Problems relating to the translation of a drawn letterform to a digital typeface

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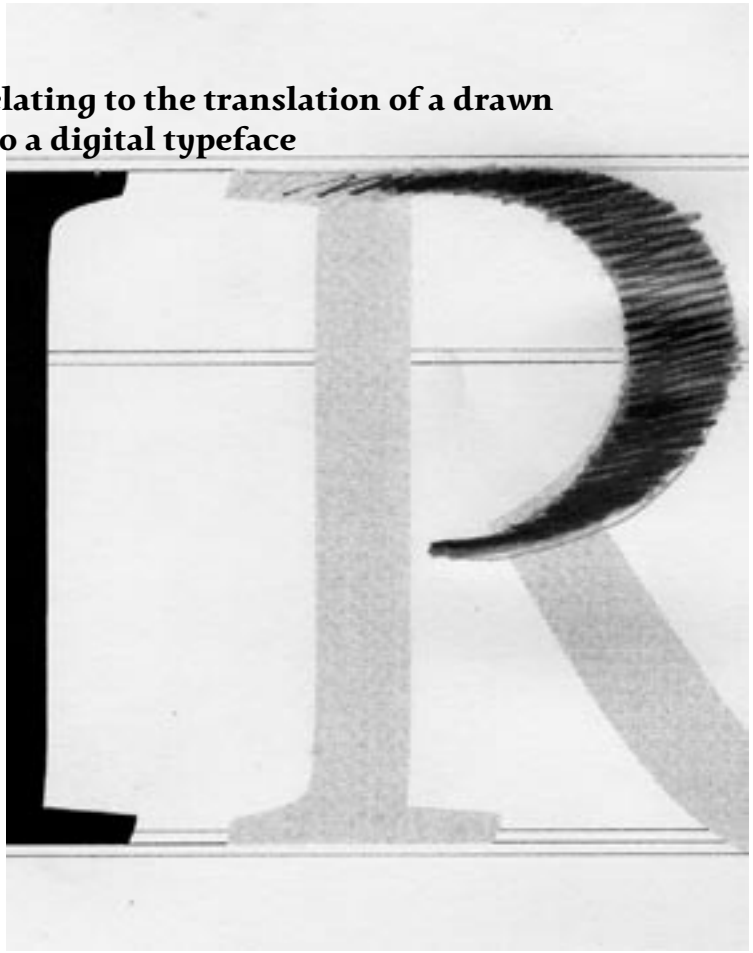


Dissertation submitted in partial fulfilment of the requirements for the masters of arts in typeface design, University of Reading, 2003

TABLE OF CONTENTS

ABSTRACT

In the late seventeenth century, drawing started being used in the development of typefaces. This moment also marked the separation of the responsibility of creating the shape of a letterform from the production of its matrix, functions that used to be developed by the punchcutter by means of engraving letterforms on metal punches in its final size.

Problems arrived from the difficulty of communication between the designer and the punchcutter. Positive results also occurred when designers managed to understand the necessity of allowing the punchcutter to interpret their drawings instead of simply reproducing the original shape like machines.

The development of the mechanical punchcutter was marked by the absence of human touch on the final stage of production of a typeface. With the development of digital technology, the complete process of developing a typeface was gathered again in the hands of a single individual, solving problems that were originated by deficiency in communication between designer and producer, but a problem from a different nature persisted. The problem was how to maintain the liveliness of a drawn letterform in a typeface.

Once again the type designer is faced with the problem of how to translate by means of a machine, human qualities that belong to the integrated action between hand and eyes present on a hand drawn letterform.

INTRODUCTION

The following dissertation is an attempt to understand how human qualities can be translated by means of drawn letterforms, based on the integrated actions between the hands and eyes.

It discusses the origin of the practice of drawing in the development of a typeface and the main difficulties faced by contemporary typeface designers, working with the limitations of digital technologies to maintain the main qualities from a drawing made by hand on a digital typeface.

Most of the research was based on practical exploration of the relationship between drawn letterforms and typeface design, taking into consideration subtleties from the creative process especially concerning aspects of visual perception together with the structure of the hand.

This investigation has been done by means of developing a textface based mostly on drawing, during October 2002 and August 2003 as an MA student in the typography department of the University of Reading.

HISTORICAL RESEARCH

1 PROBLEMS RELATED TO THE DIVISION OF THE PROCESS OF DESIGNING A TYPE BETWEEN A DESIGNER AND ANOTHER PROFESSIONAL (PUNCHCUTTER OR DRAUGHTSMAN)

In the late seventeenth century a commission of French academics developed the project of a new typeface, the *romain du roi*, for the use of the Imprimerie Royale. The development of this type represented a moment of rupture in the history of type design. It was the first time that the structure of a typeface has been determined independently of its means of production.[1] It is also interesting to notice the division of work provoked by this change. One person or a group would determine the conceptual approach and shape of a letter while another person, the punchcutter, would convert the previously generated ideas into a metal punch. Until that time, even when working under the supervision of another person,[2] the development of the shape of the typeface was concentrated in the mind, hand and eyes of the punchcutter.[3]

In 1693, a commission of french academics provided the punchcutter Philipe Granjean with mathematically precise instructions related to the shape of the characters in the *romain du roi*.[4] He was supposed to follow those instructions with maximum rigour while cutting the shapes on metal. Due to the academics' lack of practical experience in relation to the design of a typeface, Granjean was forced to make

1- Mosley, James. 'French academicians and modern typography' *Typography papers*, 2 (1997), pp. 5–29

2- Southall, Richard. 'A survey of type design techniques before 1978' *Typography papers*, 2 (1997), pp. 31–59
Commenting on the relationship between designer and punchcutter, Richard Southall wrote: "*Equally, there is no doubt that in the production of many of the typefaces made by the traditional technique the punchcutter was working under the direction of another person, who has to be considered as the designer.*"

3- Smeijers, Fred. *Counter Punch*. (London: Hyphen Press, 1996), pp. 87
The following quotation is a definition of the art of the punchcutter by Pierre Simon Fournier in his *Manuel typographique* (1764)
"*The art of the punchcutter is this: to know the best possible shape of letters, and their proper relation to one another, and to be able to reproduce them upon steel so that they may be struck into copper to make the matrices by means of which the letters can ever after be cast in any number.*"

4- Mosley 1997, pp. 6
In his *Manuel typographique*, (1764) Pierre-Simon Fournier, comments with irony the inappropriate mathematical rigour, exemplified by the use of a complex square grid, present in the work of the academic committee."*Are so many squares needed to make an O, which is round?*"

some decisions himself without following the instructions previously provided in order to make the typeface work properly. An example of a communication problem between designer and punchcutter can be exemplified by some notes from Jacques Jaugeon, a member from the academical committee concerned with Granjean's inability to understand and produce drawings. *"He could never draw, and could not understand that this skill was of service in his work, being confident that he was quite capable of cutting punches, as indeed he was..."*[5]

It may be speculated that one of the reasons for Jaugeon's criticism against Granjean's methods originated from the nature of their working tools. Jaugeon used a drawing tool while Granjean used engraving equipment. The engraving equipment permitted the punchcutter not only to work directly on a metal surface, which was the material in which the typeface would be produced, but also provided the possibility to work at text size thereby avoiding problems related to the scale of elements in the typeface. Jaugeon's lack of knowledge of the media used by the punchcutter force him to express his ideas with drawings. Drawn letterforms belong to a scale that was not common in the punchcutter's daily work, this may also have been a focus of difficulty for Granjean's comprehension of Jaugeon's objectives.

After the development of the romain du roi, despite the problems in the design process, the division of work initiated on that period continued being practiced in the field of type design. Throughout history, positive and negative aspects of the relationship between the designer and the person that would put in practice his ideas (a punch cutter, or a draughtsman) have been registered.

One example of a good relationship was the work from Jan Van Krimpen and the punchcutter of the House of Enschedé, P.H. Rädisch.[6] One of the most important tasks for the punchcutter, when working with a designer, was to translate the designer's intentions to the punch and make subtle adjustments on the character for it to work efficiently at different sizes. An example of the comprehension that Van Krimpen had in relation to the necessity of allowing the punchcutter to interpret his work can be perceived from the fact that he preferred to provide his punchcutter not with highly formalized inked drawings, instead he felt comfortable providing him with pencil drawings that belonged to the initial stage of development.[7]

Van Krimpen believed that these drawings were closer to his original intentions, and it would also be pointless to provide the punchcutter with final drawings because there would always be the necessity of making adjustments from the drawing on paper to its metal shape on punch due to the different nature of the tools used to draw and to carve, and also because of the impossibility of drawing in text size. Problems of communication between designer and punchcutter may ruin the development of a type. The austro-american designer and punchcutter Victor Hammer never used his type Hammer Unziales, cut in 1921 by N.Schuricht, because he was unsatisfied with the work of the punchcutter.[8]

5- Mosley 1997, pp. 10

6- Van Krimpen, J. *A letter to Philip Hofer on certain problems connected with the mechanical cutting of punches.*(Cambridge: Harvard College Library. David R. Godine, 1972), pp. 18
Van Krimpen comments on Rädisch's work: "*... without his zeal and skill my designs could hardly have become the printing material they are.*"

7- Van Krimpen 1972, pp.21
Van Krimpen used to divide his drawing process for a typeface into three stages. The first one did not need to be too precise. Gradually he would increase the level of formalization from the drawings, ending up on the third stage with a highly formalized ink drawing.

8- Farrell, David. 'Pursuit of the ideal: The uncial letters of Victor Hammer' *Fine Print on Type* (London: Lund Humphries, 1989), pp. 10-13.

