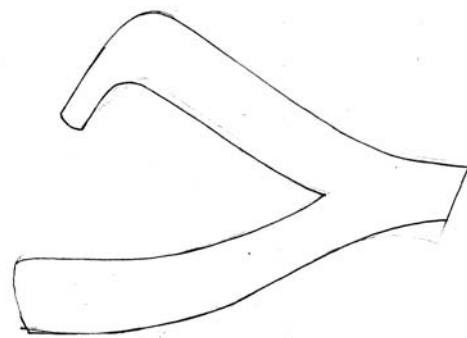
From top to bottom: sketches after Mitra, Nazanin and Adobe Arabic outlines ◥

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glyphs (Ayn, Heh), others needed corrections (Gim). Finally I was also able to test my font with working contextual substitutions – I simply copied the OT feature from another font and it worked instantly – at least to some extent.

I began to restart my Italic from scratch. I looked at some specimens and Humanist handwriting and was most appealed by a manuscript from 1461 that shows fairly upright Italic handwriting – eventually I found out that Nicolas Jenson based his Roman printing types on exactly this manuscript! I did some sketching and tried to translate my drawings to FontLab but the first drafts look very quirky and strange.

09.02.2006 22:47:23

What a busy week once again. I worked mostly on my Italic, trying to get the basic proportions and features right to have a good basis to rely on. The draft of three days ago had one essential problem – it wasn't slanted, but rather an upright italic. This was deliberate, thought of as a way of doing a "reinterpretation" as Gerry suggested – with the only problem that it didn't work to highlight parts within Roman text. Accordingly the first thing Gerry and Gerard advocated was to slant the whole thing. I made a Multiple Master to find the appropriate angel and decided to go for around 8°. Further I made a weight axis in the MultipleMaster to decide about the weight of the Italic – and found a decent weight – backed up by Paul Luna's opinion. I went for it, cleaned up the shapes and after the next print-out realized that the cleaning of the shapes made it light – eventually too light.

Next day I made a heavier version which looked much better – more weight allows for more modulation of the stroke. Gerard however found that it contrasted too little with the Roman – I made another MultipleMaster and decided for something slightly lighter than my starting point. Cleaned up the shapes – and the result was so close in colour that Gerard , without knowning which was the new version, decided that the original that he had considered too dark was now fine … I smiled secretly and made it slightly lighter – this time without the effort of a MM.

Next morning I showed Gerard the new version and told him about his mistake. He agreed that the new version was definitely better, but remarked that the instroke of my n was very unconventional and that he would rather make it less strange a feature. Somehow I wasn't too happy about the whole development because I felt that the character of the design was diminishing – the opposite result of what I had

collection of rough sketches ↘

intended. So I went to Gerry and he apparently shared my view — but pointed to my nice s (which I really like — it is directly influenced by a Manuscript by 15ᵗʰ century calligrapher Bartolomeo Sanvito). He encouraged me to extend its characteristic to other letters by taking some weight from the x-height area and add a little weight overall — because he considered it too light … endless!

Additionally I had a talk with Fiona about my Arabic. Her deliberate act of non-influence is in respect of critical discussions complicated — I really had to pressure her for explicit comments about details of my design. Eventually she gave me some very valuable hints and insights and encouraged me to keep on drawing while designing on screen. Tim Holloway's supposition to focus on the medial variants makes also quite a lot of sense to me. So I will work on the glyphs Fiona considered too

strange — the final Beh and Kaf and the isolated Kaf and Lam. Further I spotted some elements I am not happy with and will keep on sketching with the broad nib.

15.02.2006 22:20:53

Yesterday, after a lovely London weekend, I went back to my Italic design. I was testing my new double-storey g — which worked quite nicely. I made the join of n and h deeper because they closed up — however the overall look didn't satisfy me yet. Eventually I went to our resources in the department and looked one and a half hours at Palatino's writing book of 1578 (!) — "Compendio del Gran Volume de l'Arte del Bene et Leggiadramente Scrivere …" Nice indeed to have such incredibly valuable and rare material at your disposal! I made a few sketches and with that inspirational material at hand I changed the character of my Italic

quite fundamentally — and more is probably going to happen in that direction. a, d and g changed a lot, the instroke of n, r, and v was resurected.

Parallely to the Italic development I started to implement an idea for the "heavy weights" of my typeface. Instead of just making the regular bolder and adjusting the shapes I am also trying to change the style from a fairly regular serif typeface to an Egyptian. I tested the concept with a few characters and am very happy with the results. Tomorrow we'll have a critique session with Gerry, this is going to be interesting.

Almost forgot about it — I also changed the serifs of the Roman to be more asymetrical. Though this looks nice in big sizes it is basically without effect in textsizes.

my studies at Reading. With a focused effort at the end of March I developed my basic character set for Arabic to a presentable level. I covered my impressions and experience of the conference in a separate report which can be found in the appendix to this essay.

After the significant feedback I had received in Dubai my typeface underwent some important changes. I worked on the design for approximately one month before I sent it again to Mamoun Sakkal and Kamal Mansour for feedback. Again both experts took, most generously, some time to look at my work and came up with a few more detailed suggestions for improvements. After the implementation of some proposals the Arabic design had basically taken its final shape. From this point on I continued with the fine-tuning of shapes, the addition of features and eventually the inevitable technical parts.

After the addition of the ligatures I kerned the Arabic in Font Lab. But, since the implementation of the vocalization marks can not be done in Font Lab I relied on Microsoft's Visual Open Type Tool (VOLT). However, this application does neither read Open Type tables nor kerning information. Furthermore it is only able to render True Type outlines – although it can create Open Type fonts with Type 1 outlines. Quite some obstacles for a font in Type 1 outlines with defined Open Type features. The complicated workflow I had to follow in order to get everything working as I wanted can be best explained graphically – see the map on the following page.

But not even this workflow, derived from John Hudson's recommendations (Hudson

shape experiments ◥
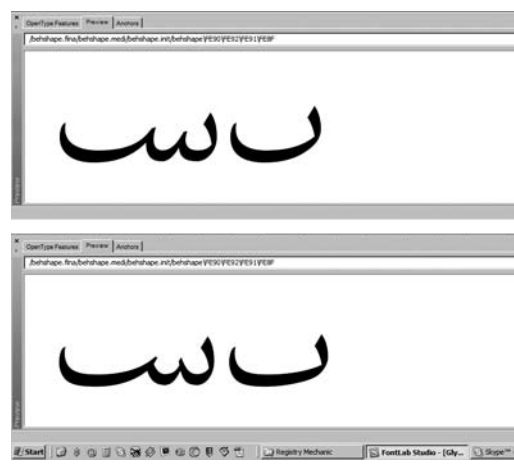
definition of teeth and joining construction ◥

20.02.2006 21:01:39

Over the weekend I worked solely on the Arabic design. I mainly focused on the issues discussed with Fiona. I worked a lot with my pen as suggested by Tim Holloway and Fiona and reshaped some basic characteristics. Whereas I am quite happy about the way I straightened the main horizontal strokes the new joining construction isn't convincing yet – perhaps I will eventually go a more conventional path. Asked today Fiona and wait for her (and Tim's) reply.

Kindly Fiona shared her development files for the Linotype Arabic font collection – which is probably going to safe me a lot of annoying work. However it means that I have to apply everything to what I've done so far. For example the neighbors list has become obsolete because it refers to the encoding file – since some of Fiona's test setups refer to her encoding file I need to use it. My neighbors list is a little sacrifice. Especially since the encoding I am using now is much easier to access because it uses glyph names instead of Unicode values. However I am troubled by the fact that I can't copy/paste the classes and OT features of the finished fonts anymore because they use different names. Lots of fatiguing technicalities to be dealt with.

Today Gerry once again didn't find time to have the critique session with us so we simply decided to have a peer-critique. Although Mitja and Jérémie didn't participate it was nice and interesting. I found quite a lot (and as I hope useful) stuff to say about the fonts of the girls and they in turn gave me also quite a few helpful hints – especially Pilar's suggestions for my Italic proved to be very fruitful. I already implemented most things we discussed: the in-strokes of the lowercase characters are now normalized, the top bowl of the g is bigger, the k is lighter, the v and the x are more slanted. Generally the reactions about my Italic design were very positive – which was very satisfying for me because it proved that my efforts to get a decent basic design were absolutely worthwhile. I hope that Gerry also approves what I've done so far and then I'll extend the characterset – which should be an easy thing to do because I've designed most of the tricky and deciding shapes.

Yesterday I've also sent an email to the 3 major Arabic newspapers in London with the query if somebody would be interested to discuss contemporary Arabic newspaper typeface design. I am quite curious if anybody is going to answer.

23.02.2006 23:21:02

I just had a look at Miguel's report on practical development from last year and I am quite

Font Lab Studio 5

design with human-readable glyph names

build OT features

kerning

convert names —— expand class kerning ——
build .ttf dummy RTL
build .ttf dummy Arabic figures
build .ttf dummy LTR

build complete .ttf dummy

export OT features as .vtp (1)

hinting

export .otf

OT = Open Type
.ttf = OT font with TrueType outlines
.otf = OT font with Type1 outlines
.vtp = VOLT project file
dummy = temporary version, discarded after use
LTR = font containing only Left To Right and Neutral glyphs
RTL = font containing only Right To Left and Neutral glyphs

kern2VOLT

build 3 kern lookups

MS VOLT

open complete .ttf dummy

import .vtp (1) and re-build OT structure

import 3 kern lookups

do GPOS

export .vtp (2)

open .otf

import .vtp (2)

ship font

⌐ **map of my stuttering workflow**

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confident about my current state of notes. Yesterday evening Gerry took a good amount of time to give me a detailed critique on my typeface. He hadn't seen it for about two weeks and seemed positively surprised about its development. We focused mainly on the Italic design. He agreed on most of it and mentioned only single weak-points – like a too narrow k. This in turn means for me that I can keep on developing with the same pace and that I don't have to go back to more basic decisions. I had reached this point in the Roman version already a few weeks ago, but still, new issues occured yesterday. It turned out that the over-shoot of my round shapes was in some characters, mainly o and e not sufficient. Today I worked on this quite fundamental detail and found it very tricky to solve. Eventually I didn't come up with a single overshoot for all round shapes but rather made individual decisions for each glyph. Further I sorted a few details in Roman and Italic out and extended the Italic characterset by b, p, q, t. After a first printout they work already reasonably well – though they were too narrow and too smooth. Jérémie found that the p looks like a flipped d – and he has a point there! But it should work better with the sharp angle where the bowl meets the stem.

