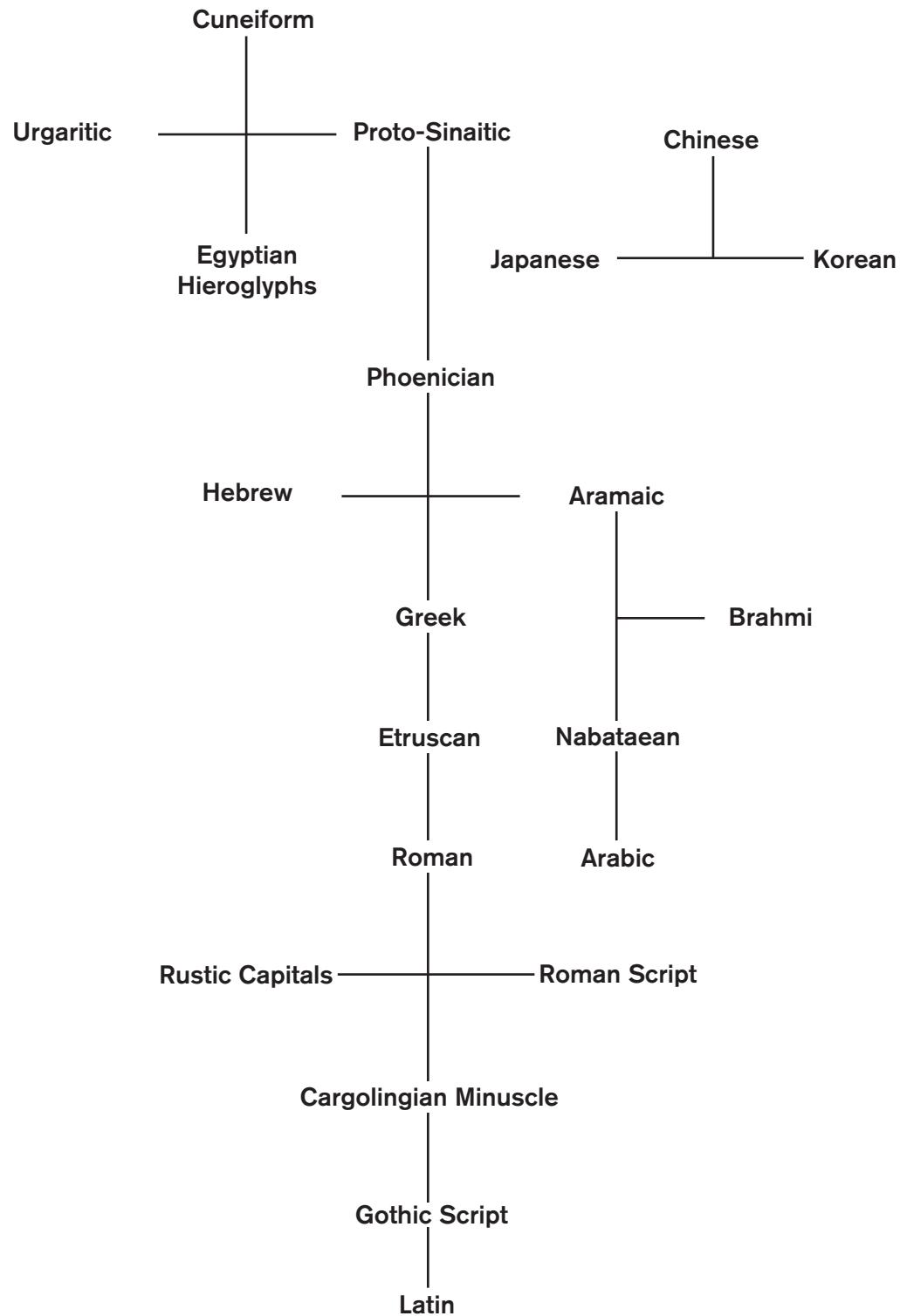


Define a Grapheme System

by Sanne Groenendaal



'Is it possible to ignore or circumvent current conventions and to define new grapheme system, i.e. rules, without the restrictions of the type we use nowadays?'

To start of my research I decided to start with a few simple questions to introduce myself with the phenomenon grapheme system. What is a grapheme system and how does one develop?