2 THE INTRODUCTION OF THE PANTOGRAPHIC PUNCHCUTTING MACHINE

During the second half of the 19th century, due to a general increase in literacy, a greater demand for composed material occurred. The result was an increase in the demand of typefaces and faster composition systems.[9]

In 1885 Linn Boyd Benton introduced the pantographic punchcutting machine. The machine increased the rhythm of production of the punches, but was also criticized by designers and academics because of the mechanical appearance acquired by the typefaces cut in this system.[10] It may be observed that in the mechanical process of cutting punches, some designers missed the presence of the punchcutter with his sensibility and skills to interpret the shapes from a drawn letterform into metal while always taking care of the necessary subtleties relating to the adaptation of the shapes into text size.

In the mechanical process of cutting punches, a designer would firstly do an accurate drawing of approximately two and a half inches, secondly a draughtsman from the drawing office would increase this drawing to approximately 12 inches. This final drawing would be used as a matrix to cut punches for every size of the typeface.

The operator of the mechanical punchcutter did not necessarily have great knowledge of typeface design. He would only follow the shapes provided by the drawing office without taking in consideration the necessary changes that a punchcutter would, in which every different size of the typeface is made to look adequate without losing the sense of proportion and scale present in the designer drawings. Because of this, the designer needed to submit a very high quality drawing to the drawing office. Every structural element from the type needed to be well defined without leaving anything to be interpreted by the pantographer. In one of his letters to Philip Hofer, Van Krimpen wrote: "*How can a living design, made by human hand, eye (& heart), be adequately rendered by the mechanical means now in use to produce type?*"[11]

It is interesting to make a parallel between the problem above mentioned by Van Krimpen with his point of view in relation to the variation of qualities of a drawing in different stages of development. When working within the limitations of the mechanical punchcutter, he preferred to submit second stage drawings, to the drawing office. Van Krimpen tried to make those drawings as perfect as possible in an attempt to avoid reminiscences from the human hand. He believed that this could be a way to achieve the human virtue of honesty that he was always looking for in his work. Another reason to submit those very formal drawings to the drawing office instead of first stage drawings that he used to submit to the punchcutter, may have been his lack of confidence in the ability of the draughtsman[12] to interpret his work.

If one compares his attitude toward the work when working with a punchcutter and later with a mechanical punchcutter, it is possible to suggest that when working with the punchcutter his decisions were entirely physical and organic, relying completely on the relationship

9- Southall 1997, pp. 42

10- Van Krimpen 1972 , pp. 19
Updike noted that pantographic punchcutting "tended to mechanize the design of type"and in particular when one design was used for all sizes of a series.

11- Van Krimpen 1972, pp. 10

12- Gill, Eric. *An Essay on Typography.* (London: Lund Humphries, 1997) pp. 79
Eric Gill expressed his discontentment with the work developed by machine operators. "Enlargement operators, pantograph operators, pattern makers, electrotypers and machine operators are all necessarily completely tame and dependent on their overseers."
Eric Gill's point of view appears exaggerated when compared with the way that W.A. Dwiggins describe his relationship with C.H. Griffith, typographic manager of the Mergethaler company. (Southall 1997), pp. 47

between eyes and hands, but when working with the machine, his approach to evaluating the quality of the type became more conceptual. He would prefer to produce a type with a mechanical appearance which would reflect the nature of its method of production.

3 PHOTO COMPOSITION

The mechanical appearance of the typefaces criticized by some type designers, was also influenced by mechanical limitation imposed by the hot-metal composing system. The fitting of the type in small sizes was affected, some characters needed to be cast with the same width and the overlapping of character shapes was not possible. In 1955, with the introduction of photo composition, these problems were improved as a result of the substitution of the metal structure of typefaces used in hot-metal composition for images of types on paper or film. Those matrices were stored as negative photographic images or as numerical descriptions by electronic means.
The process of creating a typeface to be used in photo composition was more simple than for hot-metal. Due to the complex process of developing a type for hot metal, more time was required to provide the designer with proofs from the current work. In the photo composition system this time was much reduced allowing the type designer to make faster decisions, improving the process on the whole.[13]

4 DIGITAL TYPE AND THE END OF THE PHYSICAL MATRIX

With the development of the personal computer, the physical matrix of a character has been substituted by digital information. The production of a physical object is not necessary anymore to generate a typeface. The result is the end of problems originated by deficient communication between designer and producer. Now, like the traditional punchcutter, the designer has the possibility of controlling the entire process of the production of a typeface. From the intellectual approach and first sketches through to the development of the final product. The absence of a physical matrix provideds the typedesigner with the ability to generate proofs of the work in real size and almost real time.

These are some great attributes of digital technology because they allow the designer to evaluate previous decisions in the work and determine the next movement in a short time interval.[13] Like the traditional punchcutter, contemporary designers have the possibility to work on a typeface using the material that will produce the type.*

Together with the end of the physical matrix, but different from the punchcutter who could articulate tri-dimensional material during his working process, the contemporary designer working on the computer needs to deal with the absence of the physical shape of a character.

13- Southall 1997, pp. 49

14- Southall 1997, pp. 47
After being provided with the necessary material to evaluate his work and take the next decision, Dwiggins says: “By looking at all these for two or three days I get an idea of how to go forward - or, if the result is a dud, how to start over again.” (Dwiggins, 1940) Analysing Dwiggins’ description of the necessary time he needed to evaluate with clarity his decisions, it is interesting to notice that despite the speed of providing proofs allowed by digital technology, human beings may still need a long period of time to evaluate certain visual problems. The amount of time necessary to make some decisions may vary in different stages of the work.

* Knowing that when working on the computer, the curves which the designer creates to build the shape of a typeface are the translation of a mathematical equation, it may be argued that in this process the designer is not building a typeface using the basic material provided by the computer. Curves belong to a secondary stage. They are metaphors constructed by numbers.

Practical research

The following session of this dissertation is based on personal experience acquired during one year of work (October 2002 -August 2003) developing a digital text typeface based on drawing.

5 problems related to the transition of a drawing to its digital form

5.1 Using a pencil to interpret shapes which belong to other writing instruments.

The early typefaces were based on their contemporary writing systems. In his scripts, a calligrapher using a quill or a pen would provide a formalized version from writing. It was natural in this process to formalize elements from daily informal writing that could help him to improve his work. Increasing his writing velocity or providing examples of contractions that could help him to use space in a more pleasant and economical way.

Due to its broad edge shape, the quill and the pen provide a constant stroke. If one considers the stroke generated by a broad edge pen as an outline, one will perceive that the two lines that determine the stroke always react identically to the directional inputs provided by the person that is handling the pen.[15] The result is a constancy from the width of the stroke and predictability of the variations from thick and thin strokes depending on the angle in which the pen is being handled.

The working instruments from the punchcutter were different from the ones used by the calligrapher, as was the material from the surface. It can also be added that in its written shape every letterform is different every time it is repeated. Using files and engravers the punchcutter translated shapes that belonged to the best samples of calligraphy from his time to the metal surface of the punch. The engraving material was suitable for the work of the punchcutter because it allowed him to make shapes directly in text size.

However, when using drawing to interpret shapes which have been created with a broad-edged writing tool like a pen or a brush, some problems may arise.

15- Noordzij, Gerrit. *Letterletter.* (Vancouver: Hartley & Marks,2000), pp. 06

5.1 a - The importance of understanding a movement

When writing with a broad edge pen, the scale of the letterform is provided by the natural movement from the hand together with the proportion of the nib. If a person wants to convert a shape that belongs to a writing instrument, it is important to understand that translating a shape is not the same thing as imitating a shape. Translation of a shape results from the comprehension of the movement.

Practicing with the writing instrument and observing some good models may be a good way to understand the material. Even if one is not a skilful calligrapher, which like any other art demands time and constant practice to be perfected, it is useful to use the broad edge pen to understand the structure of a typeface with its proportions and the modulation of the stroke.

One of the main problems that a person without comprehension of the structure of a letterform may find in drawing with an outline is that this process does not provide a constant and natural variation from thick to thin strokes. Because of this the new student may find it difficult to maintain regularity of shapes resulting in an uneven pattern of text.

5.1 b - Drawing the letter j

Figure 1. Detail from a drawing using the broad edge pen.

The following example is an effort to represent the process of sing a pencil to interpret an element generated with a broad edge pen. These drawings were done in March 2003. Until that time, the top serif

of the typeface was bracketed and the shape of the letters were based on calligraphic practice with a broad edge pen and brush in parallel with a constant attempt to translate the shapes with pencil outline drawings.

When drawing the letter j, an interesting problem occurs. Due to the nature of the serif structure being used in the other characters of the typeface, together with the direction of the movement from the outline drawings, a fluid shape for the letter j became difficult to achieve. In trying to understand the problem, some drawings of the letter j were done using the broad edge pen. After arriving at a shape that appeared to be more fluid, the drawing instrument was changed to a pencil. The main reason for this is that the other characters from the family were done using this instrument. The next step was to do fast pencil drawings based on repetition. The main concern was with internalizing the movement observed in the shapes made with the broad edge pen.

Figure 2. Example of a drawing developed to internalize movement.