What is generally very relieving and positive for me is the, by Gerry often emphasized position of our work in relation to the others. I have the feeling that I found a quite good mixture of straight progress and fairly interesting design.

26.02.2006 23:18:23
Yesterday I went to Mustafa Ja'far's Arabic calligraphy demonstration at the British Library. It was a big success in two respects:

First and foremost I got a much better understanding of how the script works. Especially that the writing isn't really in one fluid movement, but rather a combination of many single strokes. The pen is much more often lifted and therefore the construction has to be seen as interrupted instead of continuous. This has far reaching consequences for the shapes of letters.

The second nice sideeffect was that he offered me to send him stuff by email so that he could comment on it – perfect! I also had a look at his pens and how they are cut.

Today I applied my new knowledge, cut my pen, drew dozens of letters and eventually went back to FontLab and reworked my basic Beh-shape. I am now much more confident, although it seems that the more I know about Arabic, the more I am afraid of it's refinement and complexity. Tomorrow I might find out

2006), was working without problems. Coincidentally I discovered missing kerning pairs in the shipped fonts. After checking the workflow and running the whole process for a couple of times I was still not able to find the problem. Therefore I approached the VOLT users community and Microsoft's Sergey Malkin. The latter offered me to have a look at my font to see what the problem was. After an incredibly short time he replied to my email: *"This turned out to be kern2volt bug. Apparently, nobody had a font with more than 10000 kern pairs. It is a limitation (or feature, if you use additive nature of kern subtables) of kern table, it is forced to use several subtables when number of pairs is over 10000+some-*

thing. I did not process several subtables correctly" (Malkin 2006) and sent me a new and improved version of the kern2volt application.[2]

Another technical issue with Arabic occured at a very late testing stage. I found out that Mac OSX 10.4 did not render Arabic text with my font in TextEdit and Safari. After some trials with other fonts and an inquiry to John Jenkins from Apple my assumption proved right: OSX does not support Open Type rendering for Arabic on a system level. Rather it relies on the Apple technology AAT — a tech-

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2 Eventually it turned out that even a highly accredited producer of typefaces had overlooked this bug in his fonts.

كل كل لكل بكل

بلي بلي لي لي في في كي كي

سي سي صي صي جا جا

ببز ببز ببن ببن

sample of ligatures accessible through Open Type ↖

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if there will be funding for my Dubai journey — that would be insane and fantastic at the same time.
On Friday I kept on working on the Italic and designed a new p that doesn't look like a d anymore. It is a very expressive shape and I am not quite sure if it will survive in that form. I also tuned the other circle shapes and introduced a few new characters. Going well.

04.03.2006 10:19:21
Rounding up last week. Gerard was in from Tuesday until Thursday and his only and main advice was to harmonize a few of the features of my Italic. Indeed there were a few inconsistencies and Gerard suggested to make my triangular letters v, w, etc … less rounded to fit better to a,e etc … Because this would have meant changing the calligraphic feel of my design to something less outspoken I decided

to go the exact opposite way and made the outstrokes more rounded. In all changes I tried to preserve the general character as much as possible because I was very satisfied with it. I also introduced a "z" but it still looks awkward. Jérémie's comments about my Roman eventually proved to be much more important — he mentioned that the Italic looks much more appealing on the page and takes a lot of prominence, further that the Roman has weak line-building because of it's body-size and that the ratio of white-lines to text is much more satisfactory in the Italic.
The next day I approached Gerard with these observations and although he didn't seem to consider them as important his suggestion was to expand the width to get a stronger horizontal movement. So what I did was to expand the width by 102%, reduced the vertical size by 99% and additionally reduced the weight with

FontLab's "bold" command by -5. Although of very subtle nature these changes proved to be extremely fruitful for a better gray on the page. I had to clean up the paths but the whole process was a great success. Thanks to Jérémie's eagle-eye.
I also digged a little bit into hinting, defined alignment zones and found only minute improvements.
On Thursday Fiona was in and we had a long talk about my Arabic. She definitely approved my new take and more calligraphic shaping since last weekend. We were also talking about my desperation to get more precise feedback and she explained to me that her and Tim's approach was to let me find my own way and discover flaws and benefits by doing, instead of them telling me what to do. It seems to work out nicely — I've learned a whole lot just by looking and practising.

nology which is only supported by a few Apple applications. Hence I decided to do as the leading type foundries do – not bother about it.

What I bothered about, however, was the implementation of vocalization. Although my typeface was conceived as a newspaper design and newspapers rarely use any vowel-marks at all, I wanted to tackle as many aspects of Arabic font development as I could.

Surprisingly, the technical aspects of the vocalization worked out neatly. An issue that occured to me after I had defined the coordinates of all vowel marks on base glyphs and ligatures was that kerning and vocalization can cause problems. Some plain character combinations have to be kerned by large amounts, but as soon as they are vocalized clashes with preceding or following letters happen. To solve this problem I introduced contextually sensitive placement of vocalization marks. However, I only did it in a few situations to learn the process. Obviously tasks like this could be extended at will and vocalized text was not a top priority in this project.

يُصَوِّرُكُمْ يُصَوِّرُكُمْ

تُولِجُ تُولِجُ

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the words in grey show clashing vowel marks, the black version shows contextually sensitive mark positioning ↘

10.03.2006 20:49:33
End of week and almost end of term. Time's passing with a frightening pace.
Monday I showed Adj my Arabic and he was surprised and delighted about the design of some shapes. He mentioned the Mim as too big – I had also spotted the same problem – and pointed out that my Alif didn't join in the final version, a technical mistake which I hadn't realized. I fixed this issue and additionally designed the Lam-Alif ligature. Both things had a major influence on the pattern and rythm, now the text starts to look Arabic. On Tuesday Victor Gaultney was in and gave brief feedback on our designs. He didn't really mention any major issues but was rather content about the state of my work. I showed him the diacritics which I had especially designed because of his visit and he also seemed to approve them. He made some minor sugges-tions – like strechting the "tilde" to distribute the weight better – and confirmed that there isn't a lot one can do with the design of the circumflex. Using the anchor-feature of Fontlab to generate my composite characters.

Yesterday I got Fiona's and Tim's feedback on my latest developments. Interestingly Tim suggested to inherit some design features from the Latin version – or rather to distribute them more consequently. He observed that whereas the Latin characters are fairly consistent in the application of cuts and curves, the Arabic Sad did not comply with this design rule. Fiona also mentioned that the Arabic looks too small besides the Latin – a problem that I had actually spotted before but somehow I never tackled it.

Since I got the confirmation for funding of my trip to the Kitabat conference in Dubai the Arabic has become even more important – of course I want to be able to show some decent stuff. Fiona has already announced that she's going to write Mamoun Sakkal to introduce me to him. Additionally Mustafa Ja'Far replied very friendly to my email and repeated his offer to help with my project. Connections are starting to develop in a very favourable way. Today I worked a little bit on the Arabic and tried to implement some of Tim's suggestions. I spent a considerable amount of time to find the right size of my Arabic and finally settled on scaling it by 105%. Miguel had some very good remarks about my Regular and the diacritic design: The s hasn't enough overshoot on the bottom, fi works so well that I don't need a ligature, and he also found my spacing a bit on the loose side. Concerning my diacritics he recommended to be more design-aware and try to create some truly fitting and appropriate marks for my font – it is easy to agree on that.
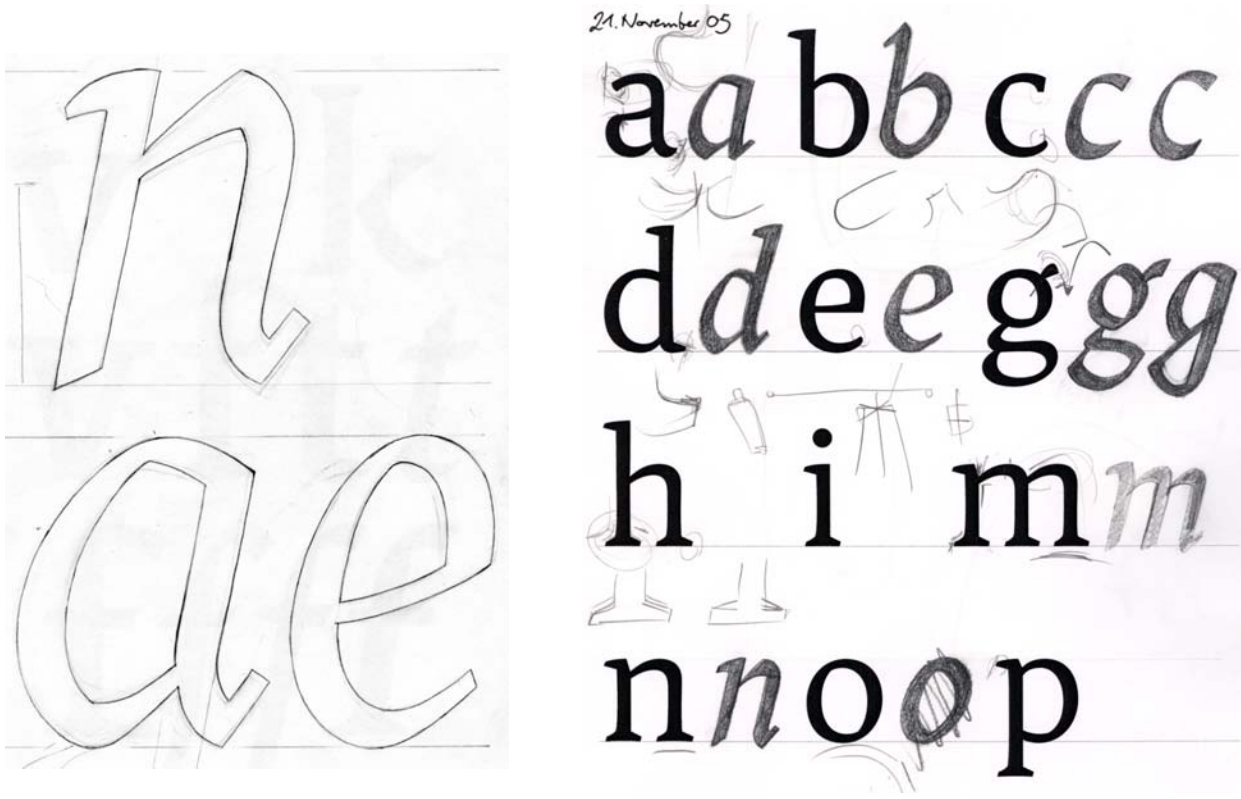
Italic

The design of my Italic companion developed in a very different way than the Regular. I did first sketches for the Italic and drew even some characters in Font Lab as early as November. These originated from very free sketching without much thought and research. Due to other tasks this early draft was left in the drawers for some months, until the Regular was further developed so that I could seriously consider to start my Italic design.