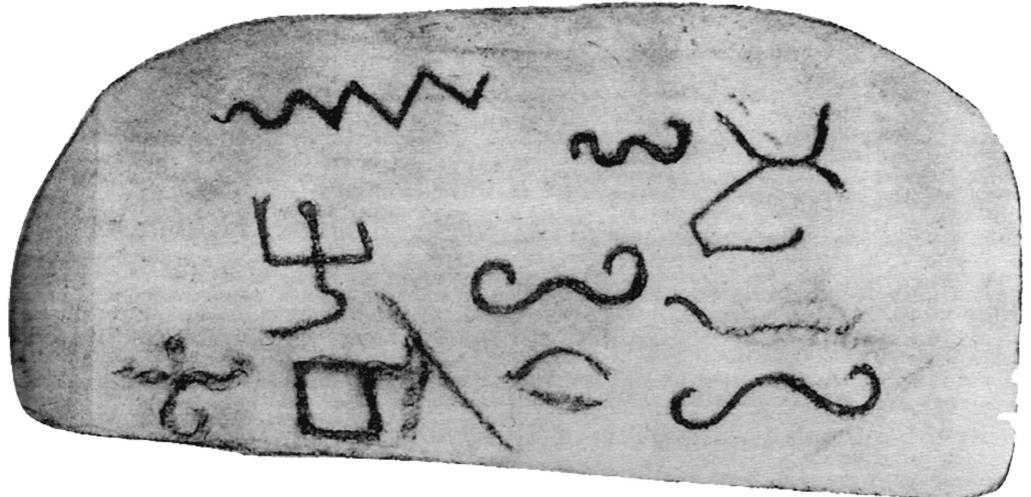
My starting point was to research the origins of the Latin alphabet. It occurred to me that despite a few years of research on the harmony and rhythm of this alphabet, I never asked myself why it looks the way it does and where its origins lie. While researching, I came across a lot of other alphabets, developed for other languages. Different grapheme systems with various backgrounds and some with the same origins as the Latin alphabet.

After having seen and read about a lot of, but by far not all, different alphabets and their form and origins I could come up with a few conclusions. First of all, a grapheme system

is a collection of forms which together, by means of a certain rhythm, harmony and relations form an alphabet. Secondly, the majority of the alphabets I came across, if not all, shared a common ancestor. For example, the Latin and Arabic alphabet descend from the same ancestor; in this case from the Phoenician alphabet. Eventually this one alphabet developed itself in two completely different systems. How did this happen? What lies at the root of changes in writing systems?

The evolution of an alphabet is subjected to many different influences. During my research I found that, the ancestors of all alphabets were taken on different journeys, by various people. On every journey the same alphabet was exposed to different elements and each of these elements caused an adjustment. This way the original alphabet takes on different forms on every one of these trips.

Alphabets can for example be modified to fit a certain language. An alphabetic writing system like Latin, could certainly not



Proto Sinaitic script 1500 BC

be adopted by the Chinese, because the structure of their language is totally different.

A writing system could also be adjusted to create more uniformity and standardisation. Also the use of different writing materials in a community could influence the form of a script. The use of a broad nib certainly gives another result as a brush. Also certain morals in a society, like religion or the influence of a conqueror can influence a writing system.