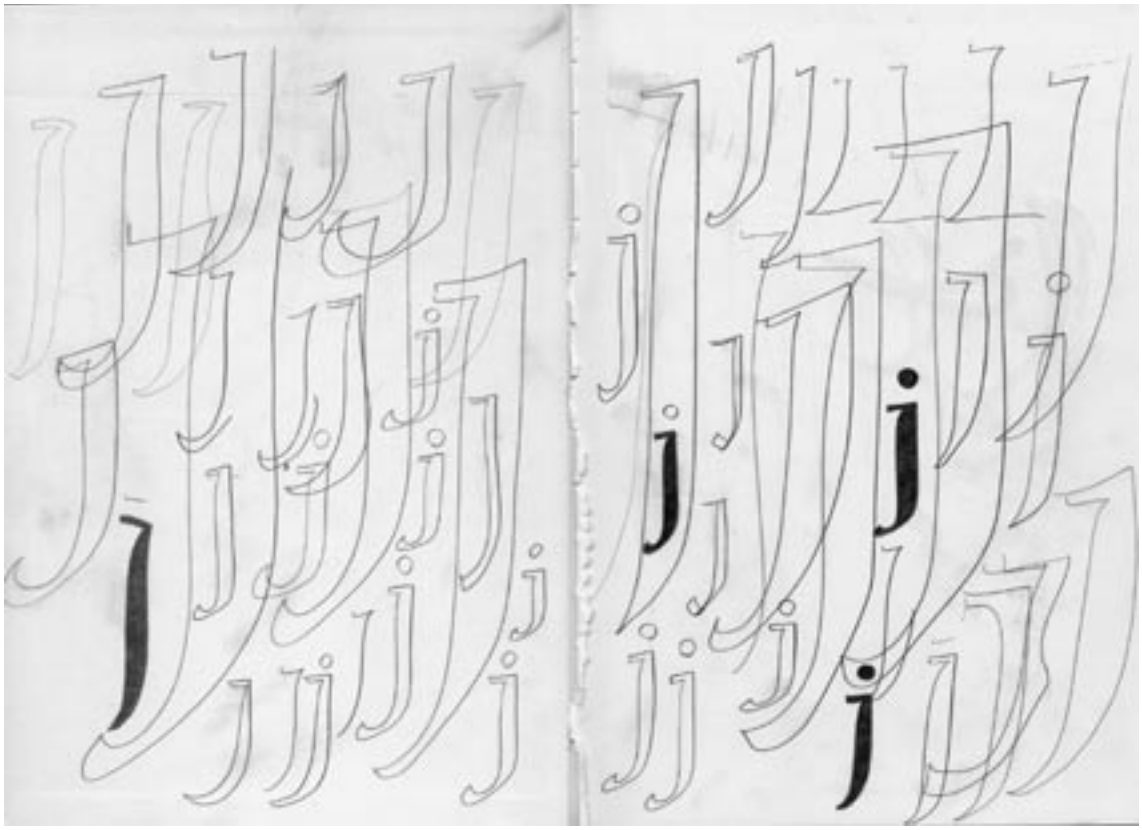
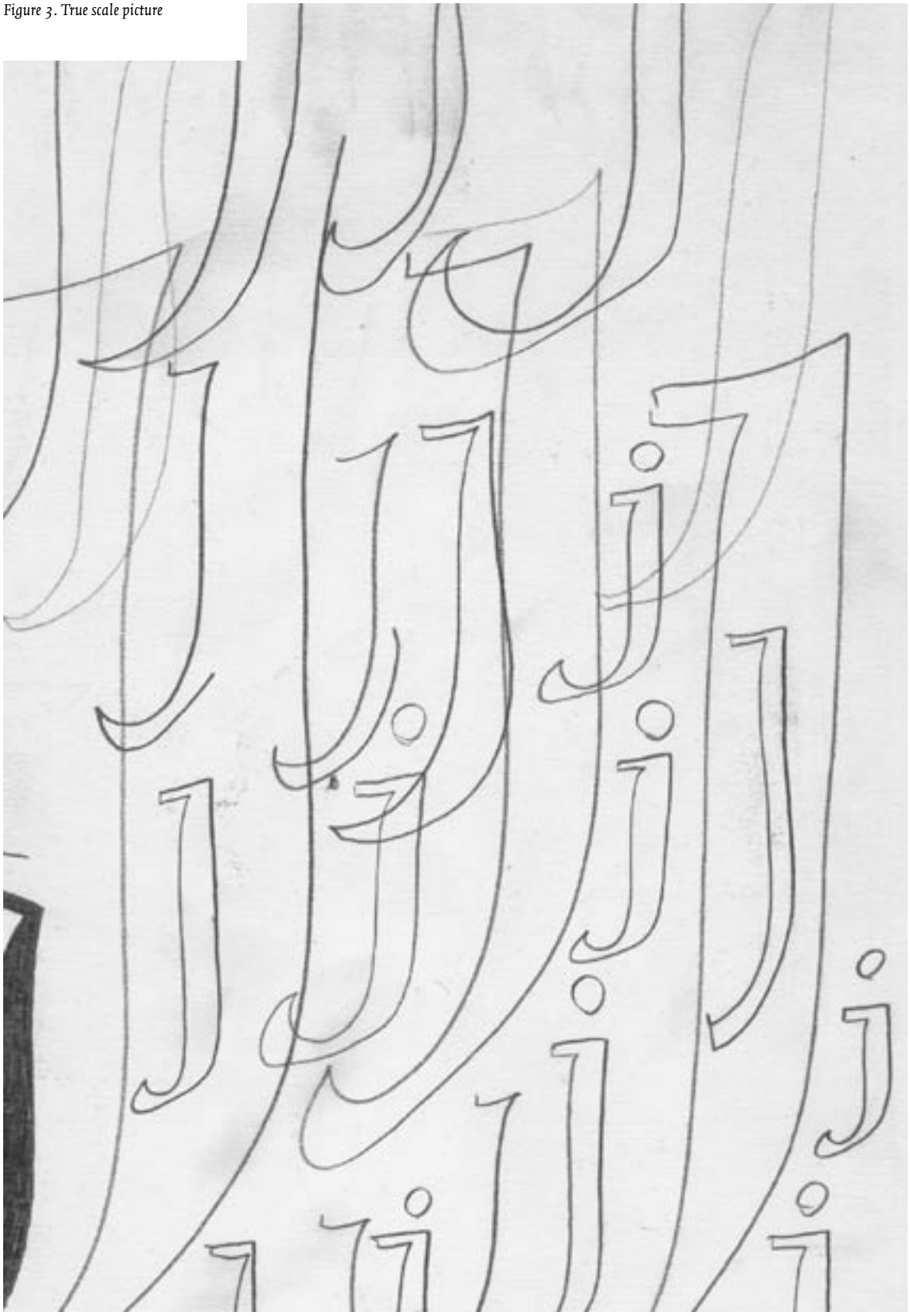


Figure 3. True scale picture



16- The term muscular has been used by Gerard Unger in some of his lectures to describe qualities related to drawn letterforms.

After acquiring more confidence in the shape and understanding the direction of the movement, a new series of drawings were done. For this purpose a page was printed with other characters that were in a more satisfactory stage, along with lines determining the base line, x-height and descending height. The objective of drawing the j close to the other characters was to maintain a similar relation between thick and thin strokes, to see how the terminal would react close to the other characters, and to have the possibility to draw while taking into consideration the space between the shapes.

At this stage of the project the intention was to make shapes fluid and natural to my hand and to also maintain the muscular[16] quality of the curves present on fast informal sketches. In an effort to achieve these qualities the following procedure was adopted: The drawings start from the top left and with a single stroke describe the stem ending on the tail.

The movement and shape of this line has an almost identical movement from the one described using the broad edge pen whilst representing the same character. In other words, this first outline has the shape of the skeleton structure of the letter j drawn with a broad edge pen. It is interesting to notice that the descriptions of the movement, both from pen and pencil outline, are a continuous, a single stroke. This aspect has been mentioned because another way to draw using outlines is to do a series of continual short lines. Drawing the contour of the stroke in one line also provides a very clear pattern to be followed in the process of representing the shape with curves. Bearing in mind the fact that the points which define the outline of the stroke of the broad edge pen react identically to the direction determined by the hand, it is possible to perceive the necessity of drawing the second line, the one that would determine the right edge of the stroke with an almost identical movement from the first line. The second line starts from the ending point of the first line and ends on its starting point. Defining the stroke with lines that run from a different direction helped to provide tension to the overall shape of the character.

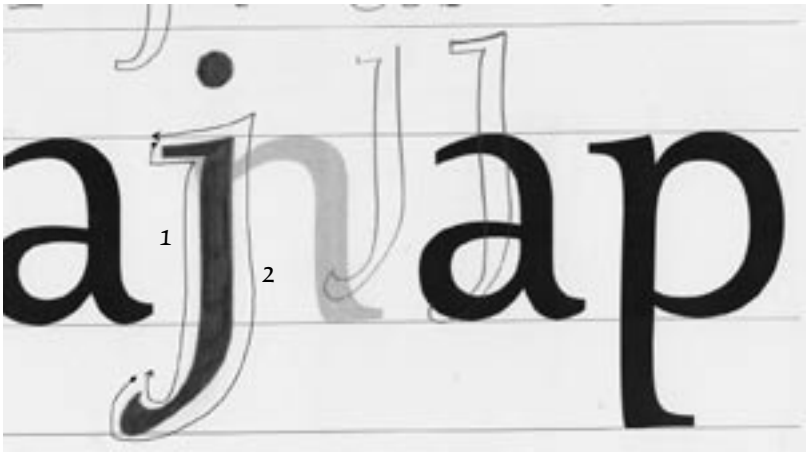


Figure 4. Before shading the drawing of the letter j, an outline drawing has been done. Lines one and two described the direction and sequence of the movement.

17- Noordzij 2000, pp. 51

It is possible to identify disadvantages from this drawing process. A great amount of drawings were necessary to achieve a proper shape with a similar weight from the characters previously designed. It was also difficult to predict the correct position of the thick and thin strokes all over the family.
Gerrit Noordzij, in his book Letterletter, presents a very simple and extremely efficient way of representing with a drawing tool the stroke of the pen by means of zigzag[17] shading. The use of this technique was helpful in equalizing the relation between thick and thin in the typeface. It was also a fast way to evaluate problems in the structure of the type.

