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CHAPTER 3

The previous chapter discussed the intrinsic morphologic relationship between the written textura and the Humanistic minuscule because both models derived from the Carolingian minuscule. It is plausible that this relationship made it possible to reuse the standardised patterns of the textura type production for roman type. In order to find evidence for this hypothesis, the present chapter will examine the standardisation of the Humanistic minuscule in greater detail. The aim is to begin to answer the question of how handwritten models were standardised for roman type. To this end, I will first illustrate the ways in which roman type differs from its handwritten origins. This is necessary in order to understand what is shared by the calligraphic and typographic models, and where they deviate from each other. Without this knowledge it is difficult to understand how Humanistic handwriting may have been adapted to the technical requirements of the Renaissance font production. I will then introduce a software application that I developed, and I will make use of this software to reproduce the transformation of the Humanistic minuscule into roman type. This discussion will lend further support to my sub-hypothesis that the production of roman type made use of standardised handwriting, much like the production of textura type. In this way, this chapter aims to support the main hypothesis of this thesis: that the creation of roman type was largely influenced by technical rather than æsthetic considerations.

3.1 Roman type and Humanistic minuscule differences

In the late 1980s I developed a simple geometric letter model to capture the structures of the Humanistic minuscule and textura handwriting (and everything in between). I did this for the television course *Kalligraferen: de kunst van het schoonschrijven* (‘Calligraphy, the art of beautiful handwriting’) that I set up and for which I wrote the accompanying book. In the course I used the geometric letter model to explain how the strokes of the different letters relate to each other. This section will first introduce the model before using it to illustrate the ways in which roman type deviates from the Humanistic minuscule. This demonstration aims to highlight the differences between roman type and its handwritten origins. These differences suggest that, as I hypothesise, roman type was not exclusively modelled to exactly imitate handwriting; rather, it was also the result of technical considerations.

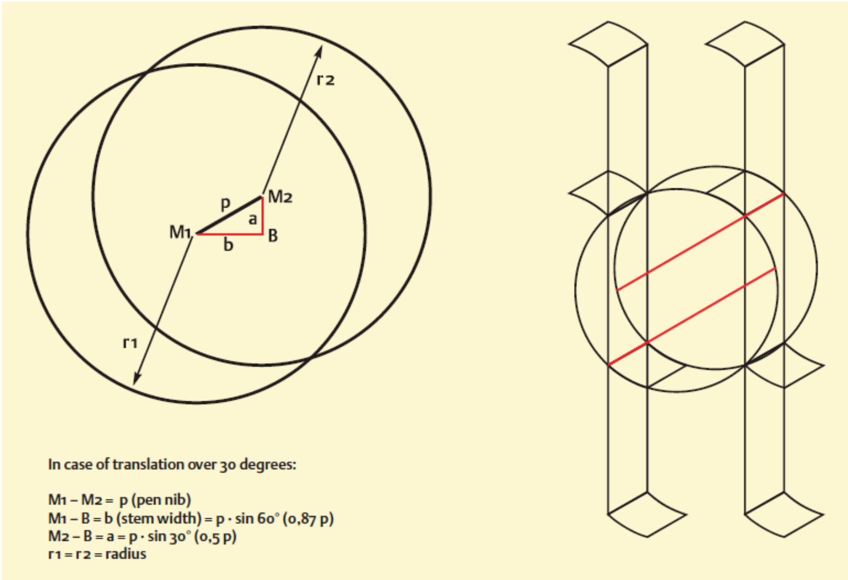


Figure 3.1 Geometric model for (the majority of letters of) the Humanistic minuscule.

If the Humanistic minuscule is reduced to its essence, i.e., stripped of details, the basic construction of the majority of the minuscules can be represented by my geometric letter model. This model reveals the relationship between the straight strokes and the overshoots of the curved ones. In Figure 3.1, the o of the Humanistic minuscule is made from two translated circles, using a vector angle of 30 degrees. The proportions of the n –and hence the h, m, and u– are the result of placing vertical lines through the intersecting points of the two circles, on which the same vector is subsequently used to determine the width of the stems.

Figure 3.2 All minuscules that do not contain diagonals can be formed using parts of the letter model.

The letters with diagonals –k, s, v–z– which find their origin in the Roman capitals, cannot be captured by this model. All other letters are made with this small set of strokes (Figure 3.2), because a calligrapher makes repetitive movements. The model does not have a specific top or bottom. After all, if one rotates the b one gets the q, if one does this with the d the result will be the p, and the n will become the u, etc.

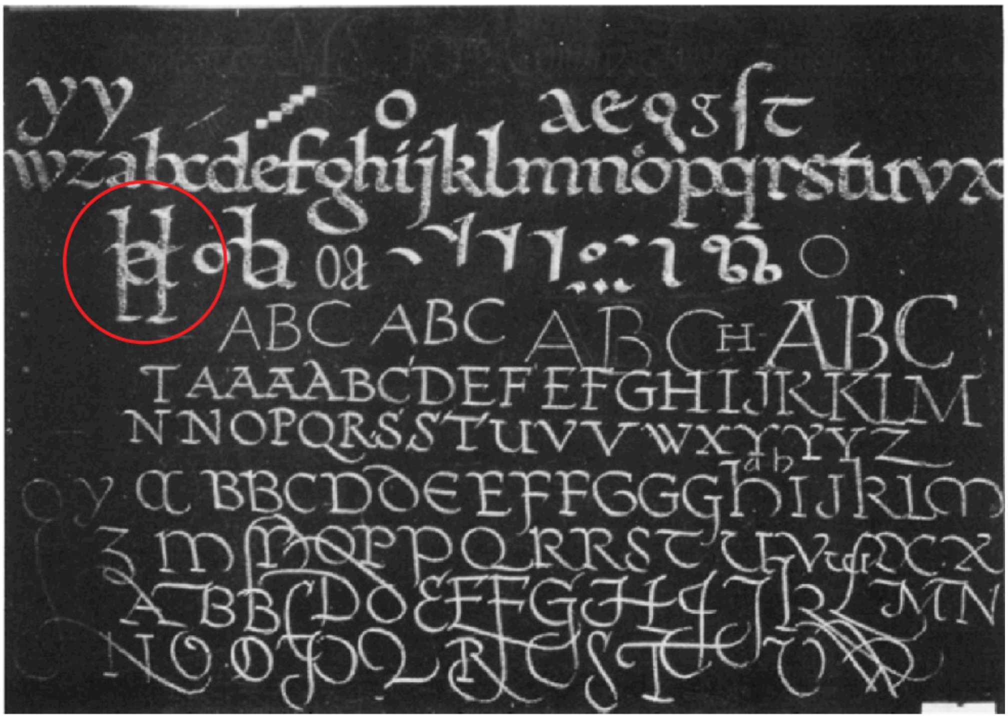
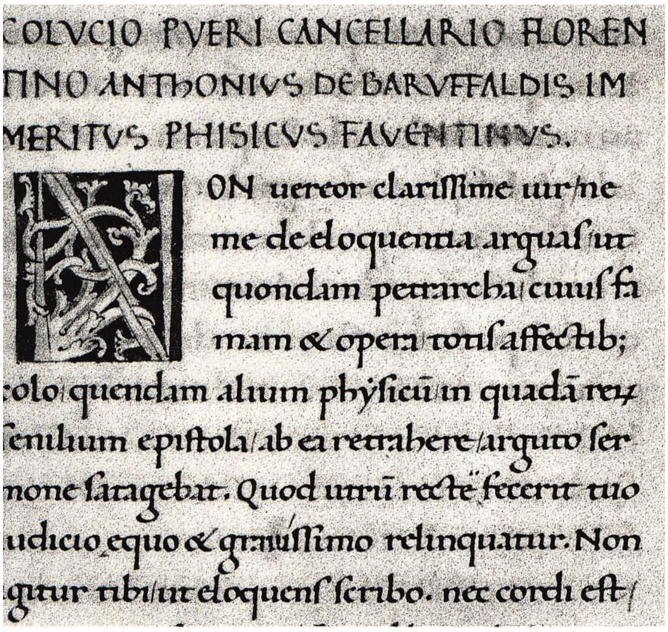


Figure 3.3 Johnston's model for the Foundational hand (beneath 'abc [. . .]') on a blackboard.