The drawings and sketches of this new attempt based their shapes and ideas in some ways on the first draft from November, though the shapes had become more refined and closer to an actual typeface. I developed this design over some weeks and had already

I immediately tried some suggestions (like flipping the smooth side of the acute-accent and trying the shape of a hacek instead of the generic and symmetrical caron shape) and found out that indeed I could do a lot more than I had assumed at first. I also reduced the spacing slightly.

13.03.2006 21:12:41
Today I started to work on the figures — a task that is (as Gerry had predicted already in October) much trickier than initially expected. I designed my 12348, all mid-ranging, fairly succesfully on-screen and got a eye-opener after the print-out. Basically everything looked wrong.
During the last days I was mostly working on the diacritic design and the technicalities associated with it — building encoding-file, finding out which diacritics exist and are used

etc. Eventually most had to be increased in size and the space between diacritic and base-glyph increased.
Additionally I fine-tuned my Roman after some hints by Miguel. He was mainly objecting my s and since he is the second after Jérémie who considered it to angular and z-ish I realized that I had to do something about it. He also mentioned the w as too dark and the spacing still too lose.
So I made the s rounder, cut v, w slightly on the baseline to make them "stand on their toes" — with a fairly satisfying result. The word-shaping is getting better with the tighter spacing and even text in the worst-case scenario Finnish looks acceptable. Today I made some fairly strong adjustments to the s and I think it's going in the right direction — however right now the top half-counter looks cramped in small sizes.

Miguel also lobbyied me for Python-scripting and indeed it looks nice — however I am a bit sceptical because it would take quite some time to learn it. He also pointed me to some glyph-naming-conventions that I hadn't adhered to. Him being present from time to time is very helpful — no wonder he's got good chances for getting a Job at [The major software player] or [Another major software player].
Another thing that I did was to reduce the width and weight of the outstrokes of e and c — a remarable improvement. Further I lightened up the left serifs on all letters — little impact from that. However the general appearance looks better and better due to these minor adjustments. Or at least that is my wishful thinking.
Yesterday I worked on the Arabic, making strokes consistent in weight and doing slight modifications like lifting up the initial Mim

achieved a certain character and feel; it also started to work with the Regular design. At this point Gerry criticized this draft as *"too foreseeable"* and encouraged me to find a more interesting design approach. Fortunately this suggestion came at a time when I was advancing well and felt fairly confident about my achievements. Therefore I didn't hesitate to trash my design and start from scratch.

In the new approach I did not just start to draw, but went to the sources and did research on humanist handwriting. I spent some time looking and copying shapes of Italic typefaces and looking at calligraphy. I was especially appealed by a reproduction that showed the manuscript on which Jenson based his Roman typeface. With this inspiration I attempted to develop an upright Italic – and failed. Although my brief of a newspaper typeface gave me some room (Italics are rarely used in newspapers) the upright design simply did not work as a companion to highlight text – its texture was too similar to that of the Regular.

So I went back to the sources and drew

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and decreasing the descend of the final and isolated Yah. After quite a few corrections I sent sample-pages to Mustafa Ja'far. I am very curiously awaiting feedback.

14.03.2006 17:24:17
Just got Gerry's critique. There are almost no more issues with my Regular lowercase – I have to fix some spacing issues with c, r, p, s, period; Add a little tapering to the horizontals of z. Then lock it!
Italic lowercase almost as finished – have to fix the x by giving it more weight on the top right, fix the z and lighten the stem at the join of the h a little bit. Then lock it!
I think this is a very nice feedback to finish this term!

28.03.2006 22:51:08
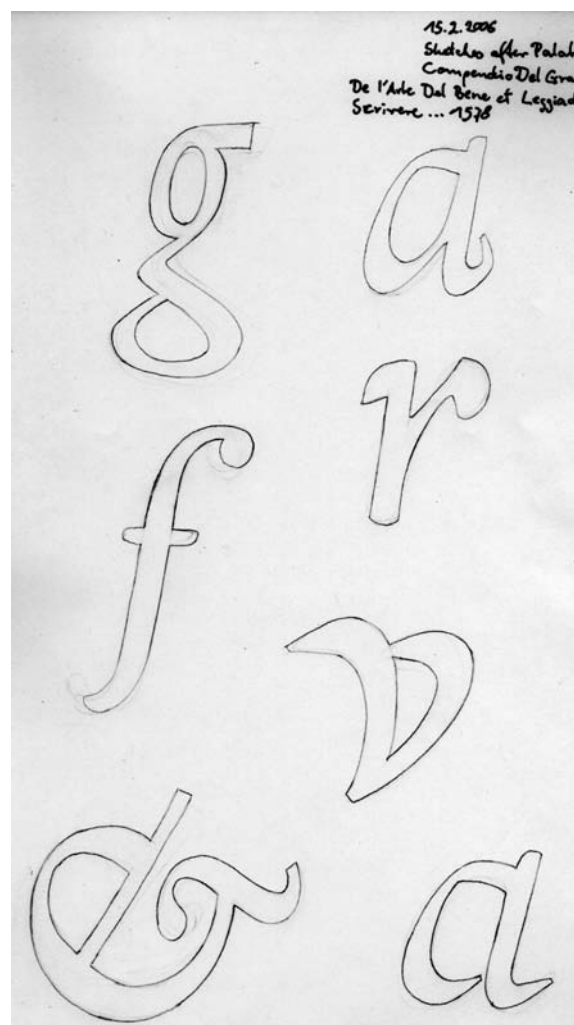Back from Italy I went into the design of my Capitals. Actually the Small Capitals because this is supposedly easier. Very motivated and recovered I managed to get my basic Small Caps set in three days – not finished but reasonably well fitting into the lowercase – I am waiting for Gerry's comments before transforming them to regular Caps. Further I played around with a draft for my final specimen – in form of a newspaper. I also kept on working on the figures but I am not very satisfied yet – somehow they still look alien – nevertheless I built the four figure sets and the accompanying OpenType feature. Works well – looks mediocre.
Eventually I fixed some issues with the lowercase and declared it on 24. of March as finished. The Italic lowercase followed two days later.
While working on the Small Caps I figured that I chose a tricky path by designing an Italic that is very different to the Roman for I can not copy the Capitals – I'll probably have to design them from scratch. My encoding file steadily becomes more frightening – all these characters will also need diacritics. The Arabic charactercount will be around 300. Latin much more.
With the KITABAT conference approaching I focused over the last days on the Arabic, introduced a few glyphs and made numerous minute changes on details, weight distribution, counter-consistency etc. I get the feeling that my judgements about my Arabic design become more profound; I am teaching my "Arabic eye". At least I hope so. By now I have designed almost all the basic Arabic characters, only Tha and Zha are missing. I'll design them before going to Dubai to be able to show real text set in my typeface. Hopefully that will work out.

6.2.06 Sketches after „Cambridge Types"

Caslon 48pt enlarged

Plantin

Centaur

15.2.2006
Sketches after Palatino
Compendio Del Gran
De l'Arte Del Bene et Leggiadr...
Scrivere ... 1578

⌐ inspirational sketches for the final Italic design

02.04.2006 15:45:12
Multi-script colour adjustements are hell.

03.04.2006 21:06:00
After a busy weekend (see above) completely devoted to the Arabic I am finally ready to go to Dubai and show some fairly developed stuff. A few days ago I had realized that my Arabic still looked strinkingly smaller and lighter than the Roman – I had had this impression earlier, but was hoping to see a difference by adding more different characters. Eventually I found out that I'd have to change something in general. I did a few test and ended up with a scale of 102% and the application of the "bold effect" of vertically 3 and horizontally 4. It proved quite successful and because I had to clean up all shapes after the transformation I took it as an opportunity to revise many characters. Today I also located the problem of the

Heh – it didn't display properly in InDesign. Because of me copy-pasting the OpenType features from another font I had forgotten that at the point of copying I hadn't created all characters. Therefore FontLab generated two missing characters – of course empty – to make the font work. So what happened was that the Font and InDesign both worked fine, the glyphs that got replaced simply had no shape to display.
I did a lot of tweaking and fine tuning, got a few comments from Adj and eventually a proper critique from Fiona. She seemed very happy about the progress of my font and gave me very precise and detailed hints to some shapes. I was really missing this kind of advice along the way. Sometimes it was a bit painful only to get the advice to keep on looking, trying and researching, but eventually it proved to work. And because I had to find the solutions

on my own I can be much more confident about my abilities. I believe that I learned skills which will last also without the advice of Fiona and I am very grateful for that. How much I've learned already I am going to find out in Dubai and by now I am extremely curious and excited that I'll leave tomorrow. It will be very interesting to see what other things are going on in contemporary Arabic typography and how well I am doing in relation to others. I also did the Capitals for my Latin.

06.04.2006 01:20:09
Conference start: met Nadine Chahine who introduced me to Reza Abedini; Exhibitions so so, Linotype Arabic contest rather poor; keynote speaker Nabil Safwat not very convincing for me – superficial talk with strange sidenotes;
Afterwards nice chat with Filip Blažek and

shapes after writings by Sanvito and Palatino. The shapes that developed from this approach finally proved to be usable and developed into a very outspoken and independent Italic design. Rather than a subsidiary to the Regular, it can be seen as an Italic companion with its own characteristics and nature. However, it also works nicely alongside the Regular – to achieve this, many test and trials had to be undertaken. At the start of the final Italic design I did many trials to define the angle, the weight and the relative size to the Regular. During these experiments I discovered the limits of our lecturers to give advice – not because of their abilities, but because at some point there is no objective improvement possible, but only adjustments according to personal taste. Hence the opinions of Gerry, Gerard and me did not always match and eventually I had to take the final decisions based on what I considered good.