When practicing calligraphy, it is helpful to determine the base-line and x-height. By doing this it is possible to concentrate entirely on the shape of the letters. A similar strategy could be followed by mixing the zigzag shading technique with the outline drawing. Together with the shading drawings, using an eraser is a powerful tool. Drawing with the eraser is a way to articulate white space as a shape. The outline is helpful to determine a precise shape to be redrawn digitally and to formalize elements from the shaded drawing. It is also interesting to notice that the shaded drawing is already an interpretation of the shapes generated by the broad edge pen, although it is a representation of a written letterform that is done on a scale suitable for a regular pencil.

Figure 5. From left to right: a pencil drawing, a digital interpretation and the final shape. It is interesting to observe the changes applied to the tail of the letter a in order improve its relationship with the terminal from the letter j.

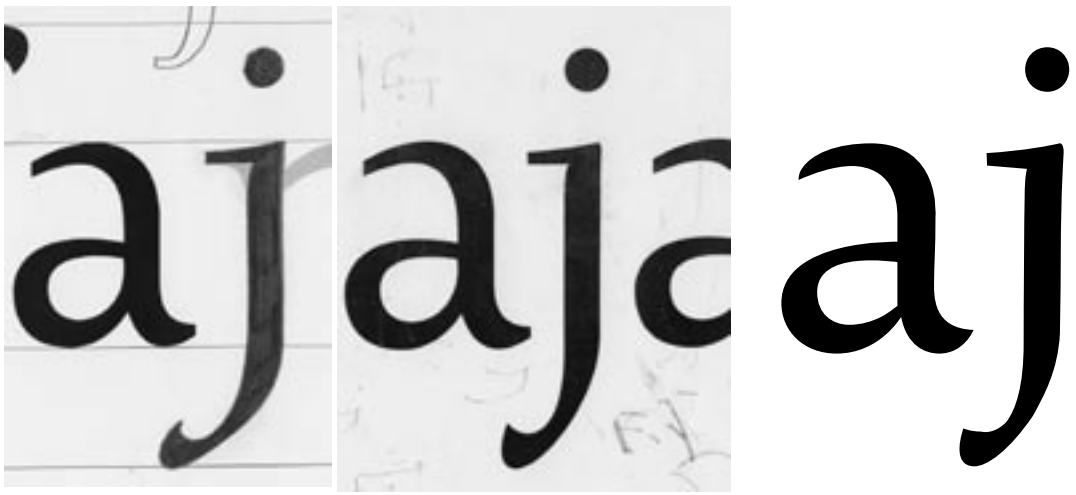
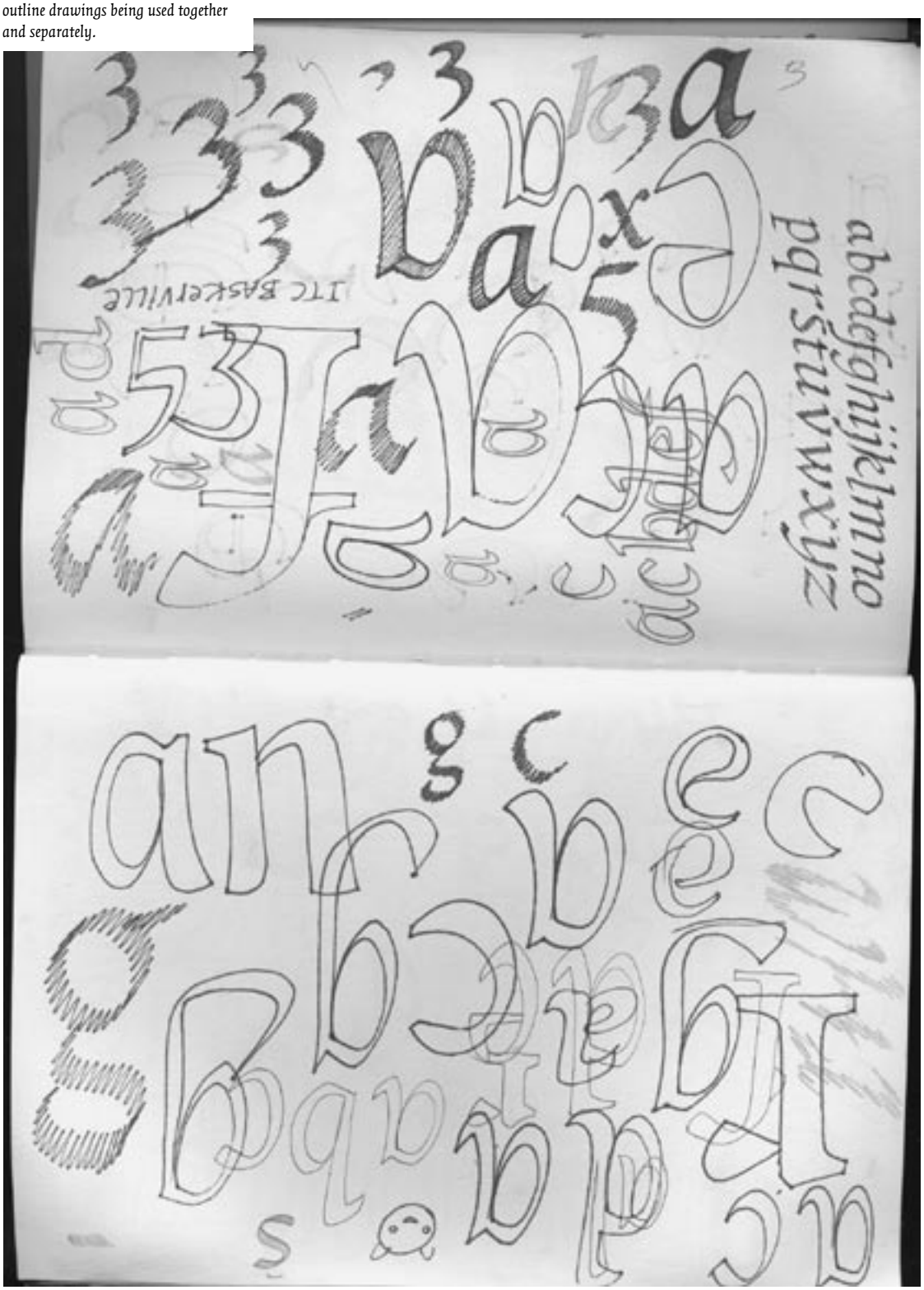


Figure 6. This picture is an example of different strategies being used together. It is possible to identify zigzagas and outline drawings being used together and separately.



5.2 Scale

Observing drawings which I have done with the objective of being digitized and redrawn using bezier curves, most of them have a height of approximately 4cm. This size has been chosen taking into consideration a few factors. The size is comfortable enough for the gesture of my hand, providing me with the possibilities to define the shape of the terminals and serifs with an accuracy that makes it possible to increase this size on the screen without losing definition of the shapes.

The digital scale is different from the physical one as the drawing in real size looks small on screen. In order to be able to observe the shapes with more accuracy they need to be increased, not by scaling them but by *zooming in*. This process is simpler and does not interfere with the structure of the drawing. 300% from the real size of the drawing was the size adopted to do the work on screen most of the time. Measuring the screen of the computer with a real ruler, it is possible to see that an x-height of 4 cm in real size, when increased 300% on screen, measures 9.5 cm real size. Working in this size, a drawing scanned with 300 dpi does not get pixilated. It is possible to see the x-height together with the ascending height or descending height. It is not possible to see both ascending and descending height at the same time because the image does not fit into the screen. Increasing the character to 400% is inappropriate for two reasons. 1-The image from the x-height does not fit on the screen together with the ascender or descender. For example, a letter *d* would have part of its stem or lower bowl edited by the limit of the screen. 2- When drawing on paper using a pencil, the limit of the gesture from the hand together with the eye helps to determine the scale of the drawing. When working on screen, during the process of constructing the digital outline from the letter, the size of the gesture is still important.[18] The gesture may be helpful to evaluate the shape and the point placement; it is different from paper but it is still there.

Observing a calligrapher working, it is possible to see that sometimes before touching the writing material on the surface of the paper he may represent the movement of his initial line in the air close to the writing surface, repeating the gesture one or two times. This is a natural way to evaluate the size of the gesture in relation to the proportion of the writing surface. With the shape of the character increased 400%, which represents an x-height of 12.5 cm in real size, the gesture becomes out of scale, just like drawing a 10cm character with the same aptitude and tools used for a 4 cm drawing.

18- Gerard Unger kindly helped me to correct a problem in one of my characters directly on the screen. Observing him wile he was drawing, I had the impression that before moving a point, he studied the movement without clicking the mouse.*
I remember thinking with my self that he managed to draw his types directly on the screen because he knows exactly the relation between the structure of the character and its movement due to his long experience with drawing and calligraphy.

* This is only how I perceived the situation. I cannot guarantee if my conclusions are correct.

5.3 Adapting shapes originated by a drawing to their digital forms

When approaching this topic, it is necessary to define different qualities of drawings and their functions.

A drawing is an efficient and immediate tool used to transform an idea, a mental image, into something physical that belongs to the real world and that can be manipulated and analysed by means of observation. It is used in almost every area where visual intelligence is required.

5.3 a - A sketch

Usually a sketch is used to register an idea. It may be a specific part of the structure of a letterform and sometimes only an idea of movement. One can use a sketch to register the shape of a letter that has been seen on a painted sign on the street or in a specimen book from another century. While sketching, ideas are articulated in unpredictable ways and order[19].

The concept of right or wrong does not exist in sketches and positive things happens because of this. Free from the idea of mistake, some interesting, unusual solutions for shapes of a letter may be produced. When sketching, a person does not need to use an eraser unless it is being used as a drawing instrument. One can draw a very fast variation of one letterform on a single piece of paper and the group of shapes provides enough material to be compared. Having drawn three different terminals for the letter r, one can evaluate positive and negative aspects from them.

5.3 b - Drawing the Skeleton of the letterforms

A designer without previous experience in developing a text face, and consequently with little knowledge about the structure of the roman letterforms, may find it difficult to determine the overall look of the typeface in the beginning of the process[21]. It may be a helpful exercise to draw the skeleton structure of all letterforms in alphabetic order on a single piece of paper.