For the letter model I was inspired by pictures of blackboard demonstrations by Johnston (Figure 3.3), dating back to 1930 and 1931.[139] I translated Johnston's freely written diagram for the Foundational hand into a geometric construction. This serves two purposes: first, the model explains the structure of the handwritten pattern and, second, it transfers this pattern into a highly formalised one, which is required for the production of movable type, as I will argue in this chapter.

Using the geometric letter model, the creation of roman type from the Humanistic minuscule can be schematically reproduced in a small number of steps. Such a reproduction makes it easier to understand at which point roman type started to deviate from its handwritten origin. This deviation suggests that technical considerations were involved in the production of roman type, which is in line with my hypothesis and contrary to the general opinion that roman type production aimed to imitate handwriting. The starting point of this reproduction is handwriting, such as Poggio's *Littera Antiqua*, shown in Figure 3.4.

[139] Edward Johnston, ed. Heather Child and Justin Howes, *Lessons in Formal Writing* (London: Lund Humphries, 1986), pp.148,167.



COLVCIO PVERI CANCELLARIO FLOREN
TINO ANTHONIVS DE BARVFFALDIS IM
MERITVS PHISICVS FAVENTINVS.
ON uereor clariſſime uir/ne
me de eloquentia arguaſ ut
quondam petrarcha/cuiuſ fa
mam & opera totiſ affectib;
colo quendam alium phyſicū in quadā re
ſenilium epiſtola/ab ea retrahere/arguto ſer
mone ſatagebat. Quod utrū recte fecerit tuo
udicio equo & grauiſſimo relinquatur. Non
gitur tibi/ut eloquenſ ſcribo. nec cordi eſt/

Figure 3.4 Poggio's *Littera Antiqua.*

Although meant in principle to look identical, and by definition sharing the same construction, handwritten letters inevitably deviate from each other. In Poggio's refined handwriting, for instance, no minuscule a is identical. By basically reducing the typographer's palette to one glyph for each uppercase character and one for each lowercase character, the text image is strongly standardised in the case of roman type. The following images show a stepwise transformation from the written Humanistic minuscule pattern to the roman typographic one.

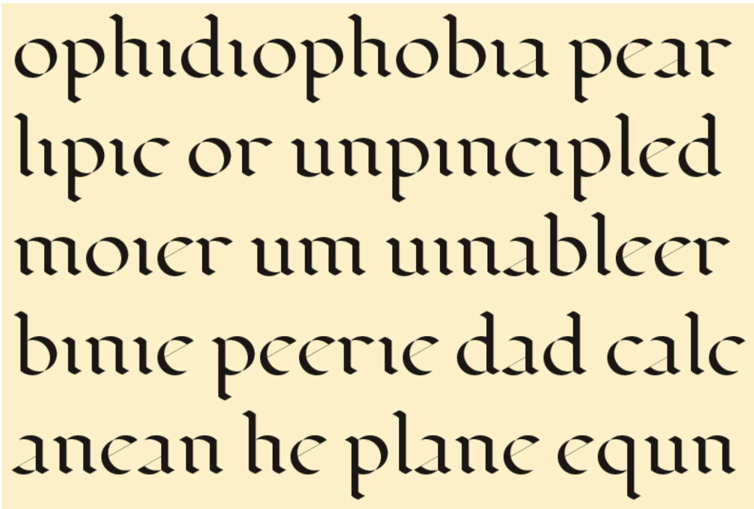


Figure 3.5 Humanistic minuscule geometrically reconstructed using the letter model.

Using letters constructed with the model one can form a text that geometrically represents the building of letters and words from strokes by the calligrapher

(Figure 3.5). The first formalisation is achieved by replacing the stroke endings by triangular serifs (Figure 3.6). The construction and weight of the serifs are directly related to the stroke endings that they replace. The serifs are identical at the top and bottom. This is something a calligrapher could simply do without changing the position of the broad nib.

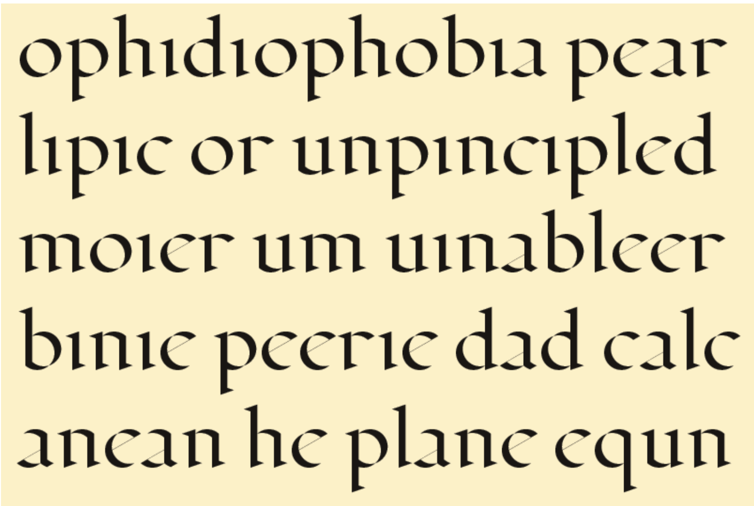


Figure 3.6 Replacement of the end strokes by triangular serifs.

As such the triangular top serif is not specific to type; it can also be found in more formally written variants of the Carolingian and Humanistic minuscule. The serifs at the bottom, on the other hand, were not treated this way by Renaissance calligraphers. However, this is the most consistent and therefore most logical replacement of stroke endings by serifs. Because it is not present in Renaissance roman type either, it is a purely theoretical addition.

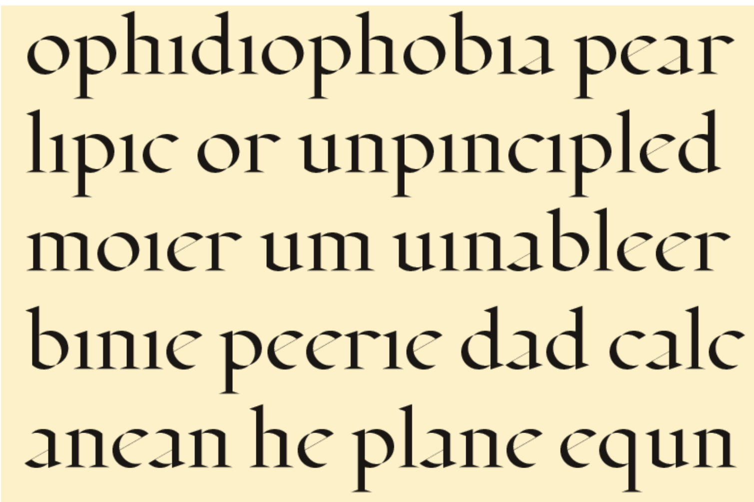


Figure 3.7 Triangular top serifs combined with ‘split’ bottom serifs.

In Figure 3.7 the bottom serifs are split variants of the triangular top serifs. This way the weight was distributed over both sides of the stems. At this point the letters clearly deviate from the handwritten model, because otherwise the calligrapher would have to rotate the pen nib and this would hamper the writing flow.

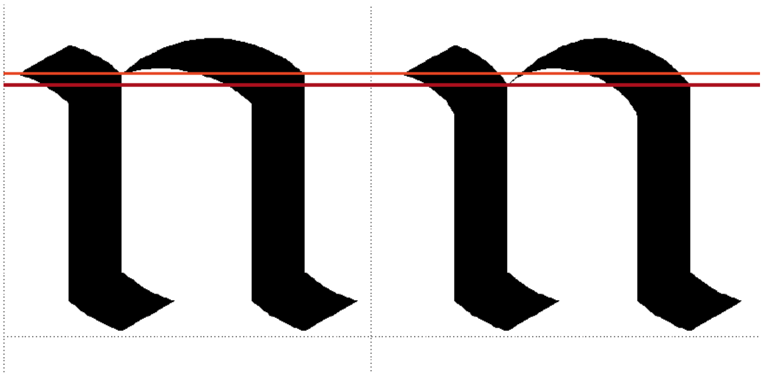


Figure 3.8 Curvature of the arches.