The issue of relative size between Roman and Italic followed me for quite some time. In late June when I decided to down-scale all fonts for technical reasons I experimented again with different scaling factors for the Italic. Eventually, however, I found out, that no further scaling would contribute any real improvements and left it as it was before.

In July I felt confident enough to expand my typeface family even further by adding a Bold Italic variant. I approached it similar to the design of the Regular Bold, however, not with sufficient preliminary tests. After I had processed the font with the automatic "emboldening" algorithm and corrected all unaccented Lowercase, Uppercase and Small Capital glyphs I realized that the weight was actually not sufficient to be called a Bold, but rather a Semi Bold Italic.

This was a significant blow to my motivation one week before the submission deadline, therefore I decided rather to spend the remaining time on the improvement of the other members of the typeface family and leave the design of the Bold Italic for later.

This is not really bold enough
This is not really bold enough

◤ **The unfinished Bold Italic design below the Regular Italic**

Adam Twardoch; met, against all expectations, Tom Milo – talked to him during dinner; Just came back from a beer with him and Peter van Blockland; very intense evening, this Tom Milo guy is pretty remarkable – he knows stuff! Especially interesting because of his linguistic approach.
And all these notes are missing my disgust of that crap-city!

07.04.2006 18:40:32
To busy to write yesterday. Got very interesting critique from Mamoun Sakkal – pretty encouraging; Filip also commented very positive on the Roman; met Patrick Giasson; introduced myself to Kamal Mansour and chatted with him during the evening at the ridiculous Linotype Arabic typefacedesign competition award night (got an invitation from Filip Blažek).
met again Peter Bilak and his wife; spent the evening at this awful place – Madinat Jumeirah. Middle Eastern Disneyland – pseudo Arabic massive entertainment complex; the "Souk" – an insult;

09.04.2006 01:17:25
Waiting for my 2 1/2 hours delayed flight, boarding should be in 40 minutes, at 2! It was definitely worth coming here – even only to meet the people. But it was also very good to see what kind of things are happening at the moment, that there isn't one, but many approaches to Arabic typography and its relation to traditional calligraphy. I found it very important to meet Thomas Milo and get introduced to his rendering technology which is simply stunning. However it is also interesting to observe, that even very serious Arabic typographers consider his take exaggerated. What they seem to miss however, is that one could use his technology also to design contemporary Arabic typefaces. The benefit would simply be that one has the possibility to make much more complex operations. Although he got his ideas and his initiative for the whole project from the desire to render Arabic script according to the sophisticated rules of Ottoman Naskh one doesn't need to apply for historical revivals.
Today's calligraphy workshop was actually a demonstration rather than a workshop – however, I found it enriching and I was able to film very valuable material for the oral history archive of the department. Interestingly Mohamed Zakaryia mentioned that he wouldn't advocate typography that tries to look like calligraphy, but rather to design perfect Arabic typefaces that are as readable as the best metal-type printing. In his opinion not the Ottomans but the Egyptians in the 1850s

Bold

The heavy weights of my typeface developed directly from the Regular. After I had done some trials with the automatic "emboldening" function of Font Lab in January, I had enough confidence to use this method when I did my final Bold design. Apparently, what Font Lab does can only serve as a starting point and needs to be corrected, but with hindsight I am confident to say that if well applied, it saves a lot of time and work. At first I did some trials to define the relative weight in comparison to the Regular and the increase of the x-height to counter optical illusions. Also the gain of weight had to be defined — I decided to increase not only the weight in x-direction, but also to add a significant amount of weight in y-direction — especially to the serifs. This approach was used to get a chunky Bold with strong resemblance to so called "Egyptian" typefaces. With these fundamental properties defined, I applied the automated process to my font and corrected every single glyph. Although tedious and boring, it is certainly less work than redrawing each shape from scratch and this method also has the ben-

efit of consistency throughout the font.

Finally this Bold weight served as the second extreme of my Multiple Master font. Again it took some time to set up the Multiple Master properly, but the gained value of x-number of instances is certainly worth it. For this project I generated only one instance, a Semi Bold, because I wanted to have a strong difference between the weights.

This is really bold enough
This is really bold enough

⌐ **Comparisons of automatically generated Bold (bottom, grey) and corrected version (top, black outline)**

did best in printing Arabic. I also asked him about his thoughts of Arabic typeface families — I wondered what calligraphic style he would consider most appropriate as a complementary design for a Naskh textface. Though he first suggested the use of colour, he eventually favoured the Ruqa style.

Syrian calligrapher Mouneer El Shaarani even suggested to revaluate Naskh as the model for all printing types. He didn't even hesistate to think about the creation of new calligraphic styles and the application and adaptation of different styles than Naskh for printing.

I am especially happy to have met so many nice people and that I established contacts all around.Today Kamal gave me some very pointed and detailed hints for my typeface, and asked interesting questions. These were very good days in an abyssmal city. Quarter to two now, time to check out my gate.

27.04.2006 21:34:00
Back in Reading, back to work after the Easter brake. During the last days I was busy implementing changes suggested by Mamoun Sakkal and Kamal Mansour. Eventually I also found quite a few things to adjust myself. The most important changes happened to the Waw/Reh tail, the Mim group, the ascending elements like Alif, Lam etc., Sin and Dal group. Almost all the letters were subject to at least some detail-fine-tuning. And by now I can say that it's looking much better. Also the harmony with the Latin text is pretty satisfying — the only little worry I had recently was that it might not be economical enough to be used for newspaper print. Gerry and I compared it to the ubiquitous *Yakout* (or clone) in most Arab newspapers. The troublesome part is the vertical use of space. Since my design tries to be closer to the traditional proportions it needs

a fair amount of leading. In simplified designs like *Yakout* the ascenders are simply shortened and therefore allow a more compressed setting. However I want to see a direct comparison and therefore I'm going to ask Fiona to set a paragraph in my font and one in *Yakout*.

Today I spent the whole morning working on samples for *Typo* magazine — Filip Blažek kindly offered me to feature my typeface in his article about Kitabat. Because of lack of time I tried to come up with a solution that also fits more or less to the requirements of the Adobe student competition. I am not quite sure if it makes any sense to participate. But it could be free money — so it's actually worth a try. Furthermore today we had Tagir Safaev, Sophia's father in. Although his comments and remarks sounded partly driven by a fairly conservative taste I found it helpful. Even if only to force me to question my stuff again. That's

what I did and eventually I ended up with quite some important and big changes to my Italic lowercase. Even some Roman lowercase (j,w,z) letters were modified because of Mr. Safaev's comments. It is really good to have someone from outside who hasn't seen the design at all. Fresh eyes do miraculous things!

04.05.2006 12:16:42

Just had a long talk with Fiona. We did comparisons of my typeface with *Adobe Arabic* and *Yakout*. Obviously my design takes more space on the vertical than *Yakout*, but *Adobe Arabic* (which is a much more interesting and contemporary design and not restricted by obsolete technology) shows a comparable pattern, size and use of space. Fiona really approved my work. The next steps are the design and fitting of my diacritic marks. I don't know yet how to finally implement them, but Fiona suggested to consider the shaping because it might influence the fitting of characters. The way I'm going to work is to have another FL file

in which I'll place all the diacritics on all the glyphs. This gives me an idea about the space I'll need. But first I should perhaps finish my characterset.
Further considerations are the ligatures and perhaps contextual alternates – but we haven't talked about that yet.

05.05.2006 22:47:25

Back to the design of my Latin diacritic signs. I compared my encoding file with John Hudson's stuff on blackboard and found a few characters that were missing. With the encoding and my characterset now basically complete I started to fill in the gaps. Further I am still fiddling around with the figures and their Italic versions – especially the latter are dreadful! They always bend to one side or the other. Same, although not as bad, is true for the Capitals – one simply feels that they were never ment to slant at all! Today I also played around with a few unnecessary ligatures – just to have a little fun. My characterset passed the 1000 glyphs

border today. The Arabic characterset is also pretty much finished and Fiona was rather sceptical about the alternate teeth and contextual shapes. She didn't consider the ligatures any more important either, but rather emphasized the work on the vocalization. Accordingly this will be my next task. I am also going to send samples to native speaking friends and Mamoun Sakkal and Kamal Mansour. I am very curious about their reactions now. Parallely I am steadily developing new testsheets – the latest gadget is the "Internationale". I found a website with translations in 75 languages – ideal diacritic testing ground for my socialist typeface! Apropos, another issue is the name – I had settled with Sahar for the moment but Gerry mentioned that the h in the middle might cause pronounciation troubles. So I started to look for names again and found that Arabic names sound much nicer to my ears than Farsi names. The challenge was to find a nice female name that has a reasonable meaning – Sahar meaning "dawn" seemed

so appropriate. Additionally I found most names too soft for my design – e.g. Laleh is a nice name, but simply doesn't fit. Eventually I stumbled across a male name that is very appealing: Nassim – meaning breeze and also charged with the very nice connotation of Charlie Mariano's record. The intuitive search for a female name is funny – I don't know if it's only because "die Schrift" is female or if there are other reasons I am not aware of, but generally I'd rather give my typeface a woman's name. Sigmund could most probably tell me that some sort of weird leftover from my chilhood is to blame.

09.05.2006 22:27:15

Today I got a very elaborate and encouraging review of my Arabic typeface from Mamoun Sakkal by email. He did not only say that he considers it *"very good work"* (Sakkal 2006), but you could also see it from the way he wrote and the level of detail in his discussion of the design. As Fiona pointed out: *"He wouldn't have*

bothered if he hadn't thought it was worth it." (Ross 2006) This is great news.
Otherwise I have reached a stage in my Latin design where no or little improvements are gained from a lot of work. Expanding the characterset, especially with the complete Central European characterset in lowercase, SmallCaps and Capitals for both, Regular and Italic was very tedious and didn't give me the very much desired feeling that I have achieved something. The work that is behind those few hundred glyphs is not as visible and rewarding as a well designed s.