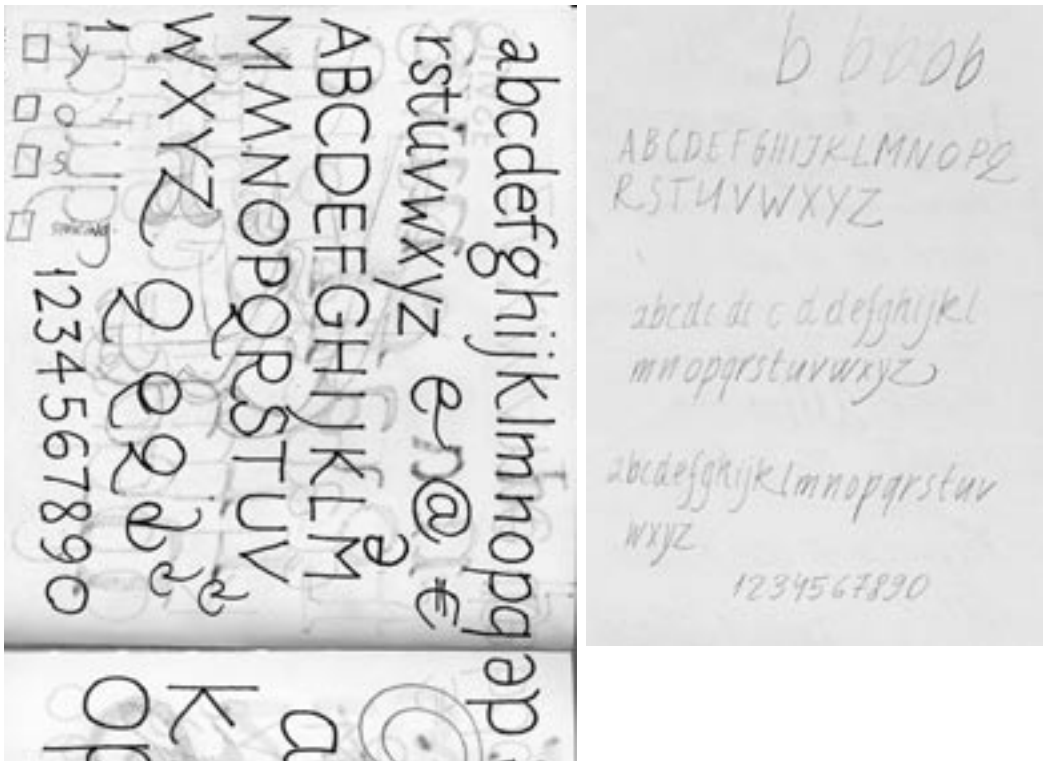
A skeleton drawing consists of drawings of the letterforms made out of lines. It can be done using a pencil or a simple ball point pen. In these drawings, there is no need to be concerned with serifs and modulation of the stroke . In this case one may try to bring coherency to the overall shapes by means of proportion[20] and understanding of the rhythm in movement from the hand working in tandem with the eyes. It is important to understand how to maintain the same pattern of movement in different shapes.

19- During the process of development of the typeface, sketch books have been maintained as a constant working tool. Different sources of visual information are gathered on its pages. Since it is also used as a diary, where information is stored also by means of written text, it provides the possibility of constantly relating drawn and written letterforms. The book also has been used as a way of maintaining a constant process of internalizing the structure of formal roman lower case and capitals, which in spite of my contact with those shapes as a designer, creating them was a completely new exercise.

20-Despite having drawn a few characters already showing a consistency of elements between them, I was having difficulty in going ahead with the work. Gerard suggested doing line drawings of the structure of the letterforms. It was a helpful experience because it made me realise by means of drawing that I was thinking about the shape of the characters as being isolated from each other. Thinking about the shapes as a group is fundamental when developing a typeface. At this moment in the project, thinking too much about subtleties invisible to the naked eye was blocking my perception of the project as a whole. In another stage of the project, when drawing the roman capitals, a similar problem occurred. I did not know the correct proportions between the letter shapes. Bart Blubaugh, a designer and calligrapher, suggested a similar exercise but trying to draw the skeleton shape of the Trajan capitals. It was also a healthy experience and provided me with a starting point to evaluate my mistakes. Drawing is a good tool for understanding a visual problem.

Figure 7. Pages from a sketch book

Figure 8, 9. Samples of drawings representing the skeleton structure of letterforms.



5.3 c - Test word

After developing the first ideas and practicing them freely with sketches until your hand feels comfortable with the shapes (a common practice is to use a testing word), it is important to start taking into consideration the balance between the proportion of the letters and the amount of space inside and between the shapes.

By building a word, it is possible to observe how structural elements from the letterforms react in different combinations. A good word for this purpose should provide enough variation of forms as a result of different combinations.

A traditional example is the word hamburgevions. One of the main differences between these drawings and sketching is the presence of guidelines. These are important references because they help to maintain the structural elements of the letterform with the same scale and vertical stems at a constant angle. They are also the main reference to start building a relationship between the scale outside and inside the computer. As it has been referred to before in this dissertation on the section concerned with scale, a 4cm x-height is a suitable scale to draw.

5.3 d - The transition from a sketch to a drawing

One of the main difficulties in converting a sketch into a formal drawing, is to maintain the vigour and happiness that belongs to a free hand representation of letterforms.

One must bear in mind that by means of copying a sketch most of its good qualities will vanish. This can be explained by the fact that when the person is sketching the shape of a letter, a lot of invisible qualities are being articulated. The rhythm of shading, the velocity of the line or of the stroke, the areas of tension applied by the muscles of the hand being guided by the eyes. All of these qualities are applied in a consistent and sometimes incautious way in all the letterforms during the process of sketching. A good drawing absorbs physical and psychological input from the body. From happiness to tiredness, this information is translated by muscular movements. The ability to absorb human input is the most beautiful quality of a drawn letterform. Taking into consideration these qualities may help to understand Van Krimpen's concerns about the loss of the human qualities from his early drawings for the final typeface. Analysing his different drawing approaches when working with a punchcutter or with a pantographic punchcutter may help to analyse possibilities to convert a sketch into a refined drawing.

5.3 e - A parallel between Van Krimpen's approach to drawing and the process of transition from a sketch to a final drawing.

When working together with a punchcutter, Van Krimpen was aware of the presence of a skilful human being in the final stage of the production of the punch. Because of this, he knew that the human quality that he aimed for in his types would not be lost. In this case by providing the punchcutter with a drawing not too precise or exact, he was inducing the punchcutter to take spontaneous decisions during the final stage of production of the type, and because of that, maintaining the liveliness of his early drawings. If Van Krimpen had provided Rädisch with a highly formalized drawing and forced him to follow it without leaving space for improvising despite the human presence, he would not have achieved a result equivalent to his drawing because Rädich would have been copying, imitating a shape with an attitude more similar to a machine than a human being.

When converting a sketch to a refined drawing, the designer needs to work with the restraints provided by guidelines. Because of the absence of guidelines on the sketch the designer may realise that some of the shapes he has been drawing are slightly different from the proportions of a roman textface; they may have ended up a bit light or bold. It may end up rather slanted when aligned with a proper base line. Like Van Krimpen has done, the designer must try to understand what the elements were that brought liveliness to the early drawing and how to reconstruct the same approach in the final work in order to recreate those elements.

5.3 f - The intention of the designer

At this point we must assume that there are many different elements to be identified in the sketch as being important and there will always be a different way to approach the task of re-interpreting a drawing.

The only way to evaluate whether the decision was appropriate or not is by understanding what the intentions of the designer were in relation to conceptual and functional aspects of the typeface being developed.

5.3 g - Choosing letterforms to be digitized

After managing to develop letterforms that present harmony when settled together to form a word, the designer may choose a few letterforms to make a more refined drawing before digitizing the shapes. At this stage it is interesting to determine the shape of the serifs, stems and counters with great care. If drawing using outlines, it is important to fill (or at least shade) the drawing to have a better idea as to what the letter will look like after the construction of its digital outline.

Drawing the letters *p*, *n* and *a* provides enough information for evaluation after being digitized.[21] In these letters there is already an example of vertical stroke, three different counters, bottom and top serifs and thin strokes connecting the bowl to the vertical stem.

21- Southall 1997, pp. 42
Dwiggins describing his process: "I'd say: make an alphabet, carefully finished, 10 x 12 point... Than have Griff cut and cast two letters - the ones that will tell you the most. I like n, and p, d, or b, a straight one and a looped one. Maybe hp would be best."

Figure 10. Drawing a letter n using a printed out typeface as a starting point.

5.3 h - Determining which elements from the drawing should be maintained in the final digital outline.

There are different processes to digitize a letterform. Developing the Stone family, the designer Summer Stone used an electronic tablet connected to a computer to determine the point placement that would generate the outline from the character.22 Gerrit Noordzij suggests that the form represented by the zigzag shading process is an adequate way to determine the point placement before digitizing the letter shape using Mac Ikarus. The main advantage of this process is to determine the information that will define the shape of the character using the hand and eyes.23

Another possible way to digitize the shapes is to scan the drawing at 300 dpi and convert it to grey scale. A grey scale image consumes less memory than a colour image. Another reason is that, when scanned, a white piece of paper may become yellowish. This shade of yellow against the white surface of the computer screen is too bright for the eyes. The neutrality of the grey is also helpful because when drawing the outline of the shape it is necessary to use a line with colour. Adobe Illustrator provides enough instruments to redraw the shape of the letters.