Written letters are usually smoother than the geometrical reconstructions with their hard connections between arches and stems. In Jenson's archetypal model this smoothing is even stronger, mainly because the arch is so bent that the counters of the h, m, n, and u almost resemble the shape of a Romanesque window. This is achieved by lowering the start point of the arch, which results in a movement of the curve's extreme towards the counter's centre (Figure 3.8).

The geometric model clearly shows that the Humanistic minuscule is mainly constructed of a limited number of strokes. This is a prerequisite for unity between the different letters. Consequently all details in roman type are related to one another. If the arch of an n is changed, then this will be also the case for the arches of the h, m, and u. It will also influence the shape of the bowls of the b, d, p, q, the terminals of the c and the f, etcetera. However, although the underlying structure of roman type can be represented by a relatively simple geometric model, this does not imply that the type designer is severely limited when it comes to applying details. The latter requires a thorough insight into the details of type design. These details are listed and discussed in Appendix 3, *Basic ingredients of Latin type*.

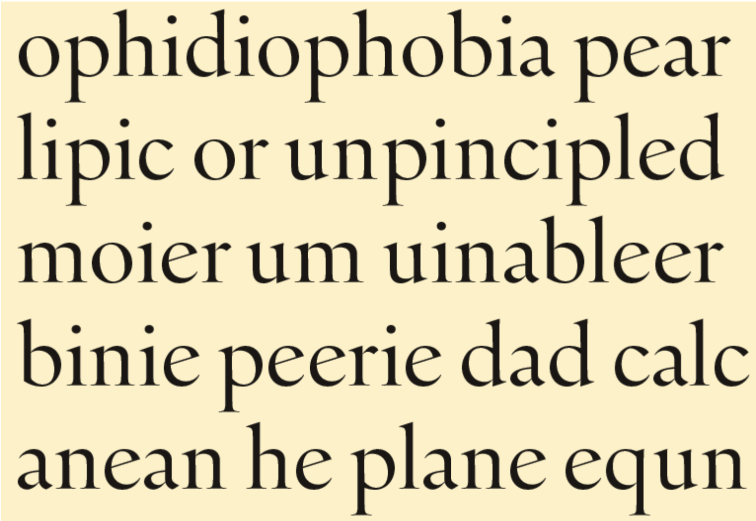


Figure 3.9 Further formalisation and polishing resulting in roman type.

In Figure 3.9 the letter forms of Figure 3.7 have been further refined by smoothing connections and further elaborating on details without changing the proportions of the previous models. This finally results in roman type. The o deviates the most from its broad-nib basis, because the two translated circles are transformed into a simplified and more vertically stressed shape.

The geometric letter model can also be used to construct other variations in roman type than the ones shown above. The following sections describe this process.

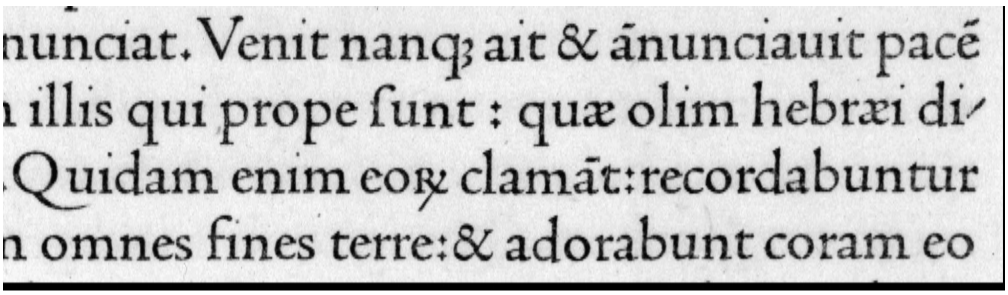

nunciat. Venit nanq; ait & ãnunciauit pacẽ
ı illis qui prope sunt : quæ olim hebræi di-
.Quidam enim eorum clamãt: recordabuntur
n omnes fines terre: & adorabunt coram eo

Figure 3.10 Jenson's roman type for *De Evangelica Præparatione* from 1470.

The contrast, which is the difference between the thick and thin parts of letters, in Jenson's type from 1470 (Figure 3.10) is considerably lower than in the type shown in Figure 3.9, although the two are related. A relatively low contrast is a prerequisite for small point sizes, because it prevents the (optical) disappearance of the thin parts of the letters. For smaller point sizes the letters need to be sturdier as well. A letter can be made bolder by simply drawing a line around a contour. This results in a reduction of the contrast, because the thin parts become relatively more emboldened than the thicker parts.

ophidiophobia pear
lipic or unpincipled
moier um uinableer
binie peerie dad calc
anean he plane equn

Figure 3.11 Rotation of the e-bar.

In comparison with Figure 3.10, in Figure 3.11 only the diagonal in the e has been replaced by a horizontal bar. Although this is a relatively minor change, the effect is quite extensive –if only because of the large percentage of e's that a text normally contains. This is one of the most notable changes Griffo made to Jenson's model.

ophidiophobia pear
lipic or unpincipled
moier um uinableer
binie peerie dad calc
anean he plane equn

Figure 3.12 Compression of the curved letters.

Figure 3.12 shows a compression of the curved letters with the exception of the o, which is only rotated to an upward position. The result is a more even image of the text. The more condensed lowercase e is a particular improvement over the one shown in Figure 3.11. Overall the relation between the stems and the bowls of the letters has clearly changed; the fact that the counter-axis has become steeper is the result of the compression of the curves (Figure 3.13). This effect can especially be found in roman types from the Baroque.

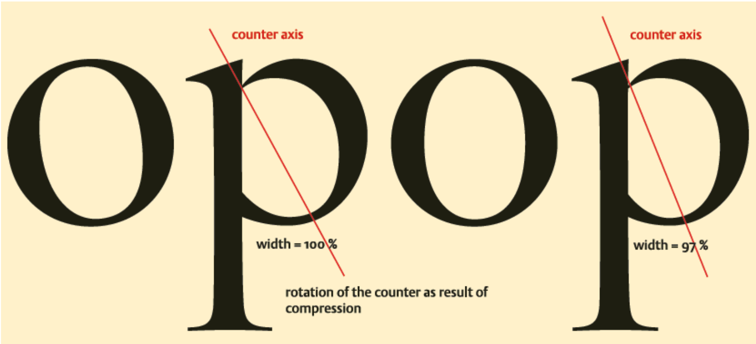


Figure 3.13 Compression of the curves and subsequent rotation of the o.

Because of the reduction of white space in the letters and consequently within the words and lines, the ascenders and descenders are shortened. If there is less white space within a line, less white space is required between the lines, as is described in Section 2 of this chapter. As mentioned, the length of the ascenders and descenders should also balance with the letter forms within the x-height. In Figure 3.13 the descender of the p on the right looks slightly longer than the one on the left because of the compressed counter.

Figure 3.14 Changed proportion of the e.

An enlargement of the x-height in relation to the ascenders and descenders is visible in the larger (display) point sizes of the French Renaissance and in text sizes of the Baroque. Many types from the Baroque show more horizontal compression of the curved letters in comparison to their Renaissance counterparts. This was done because of economical reasons in particular: compression made it possible to put more text on a page without changing the x-height. The e on the right in Figure 3.14 is an example of this.

ophidiophobia pear
lipic or unpincipled
moier um uinableer
binie peerie dad calc
anean he plane equn

Figure 3.15 Enlargement of the 'eyes' of the a and the e.

Finally, in Figure 3.15 the enclosed parts ('eyes') of the a and e have been enlarged. Since the Italian and French Renaissance, in general these relatively small counters have steadily become larger in type. Because of the repetition this also has a notable effect on the text image, of course.