11.05.2006 21:53:56

Yesterday also Kamal Mansour replied with a detailed critique of my design and very encouraging comments. I spent almost the whole day implementing some of the proposed changes. Furthermore I finished the little testsheet for the Offset printing test that will happen in a few days.
Today I introduced a whole group of ligatures

in Arabic. Mamoun Sakkal had suggested to think about it because it suits the style of the typeface. However there is also good a reason not to start playing with ligatures and alternate shapes – time. The next big steps are the spacing, vocalization and kerning of the Arabic. I just received an email from Tim Holloway describing his method of spacing the Arabic. He even mentioned that one could consider two different version of the same typeface – one loosely spaced for full vocalization and one conventionally spaced. I doubt that I'll have time to do this. On the other hand this would comply with my idea of having two versions of the Roman, one with regular sized and one with tall ascenders and descenders to go better with the Arabic. I am going to talk to Gerry about this.

13.05.2006 00:05:10

I just had the desire (slightly strange, isn't it?) to design my superior figures – not a day passes without me adding stuff to my char-

acterset. So I fiddled around with the scaling algorithms of FontLab and ended up scaling my lining figures 65% horizontally and 60% vertically and adding some weight with the bold command at 20 horizontal and 10 vertical. After correcting a few shapes and cleaning up the paths I remembered to have a look at the MS character design standards:
"These characters are based on the full size numerals. A suggested scale factor of 63% in the horizontal direction and 60% in the vertical yields a good proportional superior or inferior numeral. It is always necessary to adjust the weight of the scaled numeral in making a superior or inferior character. These smaller characters need to have proportionally heavier stems than the scaling provides." (Microsoft, 1999)
Yes, I can agree on that. ;)

15.05.2006 21:20:22

Yesterday I finished the Regular characterset – all those odd currency and basic-math symbols are not great fun to do. Finished

apparently does only mean, that there are now shapes in all the slots required (more or less – we haven't decided on the required characterset yet. For example my figures still give me lots of troubles. I simply can't get them right. It also occurs now, that my accents crash into each other when set solid – i guess I'll have to reduce it at least. Furthermore I might decide to design an extra set of accents for the SmallCaps – somewhat flatter.
Fortunately most of the interpunctuation symbols etc. work ok. It won't take long before I can tick them off as done. The superiors are hard to get right – they need to be fairly chunky and robust but still need be open enough to work in smaller sizes.
For the Arabic I started to design quite a few nice ligatures – that's a lot of fun. But probably not the most crucial part of my design. But sometimes it's just incredibly important to have a little bit of fun – especially during the painful periods of minimal adjustments with so little benefit. Today I also started to play

around with VOLT for the implementation of the Arabic vocalization – with good results because the font that I spit out after a short time didn't make NotePad crash anymore (as all fonts done with FontLab did).

16.05.2006 12:22:32

I was just trying Jérémie's method of anchor placement – he uses one anchor for all top and one for all bottom accents. I thought that my method of having one anchor for each accent was uneccessary and stupid, but eventually I went back to it because I found that I had to do to many compromises. The placement is not as exact as I can do it with individual anchors and furthermore I am loosing the information which accents belong to which character. Of course this would be easy to solve and I can imagine that both methods have their validity.

17.05.2006 11:55:07

At the moment I am placing the Arabic vocalization marks in my FontLab file – an incredibly

boring job. And now the extended set of ligatures becomes really painful.

17.05.2006 12:13:08

F***, after working on that for hours I realized that FontLab doesn't like the way I did it. The composition of glphs from composites works only on one level. If one tries to build glyphs from other glyphs that are already composed of composites, it also seems to work. But as soon as you restart FontLab all the base glyphs are missing.

To give an example: I build an Alif with Hamza above from my Alif and the Hamza, both in different glyph-slots. Then I add my vocalization mark Fatha (only for positioning purposes). It's all there, fine. Restart FontLab and what stays is the Hamza and the Fatha, the Alif is missing. For some strange reason, exactly the same procedure works with a+ring+acute.

29.03.2006 18:13:46

With less than two months to go until the deadline for our fontfiles I feel the need to come up with some sort of schedule.

Regular

My Latin regular is pretty much done and it seems like I shouldn't delve too much into "unnecessary" details – otherwise I could get lost doing stuff like denominators. Of importance are spacing and kerning – the first is basically done.

Stuff that has to be done:

> Kerning
> Spacing of figures (?)
> OpenType features
> Hinting
> (perhaps a SmallCap set that maps to the Caps)

Arabic

I am waiting for Fiona's comments, but here are some issues that I have on my mind:
Spacing might need work – base glyphs that carry a varying amount of dots all share the same width.

> Finish figures
> (perhaps a close final and isolated
> Mim-alternate)
> Kerning
> Vocalization & OT stuff
> Hinting

Italic

I need to finish the characterset in terms of compliance with the Regular – though I believe that it' pretty much done. The optical size of the x-height needs to be adjusted to match better the Regular – this has first priority.

> Scaling of x-height
> SmallCaps spacing
> Figures spacing
> (OT stuff comes from the Roman)
> Kerning
> Hinting

Additional weights

After finishing the Latin Regular I will immediately start to build a bold, or perhaps even black weight. By finishing the Roman beforehand I hope to save a lot of work by simply using stuff done for the Regular.

My plan for the following week (until 4th of June) consists of these tasks:

> Scaling the Italic to better match the Roman
> Spacing Italic Small Caps
> Spacing & Kerning Regular
> Finishing Arabic shapes

5th till 12th

> Kerning Arabic
> Open Type stuff

12th till 19th

> Dissertation break

19th till 26th

> Heavy weights
> Perhaps bold Italic start

04.06.2006 18:12:05

Sunday evening and I can happily say that I am on schedule. The kerning of my Regular seems to be basically there – of course I'll have to do some fine tuning, but the main task is done. At the start of the week I was mainly looking for kerning methods and started to build my classes. I searched the web but didn't find any proper method, all concerns where mainly of technical nature. The approach I brought forward is fairly systematic and in that something I've learned during the course. From the classes I had built I took the key-glyphs for the left and the right side to build lists of possible combinations. Like this all possible combinations of glyphs that I kern are covered. Then I fed FontLab's preview with those text files and went through the combinations one by one. Of course it took me some time to find the right classes, key glyphs and combinations, but my findings can be used for other fonts as well. ~2000 combinations so far, but the files are under steady development and likely to grow bigger. Out of those combinations 548 have been kerned so far.

During the process of kerning I kept on changing the spacing in some instances and even fiddled with some curves – either a sign that I didn't look close enough in the first place or that by focusing on other issues I realized stuff I had got used to.

Apart from the kerning I scaled up my Italic to better fit the Roman – x-height scaled by 101%. It's always astonishing to see with what ridiculous precisision and detail we are working. Because I also got quite detailed feedback from Fiona I also spent a whole day working only on the Arabic – I was mostly concerned with the spacing of some medials but undertook also some fine-tuning on a few shapes. Half the day that I spent on Arabic was solely occupied with the design of the two Basmalas (Arabic and Farsi). I haven't developed a shaytan ligature yet … Fiona suggested to think about scaling the typeface down because it seems to be too big on the Em. This would be beneficial in two ways – one could set it solid without collisions and it would be easier to mix with other fonts. It would also foreclose idiot's comments who compare it with other typefaces without optical adjustments. Many reasons to do it, but probably also quite some work (checking everything for bad scaling and rounding errors). I guess I am going to do it – will consult Gerry on this issue.

Things for next week:

* Regular & Italic
- Possibly scaling of the fonts (then I'll also convert my Regular into TrueType curves on the same occasion).
* Arabic:
- alternate Mim
- review of vocalization signs
- kerning (thankfully Fiona has given me lists of crucial kerning pairs)

12.06.2006 09:07:10

Rounding up last week: I worked quite a bit on the Arabic, did the kerning, the new final mim shape (that also made me fine tune the other mim-versions), improved my vocalization marks a lot and eventually even added a new bunch of ligatures. Furthermore I worked out the OpenType features for Latin and Arabic (apart from GPOS) and discovered, that there are more rough edges and problems to OpenType than I had known. For example the issue of kerning is less easy than it seems with plenty of technical hurdles and awkward solutions.

One problem that occured to me this week is that VOLT doesn't seem to import my kerning. I didn't bother about it in the first place because Fiona had told me that she always does the kerning in FL and then hands it to John Hudson for implementation in VOLT. So possibly he is in possession of some handy Python script that translates his FL kerning into VOLT GPOS data. Fiona promised me to ask him about the issue.

In general I am pretty busy with technicalities these days – the implementation of the OpenType features with language dependent substitutions proved to be fairly straightforward, however I had to go back to my encoding and change a few names. I was especially happy to distinguish between Latin and Arabic script in one single feature (although this isn't very spectacular). I did not want my Arabic discretionary ligatures to be accessible while the script is set to Latin, or the language to German or so. Same vice-versa, I didn't want to give access to Latin ligatures with language settings for Arabic scripts. To get this working I had to fiddle around quite a bit, but eventually it worked.

One striking thing about digital Typeface design is, that one constantly has to learn and update his skills and assumptions. At least in the stage that I am in at the moment. One day you think you've set up everything nicely, the next day some incompatibility in a major application occurs. Like my ligature names – I named them according to Adobe's standards f_i and f_l. However, TextEdit on MaxOSX doesn't handle them correctly unless they are named fi and fl.

What else – I contacted Thomas Pedersen regarding the Arabic transliteration characters which clarified a few things for me and made me discover that I am still missing one glyph (because wikipedia didn't show it correctly!) – s with dot below instead of s with dot above.

Because some of the transliteration characters don't have Unicode values I also implemented the ccmp feature for "on the fly" composition of composite glyphs.

Yesterday I also kerned my Italic – and again I went back to the spacing and some of the glyph shapes. Kerning really makes me look much closer.

I also made some tests about scaling down my fonts – and couldn't see any deterioration. FL eventually does a good job on that. However Gerry doesn't see as much gain in scaling it down as Fiona and I might think. I sent her hi-res printouts and we'll decide about this question over the next few days. A good reason to scale down is that tall glyphs are clipped when used in Notepad.

Another problem I discovered is some weird positioning which might be due to kerning against the space character in combination with right-to-left scripts. Also TextEdit on MaxOSX doesn't display the Arabic. These problems might take some time to solve.