After scanning the image, it is important to open the drawing in the software Adobe Photoshop, to make sure that the baseline is not slanted. If it is slanted, one needs to use the ruler from the software and rotate the image in order to correct it. After solving this problem, the drawing can then be placed in Illustrator and positioned as precisely as possible over the digital guidelines. These guidelines are the same as the ones printed on the scanned paper.

The outline is determined by means of point placement. The space between the two points determines a line, this line can be straight or curved. The curvature of the line is determined by handles attached to the points. For technical reasons these handles should never cross each other. It may generate problems related to the rendering of the shapes and it may even generate problems that can damage the Fontlab file.

It may take some practice to be able to manipulate the handles efficiently. It can be speculated that one of the reasons is that while drawing by means of manipulating the handles, the shapes react on a completely different way from drawing with a pencil on paper.
A highly-finished drawing may need very few subtle adjustments during the process of definition of the digital outline. Once again, the designer will need to make an objective analysis of the drawing in order to decide which element originated by the drawing should be maintained or re-evaluated.

Observing the specimen book from the typeface Adobe Minion, designed by Robert Slimbach, an example of re-evaluating decisions during the process of digitalization can be perceived on the roman lower case e. Observing Slimbach's early sketches together with the final digital outline, some changes are observed. Most of the texture

22- Stone, Sumner. 'The Stone family of typefaces: New voices for the eletronic age' *Fine Print on Type* (London: Lund Humphries, 1989), pp. 138
The following piece of text is a more detailed description of an electronic outline provided by Sumner Stone. "*This kind of mathematical description is known as a 'spline'. Splines are parametric representations of curves described by polinomial equations. The particular splines used in this case were bezier splines, invented by French mathematician, Pierre Bezier.*"

23- Noordzij 2000, pp. 55

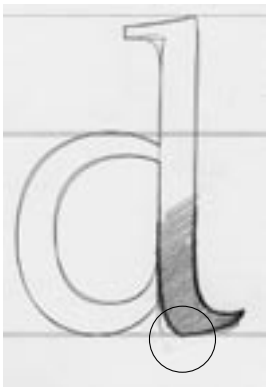
Figure 12. Slimbach's early sketch for Minion Regular.(Adobe Minion Specimen book 1992)

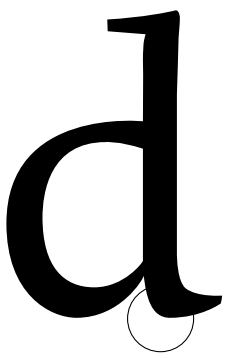
originated by specifics of the drawing tool are substituted by a vector line. This can be observed clearly on the terminal . The thin strokes have been made thinner and the diagonal cross stroke suffered a reduction on its angle. Apparently, the direction of the curve and its variations are the elements that the designer decided to remain more faithful to in the hand drawing. Observing the inside curvature from the lower counter, we can identify a certain level of asymmetry which belongs to free hand drawing. The quality from this curve relates to tension and movement. There is a certain predictability represented by the change in direction of the curve that can be seen on the terminal. This curve reflects the way that hand and eye struggle to provide balance to a shape.

Observing the upper counter it is possible to observe a different kind of curve. The curvature on the inside part of the cross stroke has been substituted by an almost straight line. In this case Slimbach considered the curvature provided by the hand as inappropriate. It can be suggested that the reason for his decision is that a straight line would provide more tension than a soft curve in contrast with the long curve that constitutes the shape of the inside counter.

In the following example it is interesting to observe how the tail from the letter 'd' loses tension in comparison with a sketch that was drawn five months earlier. In this case the other structural elements from the letterform are not being considered. Reflecting on the design process, it can be suggested that this happened because in an early phase of the process, due to my lack of experience in drawing directly on screen, almost every decision - from the drawing of a complex counter to a subtle adaptation of shape on a terminal - has been made by means of printing the typeface, most of the time in 20% black and drawing on top of the necessary part again. After having the shape redrawn on paper, the drawing would then be scanned and the adapted shape would be redrawn digitally. On a more advanced stage of the process, faced with a closer deadline to finish the project, a great number of decisions were made directly on screen after the typeface had passed through various changes and some qualities from the early sketch were lost.

Figure 13. Comparing those letters it is possible to observe that the hand drawn tail have more tension than the final version of the typeface.





24- Stone 1989, pp. 138

25- Southall 1997, pp. 55

5.3 i - Drawing shapes to work efficiently in text size

After having digitized a vertical stroke, for example a letter i, it is important to print the shape varying from real size to a small size with variations of intermediate sizes. It is suitable to position the letter i beside another. By doing this it is possible to see the shape of the serif reacting independently and in relation to another serif at different sizes. The letter *i* will provide a base for the letter *l*. The next step would be to draw the letter *p*. The letter l will be used as the stem for the letter *p* and it is important to reduce its length to compensate optically ascending and descending. The counter of the letter *p* deserves extreme care because it will be repeated for the letters *b*, *d* and *q*. If the counter does not work properly, the negative effect will be multiplied due to the great frequency of repetition of that shape on the text pattern. After drawing the letter *p*, it should be printed between letter *i* and *l*, once again varying its scale. With these letters it is possible to evaluate the shape of the counter, the transition from thin to thick in the bowl and how those elements relate to the vertical stem and serifs. If the shape reacts with accuracy in text size and the white spaces between them appear to be articulated enough to be perceived as shapes, then it is possible to draw the letters *b*, *d* and *q*.

It is important to remember that as soon as a letter has been digitized, it acquires proportions and a quality of the contour that are different from the drawn letter. The changes in the quality of the contour are resultant in the difference between a vector line and the line that belongs to the drawing tool and specifications of the paper. The change in proportion occurs because frequently when observing the shape of a letterform in text size it can be perceived that it needs a few changes to make it work more efficiently. From this point, every new letterform should be positioned between the two digitized shapes that present the best proportions. This is a way to try to maintain harmonic proportions between the letterforms. Every designer will administrate the amount of irregularities within a typeface differently depending on their intentions. Variation and irregularity are different from inconsistency.

Already having a digital outline for *i*, *l*, *b*, *d*, *p*, *q*, a natural approach would be to draw the letter *n*. By doing this the designer can draw the letter *m* and *h* by means of cutting and pasting. After drawing one more vowel, letter *a* for example, it is possible to start setting longer lines of text and observe how shapes react when forming a pattern.
One of the results of the possibility provided by the computer to cut and paste shapes, is that the designer does not need to draw on paper refined shapes from all the letters from the type family. During the design process of the Stone family by Sumner Stone, only 100 out of 4000 drawings were done on paper[24]. Richard Sauthhall found himself surprised to discover that at the end of a design project for a screen typeface, he had only drawn one refined shape, the lower case *m*. But for the same project he had done plenty of very fast sketches as a form of thinking and understanding problems that he needed to solve.[25]

26- Typotechnica. Heidelberg, Germany, February 2003

27- Adobe Minion specimen book 1992

28- Smeijers 1996, pp.151

During an informal conversation with the typedesigner Akira Kobaiashy, when asked about his posture towards drawing in his working process he answered that sometimes he may do refined drawings and scan them, sometimes he may draw on paper and after that draw directly on screen observing his previous drawing and that he may also draw directly on screen without drawing on paper.[26]

5.4 The limits of the eye

In order to achieve the best possible shape for drawn characters, a long process of consecutive selections was followed almost all through the year. Various drawings from the same character, sometimes more than five variations from the same shape with very subtle changes, were done with care using a pencil. After observing them one beside the other, two drawings would be selected for digitization. The digitized outlines would be maintained and a few variations would be made by means of articulating the points in the outlines that were already defined. The new shapes, while being drawn, were always positioned between two characters that had been previously digitized. Finally all the variations were printed in the middle of words on the same piece of paper in different sizes. The process of selecting the best characters started by marking the worst shapes. Most of the time the worst shapes were the ones that were modified inside the computer, using the first digitized shapes as a basis. They lost all the vigour from the original drawing because without realising it, I was destroying the asymmetries created by the hand. Observing some of these proofs recently, it was possible to conclude that not only those variations from the original outlines were usually the worst but that it was also almost impossible to identify differences between them. This was a great mistake. Time and working energy were being lost articulating details that could not be seen with naked eyes.

5.5 Minion & Quadraat. Different qualities from different approaches.

For this dissertation, the value in comparing Minion and Quadraat relies on the different approach that their designers had in relation to the amount of variations present in their typefaces.

Minion, designed by Robert Slimbach, was inspired by old style typefaces from the late Renaissance.[27] The designer's objective was to develop a legible typeface with unobtrusive qualities. The extreme regularity of the relation between thick and thin strokes that permeate the typeface emphasise the intention of the designer.

Quadraat reflects clearly Fread Smeijers' approach in relation to qualities important to provide good legibility to a page of text expressed in his book (Counterpunch 1996). He relates variety in the pattern of text to legibility. To illustrate his point of view, Smeijers provides the readers of his book with a picture of characters printed in 1715[28] presenting great amount of irregularities originated by specifics

of the printing process and the qualities of hand-made paper and type.

Quadraat shows enough similarities to this typeface for us to understand its visual and conceptual origin. In this case, the designer used irregularities of distribution of thick and thin strokes to generate a visual metaphor of the variation that he considered essential to provide good legibility. Despite the unpredictable variation from thick and thin strokes, Smeijers managed to achieve an even pattern of text. Following opposite strategies, both designers managed to achieve their aims.[29]

29- The only way to determine the best way to solve a problem is to define the limits involved and the intentions of the designer.
A type designer may be faced by a preexistent problem presented by a client and sometimes the problem may arrive from his inner motivations.