The letters of the Humanistic minuscule are built using a limited number of strokes, as is illustrated by the letter model. Consequently, this is also the case for roman type. For a large part, what a type designer does when he designs roman type is to make variants within the structure of the letter model. As a result of the limited number of strokes, every detail that the type designer applies because of personal preferences is repeated numerous times. Zapf describes a typeface 'as a sum of a series of factors which must be fused into harmonious unity if a useful type is to result.'[140] These factors are discussed in Appendix 4: *Details of type*.

There are marked differences between roman type and its handwritten origins; these differences are captured in the geometric letter model. This demonstration lends further support to my hypothesis that roman type is the result of the standardisation of the Humanistic minuscule to the type production processes and that æsthetics were possibly not the only consideration in this process.

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[140] Hermann Zapf, *About Alphabets* (Cambridge, Massachusetts: MIT Press, 1970), p.66.

3.2 LetterModeller application

As a part of my research, I developed the LetterModeller software application, or LeMo, which is built around the geometric letter model.[141] LeMo is meant to investigate movable Latin type patterns and to parameterise the design of digital type. A range of illustrations for this dissertation, such as Figure 3.16, were generated with this application.

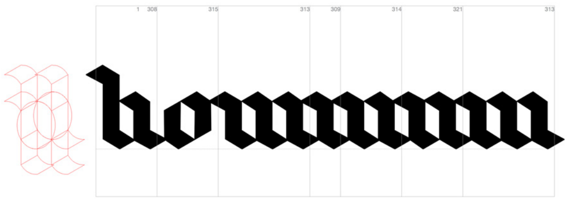

Figure 3.16 Textura pattern generated with LeMo.

The current version of LeMo supports Latin capital and Latin book hand minuscule, and is restricted to the contrast flow of the broad nib. It captures the morphology of the textura variants and the Humanistic minuscule because it was developed around the geometric letter model. The goal is that LeMo will eventually also support the contrast flow of flexible-pointed pen.

Figure 3.17 Writing parameters in LeMo.

With LeMo all aspects that affect writing with a broad nib can be parameterised (Figure 3.17). This includes the factors of pen width, pen thickness,

[141] LeMo is supported by macOS, Windows, and Linux. With LeMo CFF- and TTF-flavored OpenType fonts (the most current font format) as well as UFO files can be generated.

pen angle, x-height, ascender length, descender length, stretch factor, italic angle, and curve flattening. Sliders can be used to change each of these parameters.

The Humanistic minuscule is the result of writing with a broad nib. With the exception of the letters k, s, v–z, which find their origin in the capitals, these letters were not preceded by variants written with monolinear, or 'skeleton' strokes. In contrast with the Humanistic minuscule, capitals do find their origin in skeleton strokes. After all, the Romans adapted the monolinear Greek capitals by tracing the simple geometric structures with a flat brush.

Figure 3.18 Skeleton shapes for the capitals stored in LeMo.

Although the Humanistic minuscule finds its origin in writing with a broad nib, one actually can distil a skeleton line. The latter is the result of the applied broad nib, specifically of the pen (vector) angle. The relation between skeleton line and pen angle is described in Appendix 3: *Basic ingredients of Latin type*. The Humanistic minuscule was combined with adapted capitals, similarly to how in roman type the lowercase letters are combined with uppercase letters. LeMo combines the geometric letter model with skeleton forms for the capitals (Figure 3.18).

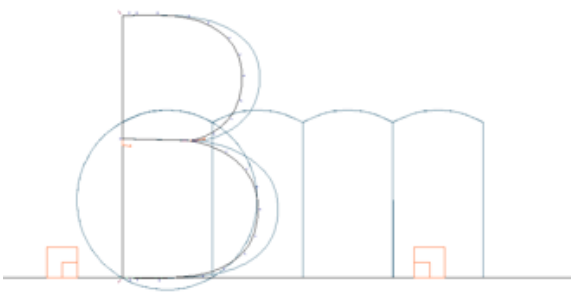

Figure 3.19 Capital widths are adapted to the width of the n.

The lowercase letters k, s, v–z can also be defined as skeleton lines. Effects applied on the letter model as the result of altered parameters are also applied on all skeleton forms. Figure 3.19 shows how the widths of the capitals can be adjusted to the skeleton lines distilled from the Humanistic minuscule: the width of the B is adapted to one and a half times the width of the n, which is used here to make a fence.

After parameterisation the characters can be stored in a glyph database for further processing (Figure 3.20). The parameter settings can be stored in a text file and hence reused.

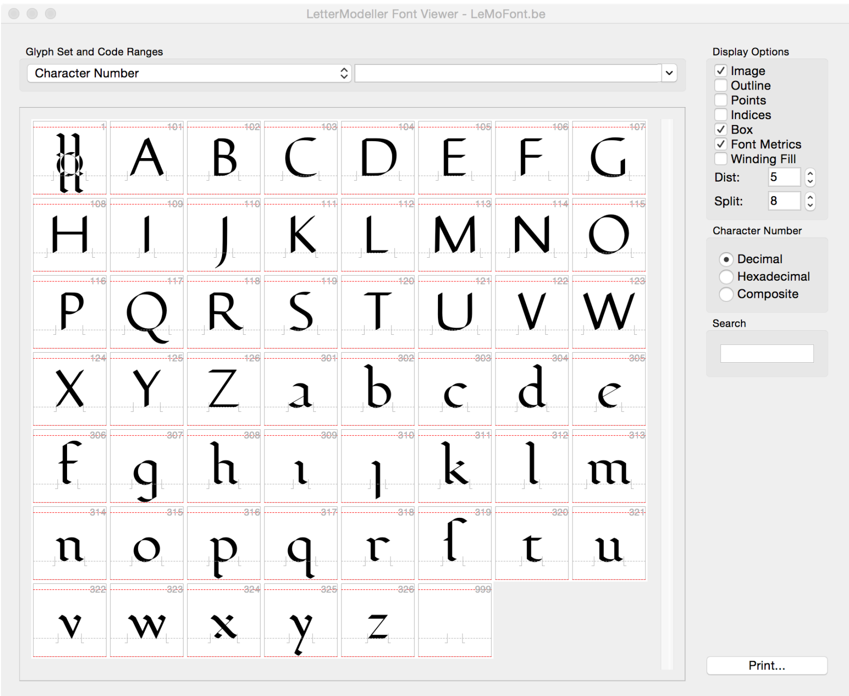

Figure 3.20 Parameterised characters can be stored in a glyph database.

LeMo contains an advanced glyph editor, in which the stored characters can be edited. Instead of writing on a template, which will be discussed in Section 3.3, the type designer can directly start to tweak the digital geometric model (Figure 3.21). The widths of the rectangles on which the geometric letterforms are placed, i.e., the character widths, are predefined in LeMo. These widths are marked by vertical boundaries: side bearings. The positioning of the side bearings is part of the patterning in LeMo and the letterforms can be enhanced within the predefined character widths.