18.06.2006 19:14:59

I just had a look at the plan that I made at the end of May and I am actually off schedule now. However, this doesn't mean that I didn't advance in the last two weeks, but rather that my schedule was not very realistic. My plan was to have a "dissertation break" last week, but this didn't work out. I was too concerned with finishing my Regular, Arabic and Italic and basically succeded with it. I plan to dedicate most of next week to my dissertation. The schedule didn't work also because I did many more things than I had imagined. Firstly I scaled down my fonts and retouched some outlines. Then I spent quite some time to get the OpenType features right. I also discovered some pairs I had forgotten during the kerning process and changed some of the Italic shapes that looked to arbitrary. Because I had simply slanted most of the punctuation marks and all the figures I didn't feel very comfortable with their look.

I also started to test it in real documents like my essay. Furthermore I spent some time on the development of the final specimen which will be a sort of newspaper. The size limitation (A5) is not very convenient for me; although I am designing on A3 (which will be folded), this simply doesn't look like a newspaper.

Another little development of this week was an excursion into the Python programming language. Because I had done all the OpenType coding and the kerning with my production names quite a big effort in renaming everything was waiting for me (the foreign-script names in a finished font are not supposed to be accessible like "Alif" but rather according to a very odd standard: "uni0627"). FontLab offers a tool to rename a glyph in all instances in the fontfile: glyph, classes, opentype-classes. This is ok, but limited to one renaming at a time. ~430 times in the case of my Arabic.

My idea was based on Miguel's glyph renaming tool – I wanted to modify it to rename not only the glyph itself, but also the glyphname in every instance inside the fontfile. I consulted

Miguel and he suggested to give it a go and didn't consider it to tricky for a bloody beginner. I started to look into Python, read online tutorials and parts of "Learning Python", but didn't come very far. Eventually Miguel tried to build this kind of script himself and found that it was probably to difficult for me. And because he is such a nice guy he suggested to me to spend a day together and write the scripts together! Of course I accepted and the output is a very powerful tool: the Total Total Renamer! :) It works perfectly and needs approximately half a second to do this:
Building dictionary…
Renaming glyphs …
Changing glyphnames in classes…
Changing glyphnames in OT classes…
Changing glyphnames in OT features…
Done!
431 glyphs renamed,
785 glyphnames in OT features renamed,
732 glyphnames in classes renamed,
70 glyphnames in OT classes renamed.

Now that's what I call handy.

So the plan for next week is to do mainly research for the dissertation and probably start the Arabic vocalization in VOLT. Gerry also announced that a Lebanese student from Central St.Martins in London who did an Arabic/Latin typeface is comming to our dept. I am very curious to see her work and hear her comments on my stuff.

23.06.2006 21:38:56

Oh happy day!
After some emails with Fiona over the last two days and some minor adjustments, I printed today charts showing the (pretty much) final versions of Regular, Arabic and Italic. Gerry had not seen and commented on my typeface since the end of May. He looked at the printouts and gave me the most unconditional and positive comment I received during the year: *"Titus, this looks really good."*
YEAH! YES, YES!
Today, on the 23rd of June (one month ahead

of the deadline), I could submit my work and I would already fulfill the practical requirements with ease – as Gerry said, I've accomplished my brief as good and complete as Fiona and he had expected; From now on it's all downhill, or the last round over the Champs-Élysées …
Shit am I happy!
What is left to do? I will follow Gerry's advice to work on additional weights of my Latin, rather than implementing the vocalization positioning for the Arabic. His argument that it is much easier to do this last technical bit separately than designing additional weights months after the actual design process sounds very reasonable to me.
Afterthought:
I celebrated the day with a fantastic fresh salmon-trout, stuffed with lemons, fresh parsil and thyme, and parsil-potatoes … complemented by a nice double Ballantines … :)

03.07.2006 20:23:21

So it's July. And exactly three weeks to go until

we have to submit the main part of this year's work – the typeface. So, where am I?
Fiona offcially "signed off" the Arabic part, Regular and the Italic are also done (although I am constantly revising little details of kerning);
Last week was dedicated to the bold-weight (and the World Cup) and indeed it is pretty much done! I will ask Gerry to look at it with me in the next days, then I am planning to generate instances, preferably without further "manual" touching up; I'll have to see how feasible that is.
In the course of the work on the bold (which is actually rather a "heavy") I had a look at Luc(as) de Groot's "Interpolation theory"; everything he says there seems to be very reasonable and straightforward, however, I wonder wether one needs a "theory" for this. His suggestions seem to be the articulation of methods typeface designers always applied intuitively in the design of heavier weights. This is at least my understanding after a rather brief look (the

material availlable doesn't explain the theory in great detail) – perhaps I've missed the critical point.
Since I have quite some time left I will probably tackle the vocalization mark-positioning for Arabic – it would round up and finish the design very nicely. And it seems to me much more interesting than an additional bold-italic weight.

08.07.2006 22:09:49

It took me five days to do the GPOS for the Arabic vocalization marks; Since yesterday they are all technically working. I'll have to check the positions in print again, but this should be pretty much ticked off. It is a very good feeling to have done that as well because it somehow constituted the last major part of Arabic Open Type font development that I hadn't tackled.
Now I am very happy to know that the Arabic is as complete and working as it could get with this technology and my knowledge and abilities at the moment.

So what to do during the next two weeks?
Bold-Italic! :) And the "Book" version with longer extenders – I played with the implementation of this idea during the last couple of days and found it worthwhile. And apparently it isn't a hell lot of work to do.
With the fonts pretty far developed I will try to spend more time on the other parts of the practical submission and the dissertation.

21.07.2006 00:18:55

It's been a while since I last noted anything about the process – mainly because I rather spent the time working on the fonts than anything else. Although Gerry "locked" them already quite some time ago I still had to go back and refine shapes. I did a lot hastily and now, with a submittable result and time left I used the opportunity to improve things. However, I also worked on new stuff – spent some time on a Bold Italic, only to realize after three days of work that the colour of the face actually wasn't dark enough. This killed

my motivation to continue on that path and I rather opted for the refinement of the upright weights and the regular Italic. I also developed further the idea of enlarged extenders and implemented them in all styles that I am going to submit – Regular, Italic, Semibold and Bold. This will make 12 fonts, but apparently this number sounds like more than it actually is. However, the three versions with different extender lengths seem to be a worthwhile complement.

On the technical side I delved even more into the "geek-dom" of non-Latin typeface design. Because of a missing kern-pair I found that the kern2volt tool that should build a kern lookup from a flat kerning table did not compute all pairs in that table (roughly 50.000, too many for the tool) I posted on the VOLT forum website and Sergey Malkin offered to have a look at my font. Roughly two hours later he already sent me a new and improved version of the kern2volt tool.

I also started to test my font on the Apple OSX platform. To my frustration, Arabic didn't render properly from Right to Left with my font, but rather a collection of isolated shapes was diplayed. At first I tried to find the problem in my font, but upon further testing I realized that even *Arial* and *Adobe Arabic* did not render Arabic in OSX applications. An email to John Jenkins of Apple confirmed my assumption that OSX doesn't render Arabic with OpenType, but rather with the totally unused, unsupported and obsolete AAT technology. I am tempted to call this approach "iStupidity" …

25.07.2006 00:02:36

So now it's done and it feels very strange to call it a day. It is hard to imagine that from now on this thing won't have my last thought before I fall asleep and the first when I wake up anymore. Certainly this is more sane. However, one wonders what else one could do but spending all his available time on designing a typeface … I am confident that I'll find answers to this question.

Good night and good luck.

25.07.2006 10:59:58

Over the last couple of days I went trough a series of tests on different platforms and applications. Problems related to inter-platform compatible font-naming and style-linking in applications occured.

Applications tested on Windows XP: MS Word 2003, Notepad, Adobe InDesign 2.0.2 ME, Adobe InDesign CS2, Adobe Illustrator CS2

Applications tested on MAC OSX 10.4.7: TextEdit, MacWord 2004, Adobe InDesign CS, Adobe InDesign CS2, FontBook 2

Applications tested on MAC OSX 10.3.?: TextEdit, Adobe InDesign CS, FontBook 1

After running into a number of problems like font-recognization, style-linking and bugs in applications (MAC OSX 10.4.6 did not support

style-linking in Word, Adobe InDesign CS on OSX has a font-ordering bug with typefaces that contain non-Latin characters), I was able to get my fonts to display and work in all tested environments.

Problems I did not solve are the font-ordering in Adobe InDesign CS on OSX (which I didn't try in the first place because it is a known bug) and differences in line-height of Regular/Italic and SemiBold/Bold in TextEdit on MAC OSX. The latter I was not able to solve because I couldn't find the reason for this behaviour as I carefully set equal vertical metrics for all style in all families and this issue does not occur in other applications (like NotePad).

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Sources of images

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Appendix

a) Report on my study trip to the Kitabat conference in Dubai

b) Arabic Transliteration by Thomas T. Pedersen, Retrieved June 9, 2006 from <http://transliteration.eki.ee/>

Ernest Hoch Award

Report on my study trip to the Kitabat conference in Dubai
April 5th–8th 2006

Titus Nemeth
MA for Typeface Design at the University of Reading

Before for the trip

When I chose to research Arabic typeface design during this year I hadn't had much knowledge about the topic.[1] A general interest and positive relationship with the Arab world had started my interest, but only with Gerry Leonidas' encouragement at the start of the year I decided to face the challenge of designing a for me foreign and complex script. He convinced me that because the department for Graphic Design and Typography at the University of Reading offers the crucial network to approach expertise in the field I would be able to find the right answers to any questions coming up.

During the past months' research and design practice I realized more than ever, that although one is able to accumulate knowledge and develop necessary skills through reading, practice and reflection, the occasional hint or explanation by the expert is crucial for a satisfying learning process. With the supervision of Fiona Ross I am enjoying exactly this kind of guidance.

However it is of course always desirable to get in touch with more experts from the field and to be exposed to multiple approaches and opinions. By lucky coincidence Kitabat, the first conference about Arabic calligraphy and typography of a major scale happened in exactly the year of my study at Reading. And even at the best possible point of the year: I had already gained a fair amount of knowledge about Arabic typography and also my typeface design was worth showing, without being developed too far. The prospect of getting in touch with some of the leading designers, calligraphers and historians of the Arabic script was of course very tempting. Not only the conference lectures and the opportunity to learn about developments in the field from all over the world sounded interesting, but also the chance to build up personal contacts that could be beneficial in the long term my supervisors and I considered worthwhile.