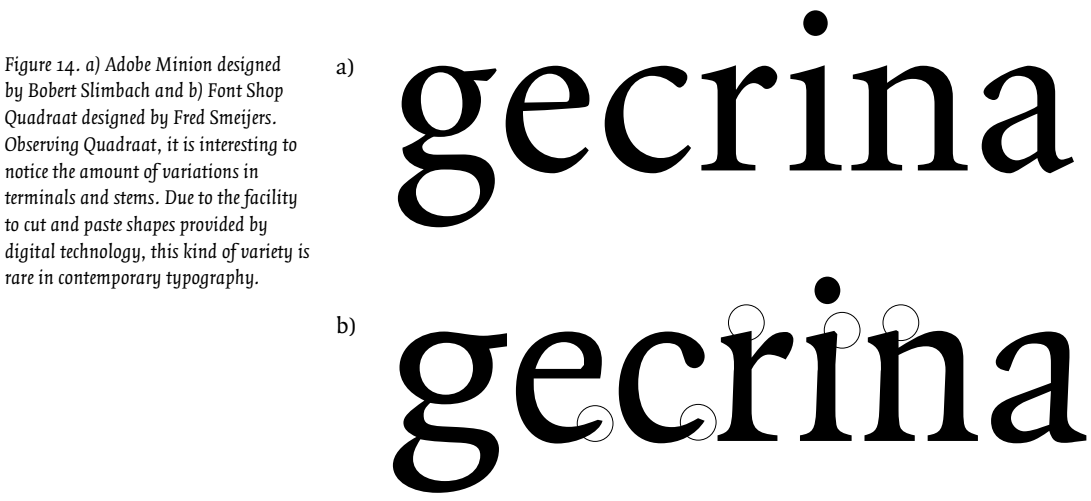


Figure 14. a) Adobe Minion designed by Bobert Slimbach and b) Font Shop Quadraat designed by Fred Smeijers. Observing Quadraat, it is interesting to notice the amount of variations in terminals and stems. Due to the facility to cut and paste shapes provided by digital technology, this kind of variety is rare in contemporary typography.

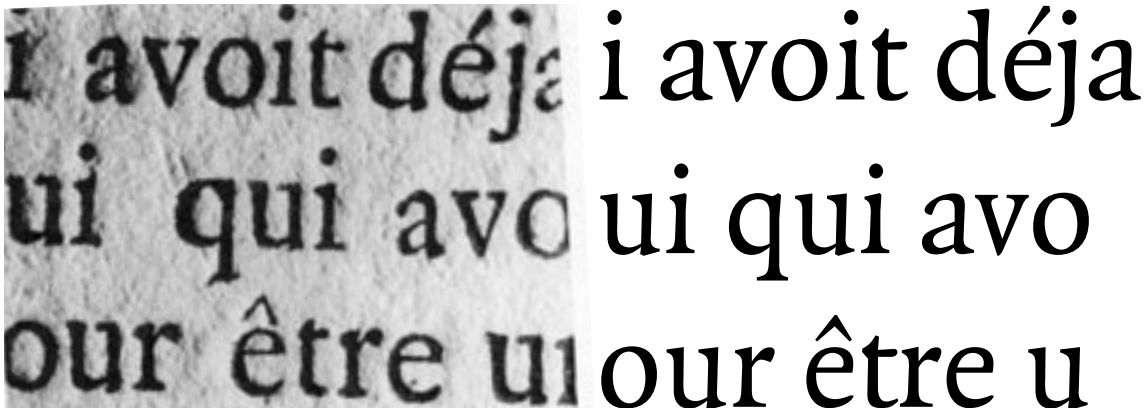


Figure 15. Picture of a specimen printed in 1715. The type and the paper were produced by hand (Smeijers 1996)

5.6 Mechanical pencil

I apologise to the readers of this text for using the generic name pencil to describe another similar drawing tool, a mechanical pencil. The importance in making a distinction between these two drawing instruments is because it influences the drawing process.

Using a pencil, there is a constant necessity to sharpen the lead. The lead can be hard or soft, light or dark. A softer lead wears out faster interfering in the quality of the line. Sometimes it may be difficult to maintain a constant shape for the lead.

Using a mechanical pencil it is easier to maintain regularity in the shape of the lead. Like a pen, the lead can vary in colour and hardness. It is also possible to acquire mechanical pencils with different width, from 0.3 to 0.9 mm. When working with a 0.9 soft lead, it is possible to draw a line very fast and with a considerable amount of pressure. Very often, if the stock of 0.9 lead ran out during the drawing process, I continued to draw with 0.3. With this width of lead, it is very difficult to draw fast and with pressure because it cannot resist and breaks although it is possible to achieve a greater accuracy of shapes.

Instead of considering these subtle changes as a problem which would generate undesirable variations, sometimes they helped to solve problems. Forced with the limitation of a different material, one is forced to change one's strategies toward a visual problem. Sometimes it is difficult for a person that has developed a way to solve problems to naturally change their strategy.

An example of this problem is the difficulty faced by a designer when drawing highly finished letters on paper and confronted by a subtle necessity to change the working tool and methods. External conditions may help to force a person to try different attitudes toward a problem, and by doing this, slowly start to understand their own limitations. Only after this will the person be able to perceive the qualities and problems in the new working tool.

Some of the most common external conditions that may force a change in attitude are: thr necessity to develop a work using different methodologies, technical limitations provided by new materials or changes in technology that forces one to solve an old problem in a new way, limited time in which to finish a work and physical and mental fatigue.

Afraid of making mistakes, a person may try to base their solutions to a problem on skills that have been already well developed instead of re-evaluating the problem in order to determine the most appropriate way to solve it.

During the process of developing my typeface, I avoided using the computer as the main drawing tool because of difficulties in achieving a certain quality of curves and terminal weight that can be perceived on drawn letterforms. At the end of the project, due to the amount of work that still needed to be done in a short amount of time, the process of scanning every drawing became a problem instead of a solution due to the great amount of time consumed in this process.

After long hours of continuous work, ideals of perfection are destroyed by physical fatigue. Arriving at this point one may start using a new tool almost in an unconscious way, and the only objective is to solve a problem. In this situation, the most appropriate way to solve the problem was to draw directly on screen.

Satisfactory and unsatisfactory results arrived from this experience. The shape of the lowercase italic s, is an example of an unsatisfactory result. The overall structure of the bold capitals can be considered as an appropriate result. It looks more consistent than the roman capitals that have been previously drawn by hand, although drawing the roman capitals by hand gave me a better idea of their proportions - information enough to re-evaluate some decisions while drawing the bold. An example is a more balanced relation between the serif structures and the thin strokes. Another aspect that might be considered is the great number of straight lines in the roman capitals and, for the author of this text, drawing straight lines freehand is more difficult than with the tools provided by the computer.

Another possible and more healthy way to understand the possibilities of a new tool arrives from pleasure and curiosity.When a person is simply drawing letters for fun on the computer, the same environment from sketching on paper is recreated and once again the idea of making mistakes disappear. If one manages to work like this, interesting results may arrive because no spontaneity will be lost in the processes of convention between one media and another.

Figure 16. Those are the capitals from the typeface referred to in the text. It is possible to observe problems in the relation between serifs and thin strokes more clearly in the roman B and D. The roman M also presents problems between the relation of thick and thin strokes.

Figure 17. Even starting from a slanted roman, it was difficult to achieve balance between lower and upper counters when drawing the letter s on the screen.

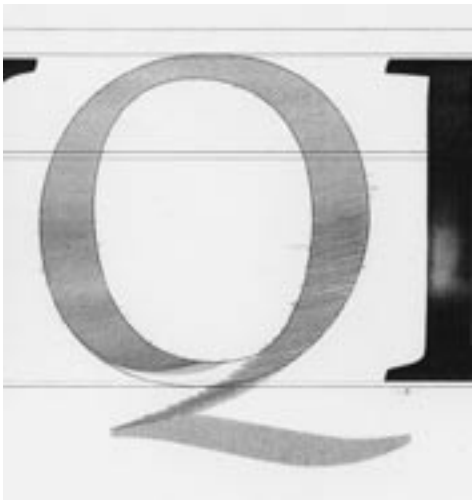


Figure 18. The terminal of the letter Q was developed by drawing on paper and on the screen.

Q

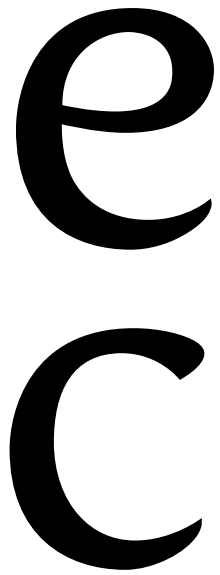
5.7 The weight of the terminals and the tension of the curves

During the process of developing the typeface, drawing strategies were re-adapted due to a better comprehension of the structure of the letterforms and problems related to the amount of time available to complete the work.

The boundaries between drawing on paper, scanning, drawing directly on screen, sketching fast on paper and drawing observing the physical drawing, became more fluid.

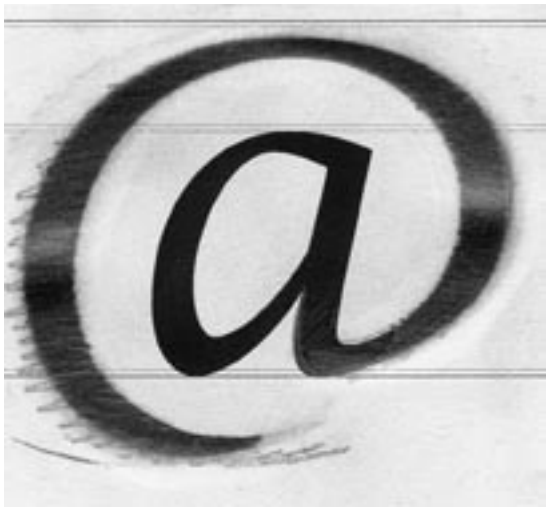
Drawing directly on screen, in this case, was strongly guided by a previous comprehension from the shapes of the letterforms. It is based on visual memory of a shape blended with muscular memories from the movement associated to the shape and the areas of pressure applied by the hand. It was also the result of already memorising the position of the point placement necessary to generate a certain shape. Observing the terminals of the letters e and c may be helpful to illustrate what has just been described. The origin from these shapes is an interpretation with a pencil from shapes that belong to the brush and broad edge pen. The resultant curvature of the bottom area of these letters is asymmetrical. There is a change in direction of the curve in the area close to the terminal.