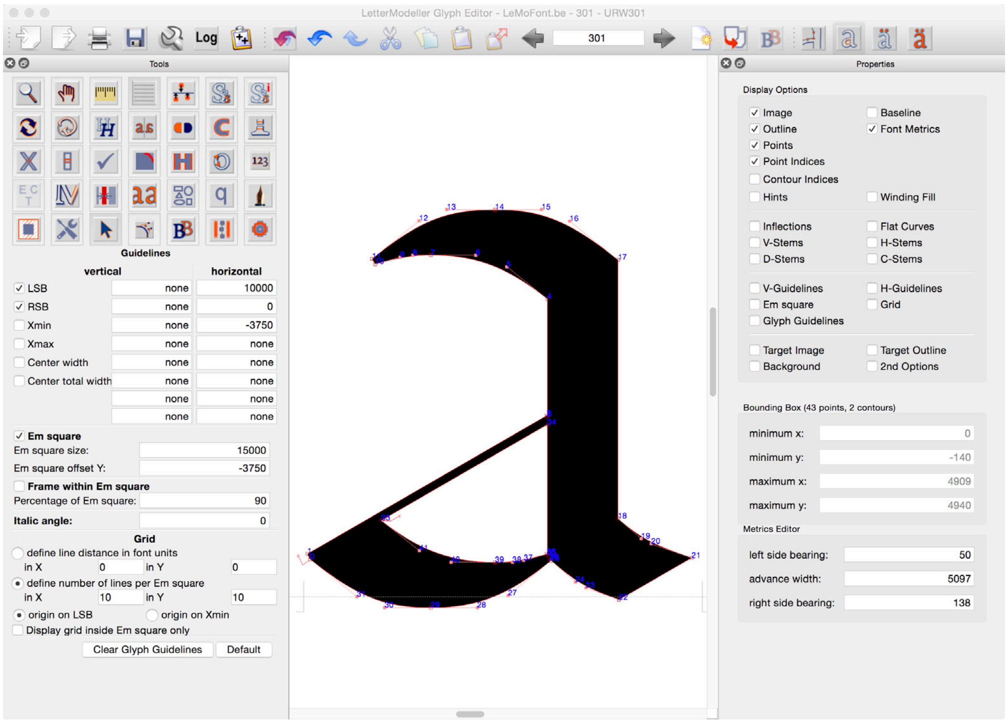

Figure 3.21 LeMo's glyph editor.

This makes it possible to quickly define a structure in which the rhythmical, weight, and contrast aspects are captured. Figure 3.22 shows the starting point for a roman type design.[142] Some refinements have already been applied on top of the pattern generated with LeMo: for example the curves and arches have been made smoother.

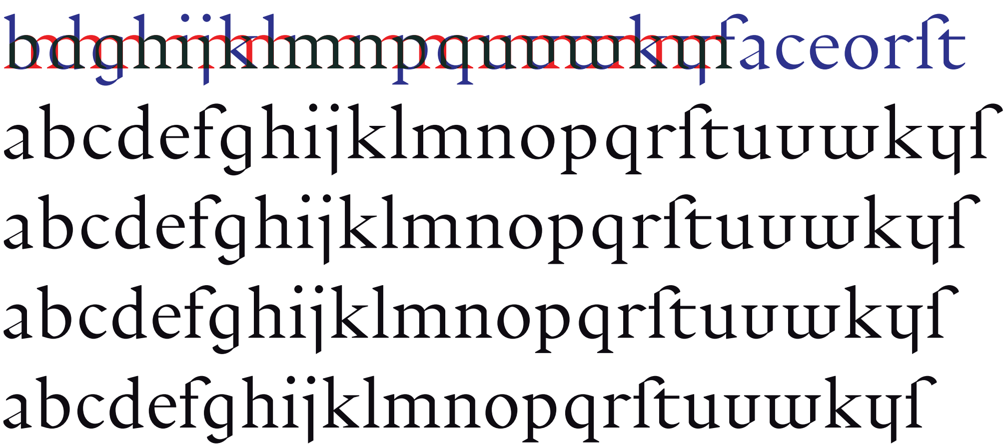

Figure 3.22 LeMo used for the patterning of a newly designed roman type.

[142] This typeface was designed by Joost Dekker, who was a former student of mine of the Expert class Type design course of the Plantin Institute of Typography in Antwerp.

Overall the type shown in Figure 3.22 is very generic still but width, weight, contrast, and contrast flow are already fixed. This makes it possible to directly test the pattern in texts, as is shown in Figure 3.23, before details are worked out.

the quick brown fok jumpſ ouer the laſy dog uniuerſele uerklaring uan de rechten uan de menſ preambule
ouerwegende dat erkenning uan de inherente waardigheid en uan de gelijke en onuervreemdbare rechten
uan alle leden uan de menſengemeenſchap grondflag iſ uoor de urijheid gerechtigheid en urede in de wereld

BN Model

the quick brown fok jumpſ ouer the laſy dog uniuerſele uerklaring uan de rechten uan de menſ preambule
ouerwegende dat erkenning uan de inherente waardigheid en uan de gelijke en onuervreemdbare rechten
uan alle leden uan de menſengemeenſchap grondflag iſ uoor de urijheid gerechtigheid en urede in de wereld

BN Model minus 6

the quick brown fok jumpſ ouer the laſy dog uniuerſele uerklaring uan de rechten uan de menſ preambule
ouerwegende dat erkenning uan de inherente waardigheid en uan de gelijke en onuervreemdbare rechten
uan alle leden uan de menſengemeenſchap grondflag iſ uoor de urijheid gerechtigheid en urede in de wereld

BN Model minus 12

the quick brown fok jumpſ ouer the laſy dog uniuerſele uerklaring uan de rechten uan de menſ preambule
ouerwegende dat erkenning uan de inherente waardigheid en uan de gelijke en onuervreemdbare rechten
uan alle leden uan de menſengemeenſchap grondflag iſ uoor de urijheid gerechtigheid en urede in de wereld

BN Model minus 18

Figure 3.23 Different patterning of roman type tested in texts.

The next step in the design process is to refine the pattern. Figure 3.24 shows the details applied on the basic structure generated with LeMo. Clearly these details are not fully broad-nib based: the patterning does not restrict the creativity of the type designer. The typeface shows a contrast flow that is transitional, which means that it combines elements that find their origin in both writing with the broad nib and with the pointed pen, as can be found in eighteenth-century roman type.

abcdefghijklm
nopqrstuvwxyz
<fiflßæéêëïí>

Figure 3.24 Refinements on a predefined pattern.

Figure 3.25 shows the final result in a text. Despite the transitional contrast flow, the initial patterning with LeMo, which is in line with Jenson's standardisation, is visible still. It clearly provided the designer with a solid basis for the further development and refinement of the letterforms.

Overwegende, dat erkenning van de inherente waardigheid en van de gelijke en onvervreemdbare rechten van alle leden van de mensengemeenschap grondslag is voor de vrijheid, gerechtigheid en vrede in de wereld; ¶ Overwegende, dat terzijdestelling van en minachting voor de rechten van de mens geleid hebben tot barbaarse handelingen, die het geweten van de mensheid geweld hebben aangedaan en dat de komst van een wereld, waarin de mensen vrijheid van meningsuiting en geloof zullen genieten, en vrij zullen zijn van vrees en gebrek, is verkondigd als het hoogste ideaal van iedere mens; ¶ Overwegende, dat het van het grootste belang is, dat de rechten van de mens beschermd worden door de suprematie van het recht, opdat de mens niet gedwongen worde om in laatste instantie zijn toevlucht te nemen tot opstand tegen tyrannie en onderdrukking; ¶ Overwegende, dat het van het grootste belang is om de ontwikkeling van vriendschappelijke betrekkingen tussen de naties te bevorderen; ¶ Overwegende, dat de volkeren van de Verenigde

Figure 3.25 The final type design that started with patterning in LeMo.

Figure 3.26 shows another example of the application of LeMo for defining the pattern for a roman type design.[143] In this case a set of parameters that represent weight and proportions as used in Renaissance roman type by Jenson and his followers, formed the basis.

Figure 3.26 Customisation of the Renaissance preset in LeMo.

[143] This typeface, named FS Brabo, was made by my former Expert class Type design student Fernando Mello and released Autumn 2015. See also: <http://www.fontsmith.com/fonts/fs-brabo>. Mello has received several awards for FS Brabo: <http://www.tiposlatinos.com/2016/resultados.php> and <http://www.fontsmith.com/blog/2016/05/23/fs-brabo-wins-gold-at-the-european-design-awards>.

Proportions and dimensions were adjusted from there. After that a basic schematic font was exported from LeMo, it was imported into FontLab Studio, which is a commonly used font editor. Modifications in spacing and general dimensions of the font were made during the design process, but the core essence of the dimensions and the broad-nibbed pen scheme generated with LeMo remained. Figure 3.27 shows an example of the final version of the typeface.