The conference

The programme of the conference lasted from 5th to 8th April 2006 and included lectures, workshops, presentations and side-events like a Gala Dinner and a Desert Safari. Bookings had to be made in advance and I chose to sign up for the calligraphy demonstration by Mohamed Zakariya. To be well prepared and get as much valuable material from the conference as possible I brought various multimedia recording devices with me.

The official programme turned out to be eratic in terms of quality and topic-relevance. While some lectures provided valuable information (I would like to point out the talk given by Ugur Derman on "The impact of printing on Ottoman calligraphic tradition"), others stayed superficial or were simply off-topic. I had the impression that some of the speakers were mainly invited to borrow the fame associated to their names to the conference.

Accordingly I considered the encouters beside the official programme as most fruitful and interesting. From the many people I met and talked to a few should be noted here explicitly. Already before the conference I got introduced to Mamoun Sakkal by Fiona Ross. He very kindly spent some time evaluating my design. His advise turned out to be very valuable when I implemented changes he had suggested. Also Kamal Mansour from Monotype gave me a detailed critique of my Arabic design and pointed out new and interesting issues. The value to meet and know these people[2] is lasting, for I am still in contact with both, discussing my typeface and other related issues about Arabic typography.[3] Furthermore I met Filip Blažek, editor of the Czech magazine *Typo*. He is going to feature a sample of my work in his review issue about the Kitabat conference – naturally

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1   And I know that by now I am have only started exploring the world of the Arabic script.
2   Apart from the pleasure of having their company!
3   The appendix features samples of the typeface before the conference and at the current stage of development – apparently these changes aren't only due to my participation, however, they illustrate the crucial developments.

this is a very welcome promotion of my design.

Of horizon-expanding qualities was the aquaintance of Thomas Milo from the Dutch firm *Deco-Type.* He co-developed a new technology to render the Arabic script that does not use the glyph as the smallest unit to compose lines of text, but smaller recurring elements – strokes and dots. These are composed according to a set of rules that takes the relative position of each element into account and (re)places them accordingly. With this method a very close resemblance to calligraphy can be achieved without the need of a big character set (his typefaces consist of less than 400 glyphs). He showed me a word, rendered in approximately 5000 different variations by this technique. And in all it's formal sophistication the Unicode values are preserved. The hurdle this technology faces now is distribution. It is a shame that Thomas Milo's contribution to the official conference programme was withdrawn by the organizers.

The conference programme also featured side-events for the amusement of the delegates. Among them was the *Linotype Arabic Typeface Design award-night.* Linotype had organized a typeface design competition for the Arabic script and winners were officially anounced and given their prizes during this evening. The formality of the event (possibly brought forward to become of slightly higher importance) felt very exaggerated. People were only allowed to participate if personally invited and had to comply with a "business" dresscode.[4] But more importantly the winning typefaces were of mediocre quality and very poorly presented. Typefaces supposed to be used for text-setting were only shown in single character shapes – apparently it isn't really feasible to make any judgements on the text-pattern that would develop in the joining Arabic script. Furthermore the presentation of the Linotype officials very clearly demonstrated how little they could say about the topic in general and the winning typefaces in particular.

The other side-events were of no relevance to the topic.

On the last day of the conference the workshops took place. To the frustration of many delegates all workshops happened at the same time. This meant of course that one couldn't take part in the *Typeface Design technology* workshop as well as in the calligraphy demonstration. This time organization ridiculed the stated aim of the conference – a fruitful exchange between Arabic calligraphy and typography. Because the speakers of the technology panel are much easier to access I decided to sign up for the calligraphy demonstration by Mohamed Zakariya – a decision that proved worthwhile.

I was able to record most of the demonstration on Mini DV video and the original tapes are now stored in the *Oral History Archive* of the department.[5] For any future student dealing with Arabic script, or even calligraphy in general, this is very valuable material. Mohamed Zakariya explains in a very accessible way how he cuts his pens, prepares the paper and the ink and discusses historical, theoretical and formal aspects of Arabic calligraphy. Furthermore he gives a lesson to one of his calligraphy students and explains in great detail how the actual teaching happens. The video material shows the actual writing in great detail and length.

Roundup

Overall I am very happy that I was able to participate in this conference for the reasons mentioned above. The value of the conference was not limited to the event itself, but reverberates for the time being and possibly the future. I did not only get very interesting insights into the contemporary developments in the field, but I am now able to contact experts from throughout the world – a priceless opportunity. Unfortunately the conference itself was flawed in some respects. The location was not only the least Arab and most Western place in the Arab world imaginable, but also very expensive and far away. This possibly hindered many people interested in the topic from participat-

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4   Naturally I wasn't invited, but Filip Blažek kindly offered me a spare invitation. The dresscode didn't bother me.
5   Slightly edited video clips can be found on CD-ROM in the appendix.

ing. Me being the only European student seems to be very telling. Also most Arab students I met came from the Gulf region which represents only one (and a very peculiar) part of the Arab world. The time-organization issues mentioned above and the sometimes questionable choice of speakers did not contribute to the overall image of the conference.

Furthermore the issues surrounding the withdrawal of the invitation to Thomas Milo to contribute to the conference throw a very unprofessional and ignorant light on the organizers of the Kitabat conference. In reaction to his missing in the programme, other experts from the field had to withdraw their participation and were missed to a great extent.

Acknowledgements

Appendix

a) Bundled with this report is a CD-ROM disc containing the edited video clips of Mohamed Zakariya's calligraphy demonstration and a few audio files of some talks at the conference. Furthermore a digital version of this report and samples of my typeface before and after the conference are attached.

b) Sample sheets of my typeface design before and after the conference in A3 format.

ARABIC
Arabic script*

iso	ini	med	fin		DIN 31635 1982 [(1.0)]	ISO 233 1984 [(2.0)]	ISO/R 233 1961 [(3.0)]	UN 1972 [(4.0)]	ALA-LC 1997 [(5.0)]	EI 1960 [(6.0)]
Consonants										
ا			ا		ā	ʾ	— [(3.1)(3.2)]	— [(4.1)]	—	—
ء		‎ؤ, ‎ئ		A	ʾ	‎ˡ, ˻ [(2.1)]	—, ʼ [(3.3)]	ʼ, — [(4.2)]	—, ʼ [(5.1)]	ʾ
ب	ﺑ	ﺒ	ﺐ		b	b	b	b	b	b
ت	ﺗ	ﺘ	ﺖ		t	t	t	t	t	t
ث	ﺛ	ﺜ	ﺚ		ṯ	ṯ	ṯ	th	th	<u>th</u>
ج	ﺟ	ﺠ	ﺞ		ǧ	ǧ	ǧ	j	j	<u>dj</u>
ح	ﺣ	ﺤ	ﺢ		ḥ	ḥ	ḥ	ḥ	ḥ	ḥ
خ	ﺧ	ﺨ	ﺦ		ḫ	ḫ	ḫ	kh	kh	<u>kh</u>
د			ﺪ		d	d	d	d	d	d
ذ			ﺬ		ḏ	ḏ	ḏ	dh	dh	<u>dh</u>
ر			ﺮ		r	r	r	r	r	r
ز			ﺰ		z	z	z	z	z	z
س	ﺳ	ﺴ	ﺲ		s	s	s	s	s	s
ش	ﺷ	ﺸ	ﺶ		š	š	š	sh	sh	sh
ص	ﺻ	ﺼ	ﺺ		ṣ	ṣ	ṣ	ş	ṣ	ṣ
ض	ﺿ	ﻀ	ﺾ		ḍ	ḍ	ḍ	ḍ	ḍ	ḍ
ط	ﻃ	ﻄ	ﻂ		ṭ	ṭ	ṭ	ţ	ṭ	ṭ
ظ	ﻇ	ﻈ	ﻆ		ẓ	ẓ	ẓ	ẓ	ẓ	ẓ
ع	ﻋ	ﻌ	ﻊ		ʿ	ʿ	ʿ	ʿ	ʿ	ʿ
غ	ﻏ	ﻐ	ﻎ		ġ	ġ	ḡ	gh	gh	<u>gh</u>
ف	ﻓ	ﻔ	ﻒ		f	f	f	f	f	f
ق	ﻗ	ﻘ	ﻖ		q	q	q	q	q	ḳ
ك	ﻛ	ﻜ	ﻚ		k	k	k	k	k	k
ل	ﻟ	ﻠ	ﻞ		l	l	l	l	l	l
م	ﻣ	ﻤ	ﻢ		m	m	m	m	m	m
ن	ﻧ	ﻨ	ﻦ		n	n	n	n	n	n
ه	ﻫ	ﻬ	ﻪ		h	h	h	h	h	h
ة			ﺔ	B	h, t [(1.1)]	ẗ	ʰ, ᵗ [(3.4)]	h, t [(4.3)]	h, t [(5.2)]	a, at [(6.1)]
و			ﻮ		w	w	w	w	w	w
ي	ﻳ	ﻴ	ﻲ		y	y	y	y	y	y
ى			ﻰ		ā	ỳ		y	y	ā
لا			ﻼ		lā	laʾ	lā	lā	lā	lā
ال				C	al– [(1.2)]	ʾˡal [(2.2)]	al– [(3.5)]	al– [(4.4)]	al– [(5.3)]	al–, ʼl– [(6.2)]

					DIN 31635 1982[1.0]	ISO 233 1984[2.0]	ISO/R 233 1961[3.0]	UN 1972[4.0]	ALA-LC 1997[5.0]	EI 1960[6.0]
iso	ini	med	fin							