Figure 19. Digital version of the letters e and c referred to in the text.



After redrawing this shape, it is possible to understand that this could be achieved by placing a point almost at the end of a diagonal, pulling it down just a little bit and adjusting the end of the terminal with the handles from the point. Due to a process of trial and error, it is possible to predict how these shapes would react in a smaller size. With time, one starts to develop a mental library of interpreted shapes that can be blended to form new shapes.

It can be suggested that without having drawn these shapes before outside the computer, they would not have been achieved by means of drawing directly on screen - even when drawing shapes that have already been drawn by hand and inside the computer. Despite having an idea of how to achieve these shapes by means of point placement, the final shape of the character lacked tension, especially on curves and terminal. A character without tension looks soft and without clear indication of the direction of the movement of the stroke. In some cases, after having drawn on screen a character, a printout of the character in black 20% would be used as the base for a drawing. Very often, terminals drawn on screen, when compared with the version drawn on paper, were slightly smaller and less vigorous.



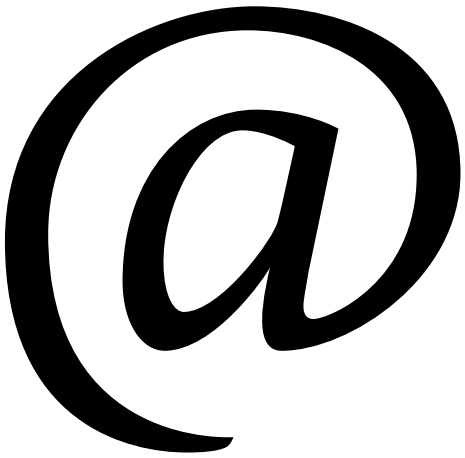
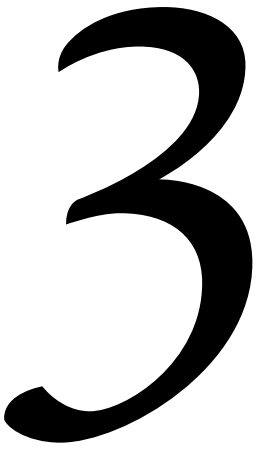


Figure 20. The drawing for the @ provided a good basis for drawing the structure of the curve but the proportions were further improved on screen.

Figure 21. The drawing for the number three was based on the number two. It can be considered a good drawing because it maintained in its final shape most of the qualities from the initial drawing. The transition from the lower bowl to the terminal maintained the same tension.



5.8 The absence of friction on the computer screen

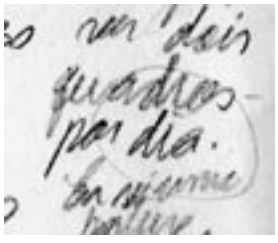
Trying to understand the reasons for the lack of tension in some letterforms when drawn directly on the computer led me to think that, contrary to the friction of the pencil against the paper, we do not have this kind of friction on the computer screen. If we consider the example of the different qualities of movement determined by different thickness of lead in a mechanical pencil, is possible to argue that friction is an important element for understanding pressure, velocity and space. The broken lead was a resultant of problems related to the resistance of the material, velocity of the movement and pressure of the hand. Observing the drawing being made together with an almost unconscious comprehension of pressure provided by friction,one can understand why the lead broke and discover a solution in decreasing the pressure applied by the hand. Perception arrives with the eye and hand working at the same time. When drawing a letterform, friction is an important factor when trying to understand space.

Considering that one would not make drastic changes from the position of the hand while drawing a letterform, it can be suggested that the structural limits of the hand, defined by its muscles and bones, together with visual perception and the qualities from the drawing tool (size and resistency) are the elements necessary to determine scale whilst drawing.

One may say that while working on the computer there is friction between the mouse and the mouse pad. But it is interesting to notice one difference. When a person is drawing using the mouse, the eye is usually observing another surface, the screen. While drawing a letter on paper, the focus of the eye is usually on the same surface where the hand is working. These differences should be taken into consideration in a future analysis, but at the present time I cannot evaluate the effects.

5.9 Sketching on the screen & experimentation with shapes from various tools.

Figure 22. Samples of writing with pencil and pen.



This personal exercise began by observing that when writing fast with a pencil, despite the monolinear nature of the tool, some variations from thick to thin occurred. The origin of the variation was in the returning movement from the down stroke covering a previous up stroke. This happens when a person does not lift the writing tool in the transition from one character to the other. The result is a vertical stroke thicker on top than on the bottom. The interesting aspect relied on the possibility of articulating space without using a serif and because of its origin in a contemporary and informal sample of writing.

Practicing with a broad edge pen, it is possible to observe a similar variation of thickness in the vertical stroke, although the origin of the variation was different from the one observed in the previous sample of writing. In this case it is resultant from the variation of the amount of pressure applied by the hand on the pen in a cursive script. The variation of pressure determines a different flux of ink.

5.9 a - Cutting stencils in plastic

Because of my curiosity in drawing letters by means of cutting shapes and in different ways of reproducing letters in series, some stencils have been cut in plastic using a knife. The shape of the letters were inspired by strong variations from thick to thin in the vertical and diagonal strokes.

After proofing the stencil letterforms on cardboard, it was perceived that the irregularities provoked by the resistance of the plastic, together with the nature of the cutting tool being used with velocity, helped to articulate the space between the letters as shapes.

Interested in the vigour of these shapes, two different approaches of digitizing were tried. One was by redrawing with a mechanic pen the contour determined by the stencil mask. It is interesting to notice that both the knife and the point from the mechanic pen were made out of metal and the outline determined by the stencil was not a copy of the shape but an interpretation of its reproduction technique. After determining the outline of the letters, they were scanned and the digital point placement followed very closely the niches left by the knife. Those letters were used on a book jacket accompanying an illustration developed using the same process.

Figure 23. In this example it is possible to see a cardboard with the first stencil proof and the outlines drawn with a mechanical pen following the path determined by the stencil mask.

The second approach used to digitize the letters was guided by a change in intention toward the function of the letters. In the first approach the letters were digitized to be used for lettering. In the second, the objective was to draw a typeface with a vigor similar to the cut letterforms.

Some pencil drawing was tried and later abandoned because of the perception that the qualities of those letters came from the irregularities accumulated during the cutting process. Instead of scanning the drawings, guidelines were determined and the drawings were done directly on the screen trying to maintain the same approach during the cutting process: drawing very fast, using fragmented curves instead of smooth ones and not stopping to correct tiny irregularities nor using the undo command, because that would be an impossibility in the process of cutting plastic. By doing that it was possible to maintain the good qualities of the early cut letterforms in the final digital outline.

abccdeefghijklmn
opqrstuvwxyz
OMLKABCDEF
GHIJPRST

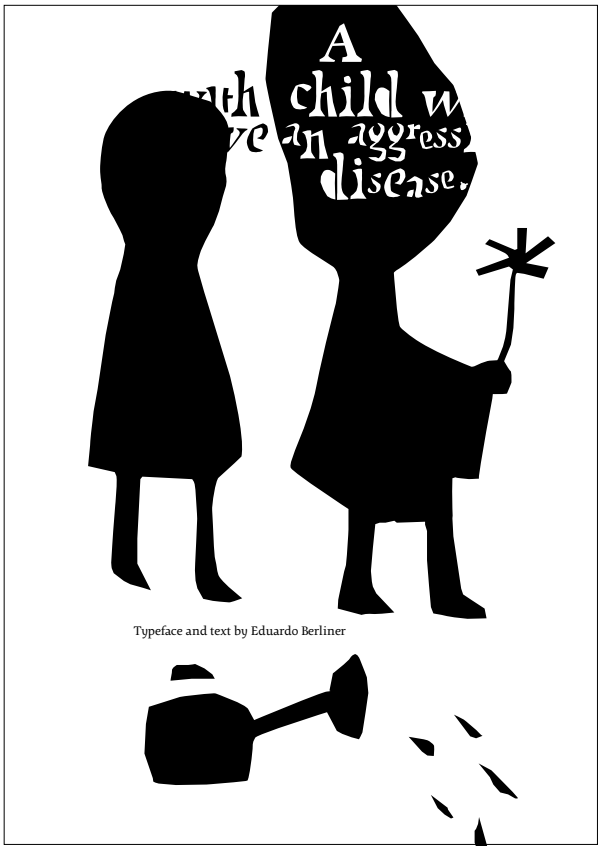


Figure 24. Sample of letters drawn directly on screen and a book jacket using a digital lettering drawn following the outlines from a stencil mask.

Conclusion

The conclusion of this dissertation has been set using the typeface Pollen, developed between October 2002 and August 2003 by the author of this text.

Maintaining the positive aspects of a drawn letterform in its final format has always been a problem faced by type designers.

There are different functions for drawing in contemporary typedesign. It can be used as a way to generate ideas, internalize shapes, proportions and movement, visualize and understand problems or generate the final shape of a letterform.

One of the most important and difficult tasks for a type designer using drawing to generate the final shape of a letterform is to determine the most appropriate way to create its digital outline without losing the qualities of the early shapes. There are many different ways to approach this task. To analyse the quality of the solution it is important to evaluate the parameters involved in the work and the intentions of the designer.

The most important characteristics of a drawn letterform relies on its ability to absorb human qualities and translate it visually by articulating proportions and movement, using as a parameter the limits of the hand together with the perception of the eyes. This can be perceived in the vigour and movement provided by asymmetrical curves and terminals.

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