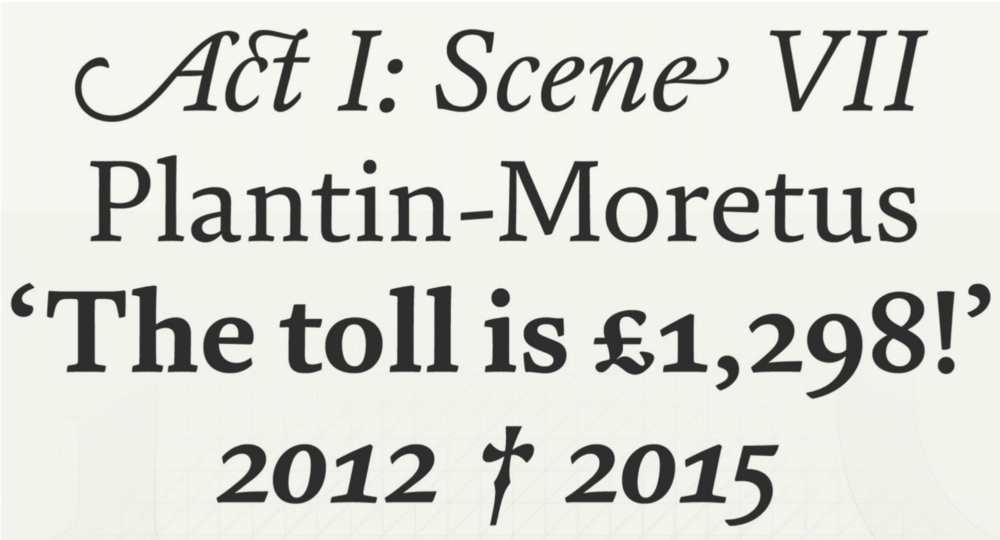

Figure 3.27 The final type design.

3.3 Parameterisation of type design processes

The basic structure of roman type can be parameterised using LeMo, but to what extent is it possible to parameterise more detailed aspects of type design and to reduce the role of the eye? If something can be defined, it can be programmed but there are three big hurdles to face. First, it is necessary to have a detailed description of personal patterns and structures (idiom) in relation to the underlying generic letterforms. Second, the more refined these patterns and structures are, the more programming will be required and eventually this will result in a huge volume of data. Third, such a development requires a substantial amount of financial resources.

Eventually it should –at least theoretically– be possible to generate fonts in a certain idiom (for instance Van Krimpen's or Zapf's, a mixture of these, or one that is user-defined). It will take a significant amount of time and resources before this is possible, and until that time LeMo can be used to generate generic letterforms with control over the factors of pen width, pen thickness, pen angle, x-height, ascender length, descender length, stretch factor, italic angle, and curve flattening. As long as idiom cannot be parameterised, the type designer has to apply his own personalised patterns and structures in the glyph editor.

Many of the figures presented in this dissertation were created using LeMo. The following section will make use of this software to reproduce the moulding of the Humanistic minuscule into prefixed patterns for the creation of roman type.

3.4 Templates

In the following sections I describe a method in which the proportions and widths of the characters of roman type are first defined using geometrically based templates. The details of the letterforms are subsequently adapted to those widths. These templates may have been used in standardising the Humanistic minuscule for roman type production, thus making the production simpler and more reproducible, and hence to some extent minimising the role of the eye of the punchcutter.

The patterning in the Humanistic minuscule or any other hand is not something a starting calligrapher will easily control. In *Scribes and Sources* Arthur S. Osley presents an English translation of parts from *Libre nuovo d'imparare a scrivener* a writing manual by the Italian calligrapher Giovanni Battista Palatino (ca.1515–ca.1575) from 1540. Palatino's method for developing 'a fine, firm, and steady hand' underlines that patterning is the result of training:

> First, you must have a tablet of hard wood or copper, in which are cut, or rather hollowed out, all letters of the alphabet, made in their correct proportions with their basic elements, a little on the large side. Then take a stylus of tin, about the size of a small goose-quill, not hollow but completely solid as to give it weight and to leave your hand light and rapid when you stop using it. Cut this stylus to the 'ploughshare' shape as for a quill, though it is not necessary to slit the nib. Make your beginner move the end of the stylus repeatedly in the letters which have been hollowed out, starting each letter at the appropriate point, and continuing just as one does when writing with a pen. He should practice this way until he is certain that he can make the movements confidently without assistance. Then he begins to write on paper [...].[144]

In this way 'the beginner' not only becomes familiar with the movement, but also with the proportions of the letters. A consistent pattern of letters is only created when strokes and counters are repeated in a correct way. What is correct is

[144] Osley, *Scribes and Sources*, p.95.

relative; as history teaches us, hands can be compressed or wide, but all letters in a row should have related proportions. If a certain letter is relatively wide it will stand out in the pattern and will hence spoil it. A starting calligrapher needs guidance to create consistent patterns. There is clearly no pre-programming in the brain that results in a natural ability to create rhythmically strong 'fences' in textura quadrata or Humanistic minuscule. This patterning has to be obtained by practising.

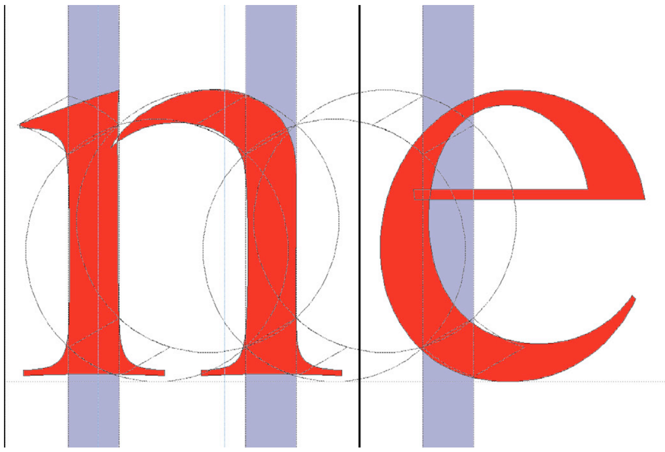

Figure 3.28 Positioning of side bearings in between the stems.

The structure of the Humanistic minuscule can be captured with the geometric letter model, and with the latter a pattern can be created that forms a template for writing (Figure 3.29). The positioning of the side bearings in the template directly comes forth from the intrinsic patterning in the handwritten model. As shown in Figure 3.28, the round strokes are overshoots of the stems and hence the character widths of the letters b, d, h, n, o, p, q, and u are identical. Because of their open counters, the a, c, and e require a smaller width, which is defined in the template by setting the side bearing tightly to the strokes that mark the counters. The width of aforementioned three letters is identical. The width of i and j are the same. The left side bearing of the f is identically placed as the left side bearing of the i because the shapes are corresponding. The right side bearing of the f is tightly placed to the horizontal bar because the f fits the pattern best this way.

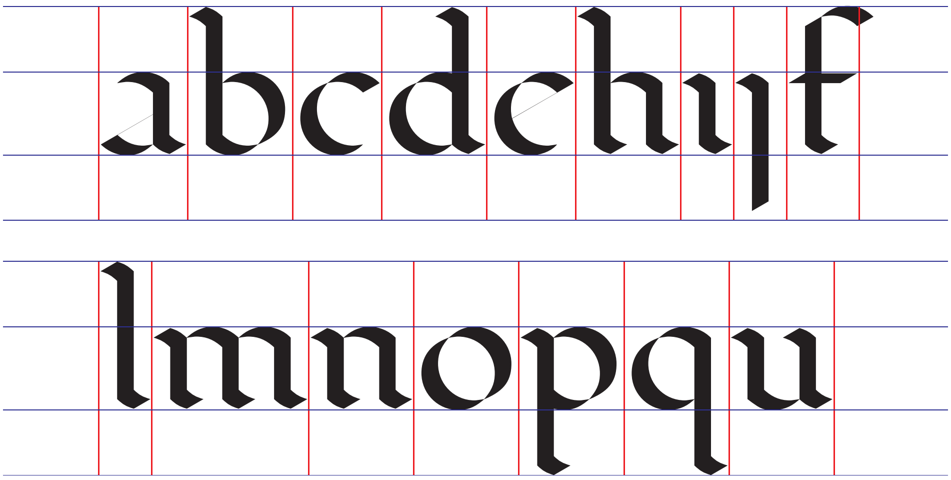

Figure 3.29 Pattern created with the geometric letter model.