Vowels and diphthongs

iso	ini	med	fin	code	DIN 31635	ISO 233	ISO/R 233	UN	ALA-LC	EI
آ			آ	D	ʾā	ʾâ	ā, ʾā[3.6]	ā	ā, ʾā[5.4]	ā
◌َ					a	a	a	a	a	a
◌ُ					u	u	u	u	u	u
◌ِ					i	i	i	i	i	i
◌َا		◌َا			ā	aʾ	ā	ā	ā	ā
◌ٰ					ā	ā	—	ā	ā	ā
◌َى					ā	aỳ	à	á	á	ā
◌ٰى					ā	āỳ	à	—	—	—
◌ُو		◌ُو			ū	uw	ū	ū	ū	ū
◌ِي		◌ِي			ī	iy	ī	ī	ī	ī
◌ًا				E	an	áʾ, á	an	aⁿ	an[5.5]	—
◌ًى				E	an	áỳ	—	—	—	—
◌ٌ				E	un	ú	un	uⁿ	un[5.5]	—
◌ٍ				E	in	í	in	iⁿ	in[5.5]	—
◌َوْ		◌َوْ			aw	aw°	aw	aw	aw	aw
◌َيْ		◌َيْ			ay	ay°	ay	ay	ay	ay
◌ُو					uww	uw̄	uww, ū[3.7]	uww	ūw[5.6]	uww, ū[6.3]
◌ِيّ					iyy	iȳ	iyy, ī[3.8]	iyy	īy, ī[5.7]	iyy, ī[6.4]

Other signs

iso	ini	med	fin	code	DIN 31635	ISO 233	ISO/R 233	UN	ALA-LC	EI
◌ْ				E	[1.3]	◌°	— [3.9]	[4.5]	—	—
◌ّ				F	[1.4]	◌̄	[3.10]	[4.6]	[5.8]	[5.5]
أ				G	◌ʾ	◌²	[3.11]	—	[5.9]	◌ʾ

Additional characters [H]

iso	ini	med	fin	DIN 31635	ISO 233	ISO/R 233	UN	ALA-LC	EI
پ	ﭖ	ﭗ	ﭙ	p	—	p	—	p	p
چ	ﭼ	ﭽ	ﭺ	č	—	č	—	ch, zh	č
ژ			ﮋ	ž	—	ž	—	zh	zh
ڨ	ڨ	ڨ	ڨ	v	—	v	—	v	—
ڥ	ﭪ	ﭫ	ﭩ	v	—	v	—	v	—
ڢ	ﻓ	ﻔ	ﻒ	q	q	q	—	f	—
ٻ	ﺑ	ﺒ	ﺐ	f	f	f	—	q	—
گ	ﮔ	ﮕ	ﮓ	g	—	g	—	g	g
ڭ	ﯕ	ﯖ	ﯔ	g	—	g	—	g	g
ۋ			ۋ	v	—	v	—	v	—

Punctuation

iso		DIN 31635
،		,
؛		;
؟		?

Numbers

٠	0
١	1
٢	2
٣	3
٤	4
٥	5
٦	6
٧	7
٨	8
٩	9

Notes

* Character forms: *iso* isolated form, *ini* initial form, *med* medial form, *fin* final form.

A ham°zaẗ (hamzaʰ).

B taʾ, mar°buwṭaẗ (tāʾ marbūṭaʰ).

C The definite article. Se individual notes.

D maḏaẗ (maddaʰ).

E sukuwn (sukūn).

F šaḏaẗ (šaddaʰ).

G ham°zaẗ ²al°waṣ°l (hamzaᵗ al–waṣl).

H The characters are used in various Arabic-speaking countries to represent sound not found in standard Arabic.

1.0 *DIN (Deutsches Institut für Normung) 31635: Umschrift des arabischen Alphabets as referenced in Klaus Lagally: ArabTeX – a System for Typesetting Arabic.*

General notes:

i. Hyphen is used to separate grammatically differing elements within single units of Arabic script, notably the noun from the article and/or from the particles *wa-, fa-, ta-, bi-, li-, ka-, la-, sa-* and *a-*.

1.1 As t in the construct state.

1.2 The definite article is assimilated with the following "sun" letter (ت, ث, د, ذ, ر, ز, س, ش, ص, ض, ط, ظ, ل, ن).

1.3 *Sukūn* is not transliterated.

1.4 The consonant is written twice.

2.0 *International Standards Organisation. (http://www.iso.ch).*

General notes:

i. If the Arabic text supplies vowels, it will be entirely transliterated; if the Arabic text does not supply vowels, only those characters appearing in the text are transliterated.

2.1 With bearer (ؤ وأ): ', without bearer: ,. E.g. رُؤُسٌ ruwʼusú (ruwʼus); سَاءَلَ saʼala.

2.2 The definite article is always joined to the next word without a hyphen, e.g. أَلشَّمْسُ ʼʼalšam°su.

3.0 *International Standards Organization. This standard was withdrawn and replaced by ISO 233:1984. Nevertheless this version of ISO 233 can still be found in various publications.*

General notes:

i. The standard distinguishes between transliteration with and without *iʿrāb* (case endings):

	With *iʿrāb*	Without *iʿrāb*
بَيتُ	bayt^u	bayt
بَيتٌ	bayt^{un}	bayt
مَعنىً	maʿnà^n	maʿnà
مِصرينَ	miṣriyyīn^a	miṣriyyīn

ii. Hyphen is used in transliteration to separate grammatically differing elements, notably the noun from the article and/or from the particles *wa-*, *fa-*, *ta-*, *bi-*, *li-*, *ka-*, *la-*, *sa-* and *a-*.

iii. ابن and بن in transliteration without *iʿrāb:* always transliterated ibn.

3.1 See entry under "Vowels and diphthongs" section and note 3.2.

3.2 Special condition for ؤ and ئ, أ: The base letter is not transliterated, e.g. رَأى ra'à, لِئَم li'am, سُؤَال su'āl.

3.3 *Hamza^h* is not transliterated initially, elsewhere rendered by '.

3.4 With *iʿrāb:* ^{t}, e.g. المَدينَةُ al-madīna^{tu}; without *iʿrāb* in the absolute state: ^{h}, e.g. المدينة al-madīna^h; without *iʿrāb* in the construct state: ^{t}, e.g. المدينة النبي madīna^t an-nabī.

3.5 The l in the definite article is assimilated with "sun" letters: ت ,ث ,د ,ذ, ر ,ز ,س ,ش ,ص, ض ,ط ,ظ, ل and ن. E.g. الشَّمسُ aš-šams^u.

3.6 ā is used initially, 'ā elsewhere.

3.7 ū used in final position.

3.8 ī used in final position.

3.9 *Sukūn* is ignored in transliteration.

3.10 *Šadda^h* is rendered by doubling the consonant.

3.11 *Hamza^t al-waṣl (alif waṣla^h):* With *iʿrāb* transliterated by its original vowel with a breve, indicating that the vowel is not pronounced, e.g. بِاهتمام bi-ĭhtimām^i, بَيتُ اَلَملك bayt^u ăl-malik^i; without *iʿrāb* after a vowel as with iʿrāb, e.g. بِاهتمام bi-ĭhtimām; without *iʿrāb* after a consonant without the breve, e.g. بيت الملك bayt al-malik.

4.0 *United Nations Group of Experts on Geographical Names (UNGEGN). (http://www.eki.ee/wgrs).*

4.1 Not romanized, but see romanizations accompanying *alif* in the table for vowels.

4.2 Not romanized word-initially. Examples: أَخَذَ akhadha, بْئر bi'r, سُؤَال su'āl, رَئِيس ra'īs, سُئِلَ su'ila, بِنَاءَات binā'āt, قَرَأَ qara'a, قُرِئَ quri'a.

4.3 *Tā' marbūṭah* is romanized h, except in the construct form of feminine nouns, where it is romanized t instead.

4.4 When the definite article *al* precedes a word beginning with one of the "sun letters" (t, th, d, dh, r, z, s, sh, s, d, t, z, l, n) the *l* of the article is assimilated with the first consonant of the word: الشارقة ash-Shāriqah.

4.5 Marks absence of the vowel.

4.6 Marks doubling of the consonant.

5.0   *American Library Association/Library of Congress*

General notes:

i. Hyphen is used to: connect the definite article *al* with the word to which it is attached; between an inseparable prefix and the following word; between *bin* and the following word in personal names when they are written in Arabic as a single word.

ii. Prime (ʼ) is used to: Separate two letters representing two distinct consonantal sounds, when the combination might otherwise be read as a digraph, e.g. ادهم Adʼham, اكرمتها akramatʼhā; mark the use of a letter in its final form when it occurs in the middle of a word, e.g. قلعةجى Qalʻahʼjī, شيخزده Shaykhʼzādah.

iii. بن and ابن are both romanized ibn, except in modern names, typically North African, in which بن is romanized bin.

5.1   *Hamzah* in initial position not represented in romanization; when medial or final ʼ, e.g. مسألة mas'alah, خطئ khaṭi'a.

5.2   *Tāʼ marbūṭah:* In a word in the construct state: t, e.g. وزارة التربية Wizārat al–Tarbīyah; in an indefinite noun or adjective or proceeded by the definite article: h, e.g. صلاة ṣalāh, الرسالة البهية al–Risālah al–bahīyah.

5.3   The definite article is always romanized al-, whether is it followed by a "sun letter" or not. An exception is the preposition ل followed by the article: lil–, e.g. للشربينى lil–Shirbīnī.

5.4   Initial آ is romanized ā; medial آ, when it represents the phonetic combination ʼā, is so romanized, e.g. تأليف taʼālīf; آ is otherwise not represented in romanization, e.g. خلفآء khulafā'.

5.5   *Tanwīn* is normally disregarded in romanization. For exceptions see *ALA-LC Romanization Tables*.

5.6   ـُوّ, representing the combination of long vowel plus consonant, is romanized ūw.

5.7   Medial ـيّ, representing the combination of long vowel plus consonant, is romanized īy; final ـيّ is romanized ī, e.g. المصرىّ al–Miṣrī, المصريّة al–Miṣrīyah.

5.8   *Shaddah* or *tashdīd* is romanized by doubling the letter.

5.9   آ *(waṣlah),* is not represented in romanization. When the *alif* which supports *waṣlah* belongs to the article ال, the initial vowel of the article is romanized a. In other words, beginning with *hamzat al-waṣl,* the initial vowel is romanized i. بآهتمام عبد المجيد bi–ihtimām ʻAbd al–Majīd.

6.0   *The Encyclopedia of Islam. New Edition.*

6.1   at used in construct state.

6.2   Always al– and ʼl–.

6.3   Final position ū.

6.4   Final position ī.

6.5   Doubles the consonant.

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