The calligrapher can trace this template and in this way becomes acquainted with the archetypal proportions of roman type. Because the side bearings are part of the pattern, the fitting already exists and the written letters can easily be translated to (digital) type. To understand the quintessence of foundry type, the pattern in Figure 3.29 can be used to cut paper strips using the side bearings, and texts can subsequently be set with these strips. The pattern can also directly be used in LeMo for creating digital fonts.

Today it is common practice to design characters first and subsequently apply side bearings. It is plausible that during the early days of typography the proportions and widths of the characters were defined first and the details were then subsequently adapted to those widths. The possible use of templates in early font production is in line with my hypothesis that the Humanistic minuscule had to be standardised for roman type production, in a process analogous to the (more natural) standardisation of the textura hand for textura type production.

The following section describes stepwise the application of the template for the systematisation of writing and the subsequent transformation of the written letters into roman type, while retaining the side bearings and the positioning of the letters within the prefixed widths.

3.5 Systematised writing

When writing is used as basis for designing roman type, in line with Johnston's and Noordzij's theories, usually the proportions of the Humanistic minuscule will be investigated and practised via writing the Foundational hand model. Hence, when teaching type design, an instructor explains what these proportions are and how the pen has to be directed. But if these proportions can be captured in a geometric pattern, it makes sense to trace the pattern with a broad nib, in line with the method described by Palatino in his writing manual from 1540, as quoted in the previous section. Using LeMo, this section will demonstrate the possible steps involved in standardising the Humanistic minuscule for roman type production. It will then use the resulting patterns to digitally fit roman type.

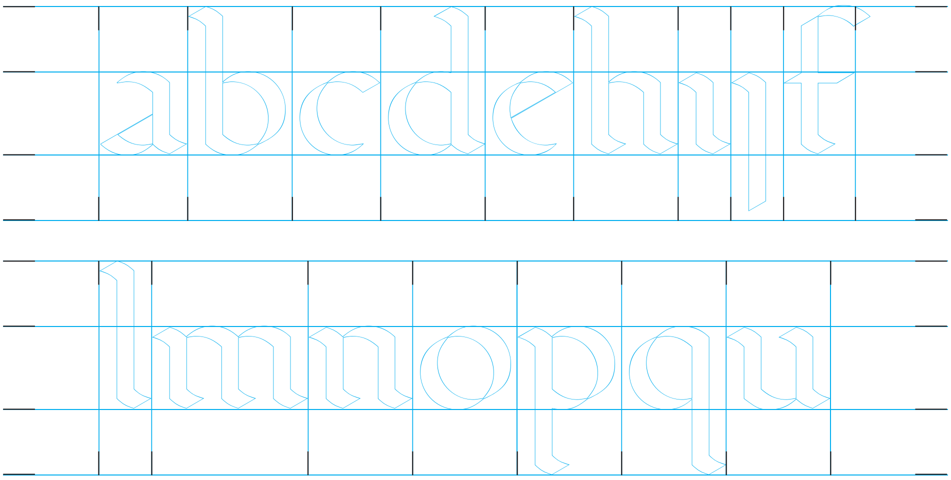

Figure 3.30 Template formed by the geometrically based pattern.

To be traceable, the pattern for standardisation should be created with outlines. One can use blue lines for the letter shapes and black lines for indicating the character widths and body, as shown in Figure 3.30. This makes the reproduction of the written letters on black and white photocopiers, or by line scanning, easier because the blue lines are not reproduced.

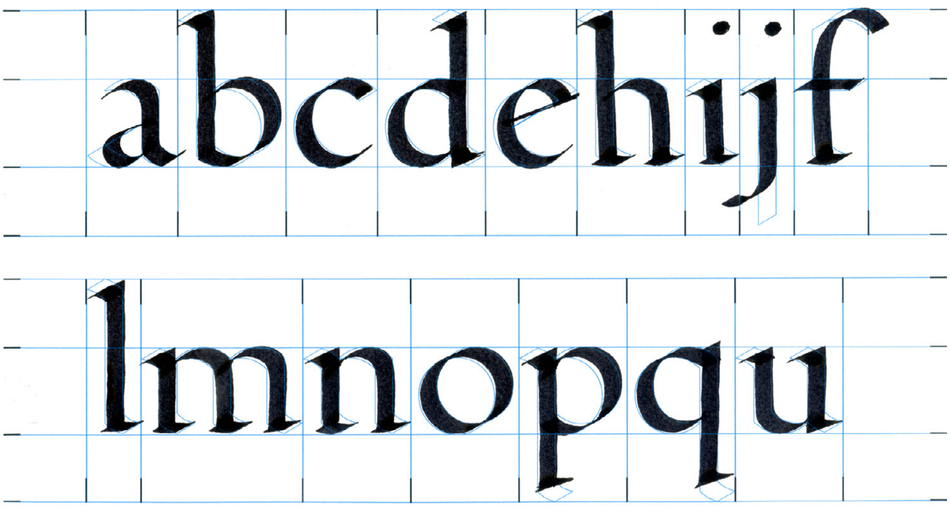

Figure 3.31 Pattern traced with a broad nib.

Next, the pattern can be traced with a broad nib. The width of the nib has to relate to the template, of course. In the case of a translation over 30 degrees, the stem thickness is pen-width · sin 60° = 0.87 pen-width. The x-height in Figure 3.31 is five times the stem thickness; approximating what I measured in Jenson's roman type. For the examples presented here, I traced the pattern using a Pilot Parallel Pen with a six-millimetre nib.

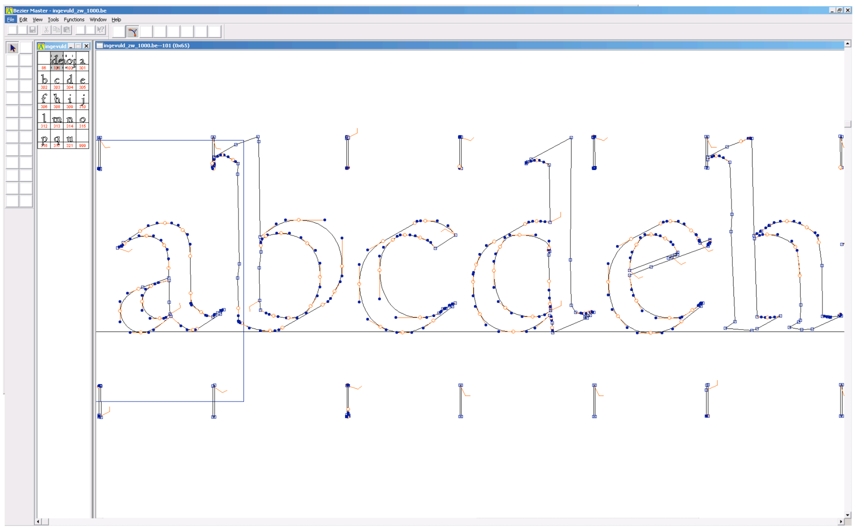

Figure 3.32 Auto-traced calligraphy.

The pattern standardises the proportions of the written letters. The standardisations required for the Renaissance font production suggest that, as I hypothesise, it is plausible that Humanistic handwriting was systematised this way before it was transferred to roman type. In line with the Renaissance punchcutter, the present-day type designer can use the written letters as a direct basis too, by converting them to digital contours using an auto-tracer (Figures 3.32 and 3.33).

Figure 3.33 Auto-traced letters with filled contours.

The auto-traced letters can be separated and placed in slots in a digital font. The side bearings can be positioned using the small black indicators. Hence, the fitting process is purely a technicality; there is no optical processing required, thus minimising the role of the type designer's eye in the production process. Subsequently text can then be set with the font (Figure 3.34).

quill jumped and bounced
and one headline of penman
compiled a bad headache

Figure 3.34 Text typeset using the digitised written letters.

Jenson's roman type shows several deviations from the digitised written letters shown here: his letters are clearly more formalised and systematised and the serifs have chisel-based shapes. I adapted the written letters accordingly to create a digital roman (Figure 3.35).

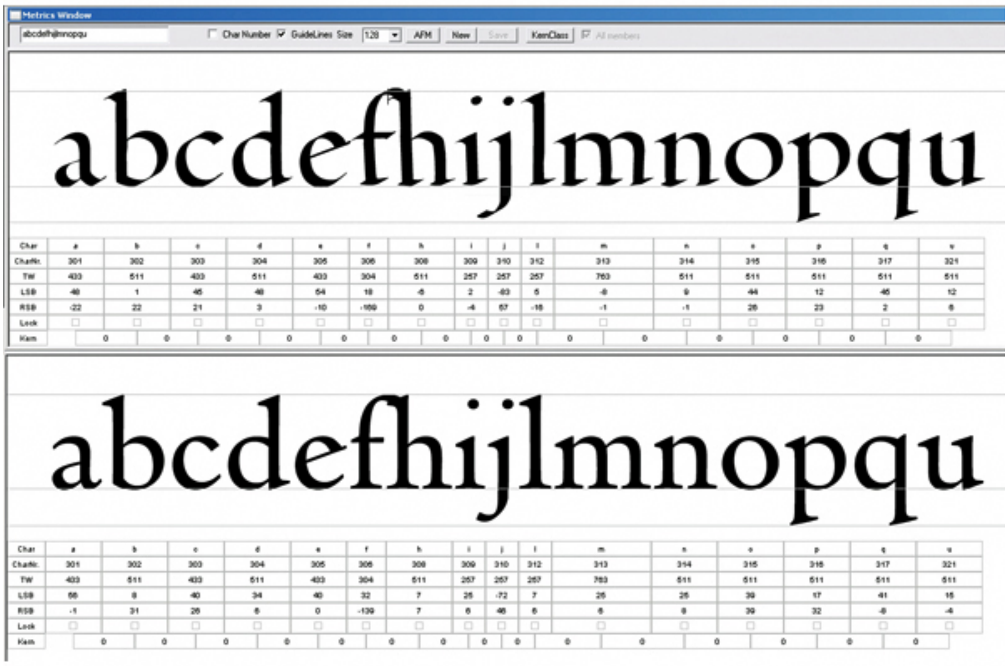

Figure 3.35 Written pattern transferred into digital roman type.

I maintained the stem interval and specifically manipulated the lengths of the serifs to obtain equilibrium of white space. The n, for example, is measurably centred on its width; this preserves the equal distances between all stems. It is plausible that it is for this reason that Jenson applied symmetrical serifs to the lowercase n (Figure 3.36). The o looks round, but is actually an ellipse and is still as wide as its handwritten origin.

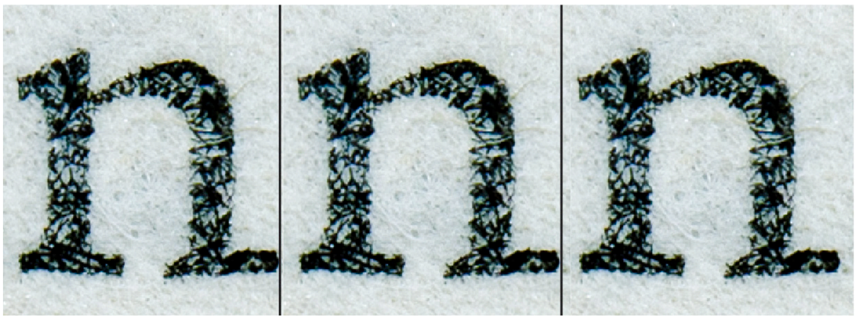

Figure 3.36 Jenson's lowercase n centred between side bearings.

The newly created roman type can be used for typesetting (Figure 3.37). The character widths are identical to the ones shown in Figure 3.31 still. The details of the letters are adjusted to the widths, in contrast with what is common practice nowadays –namely that widths are adjusted to the details of the letters.

quill jumped and bounced
and one headline of penman
compiled a bad headache

Figure 3.37 Text typeset with roman type that finds it origin in systematised writing.

In the text a few letters are missing: the g, k, s, t, and the v–z range. The g and the t can be made with the geometric model, although in the case of the g that is only true of the single-storey version: ɡ, and not for the double-storey version: g. The letters that find their origins in the capitals (k, s, v–z) have to be fit into the widths of the range that can be generated with the letter model; these letters dictate the rhythmic pattern. An example of how this was handled in French Renaissance roman type can be found in Section 2 of Chapter 7.

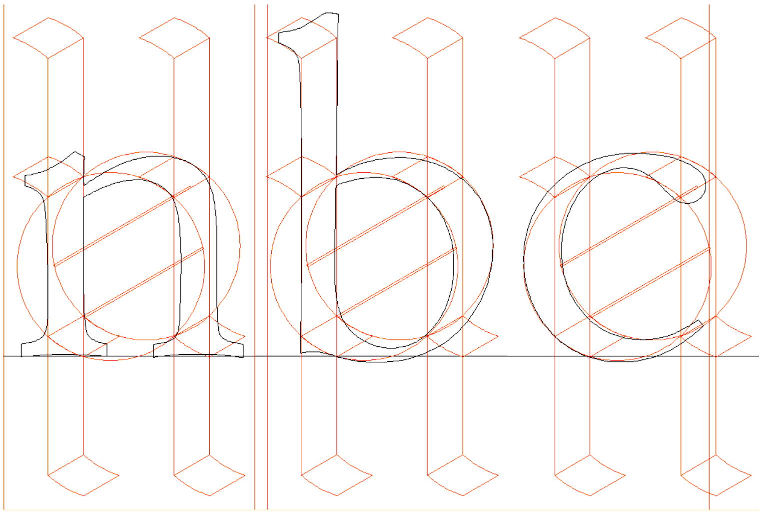

Figure 3.38 The n, b, and c from Van den Keere's Parangon Romain on the template.

This section demonstrated the way in which I used the LetterModeller application to create standardised patterns of Renaissance handwriting, and presented examples of digital reproductions of roman type fitting using those patterns. These reproductions suggest that Renaissance roman type could well be based on a systematised version of the Humanistic minuscule rather than trying to precisely imitate handwriting. Figure 3.38 shows a couple of letters from the roman of DTL VandenKeere positioned on the geometrically based template.

ABCDEFGHIJKLMNOP
QRSTUVWXYZÄÖÜ
abcdefghijklmnopqrstuvwxyz äöüß

ABCDEFGHIJKLMNOP
QRSTUVWXYZÄÖÜ
abcdefghijklmnopqrstuvwxyz äöüß

Figure 3.39 The roman and italic of DTL VandenKeere.

DTL VandenKeere (Figure 3.39) is a revival I produced more than twenty years ago based on the Parangon Romain that the Flemish punchcutter Van den Keere cut in 1575 (the italic I based on the Ascendonica Cursive that Guyot cut around 1557).

The eminent connoisseur of Renaissance type Hendrik D. L.Vervliet (1923) considers the Parangon Romain one of the truly outstanding designs originating in the Low Countries.[145] The similarities between the proportions of Garamont's Parangon Romain from 1564 and Van den Keere's Parangon Romain are evident. Just like Garamont's type, the roman of Van den Keere clearly follows the pattern that originated in Renaissance Italy and consequently it shows the same standardisation of widths that can be found in Jenson's archetypal roman.

This chapter illustrated differences between roman type and its handwritten origins, and then made use of LeMo to digitally reproduce the standardisation of the Humanistic minuscule for type fitting. Contrary to the generally accepted theory that roman type was based on the Renaissance punchcutters' visual preferences, this evidence supports my sub-hypothesis that it was in fact the result of standardising the Humanistic minuscule to the type production process.

[145] Vervliet, *Sixteenth-Century Printing Types of the Low Countries*, p.252.