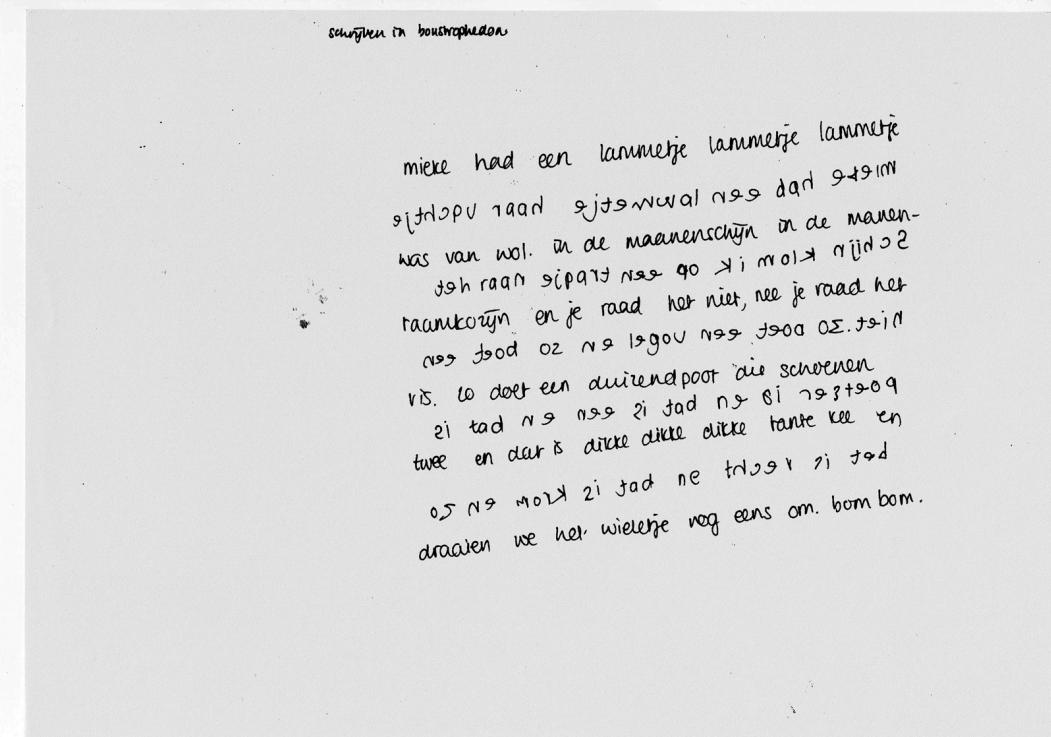
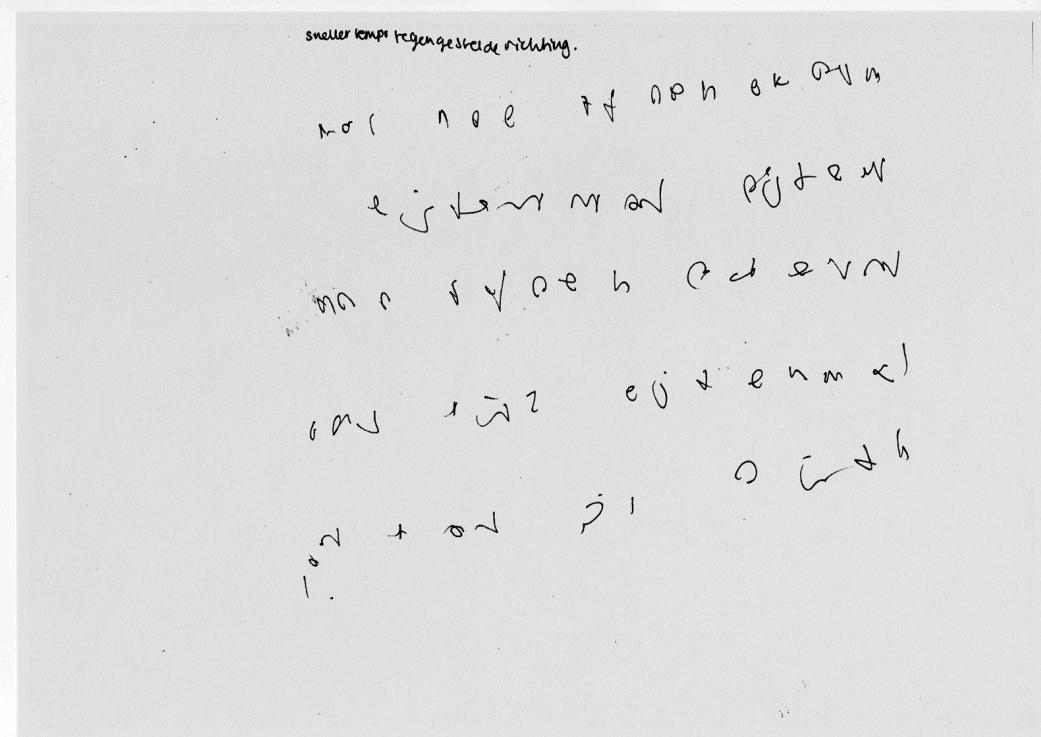
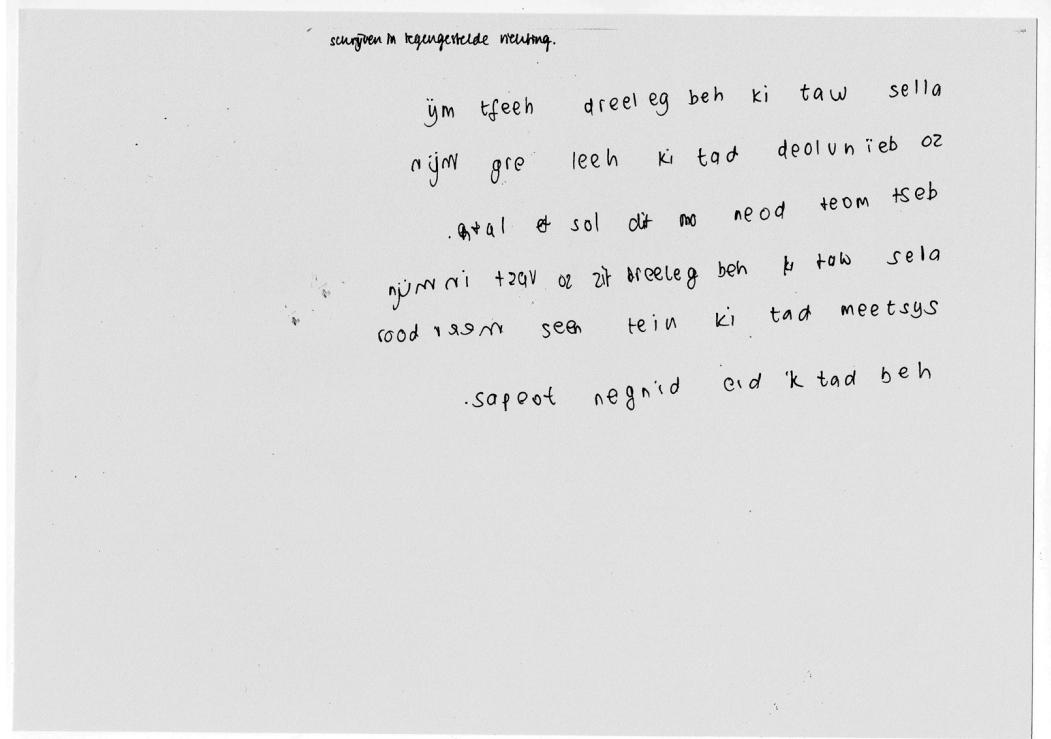
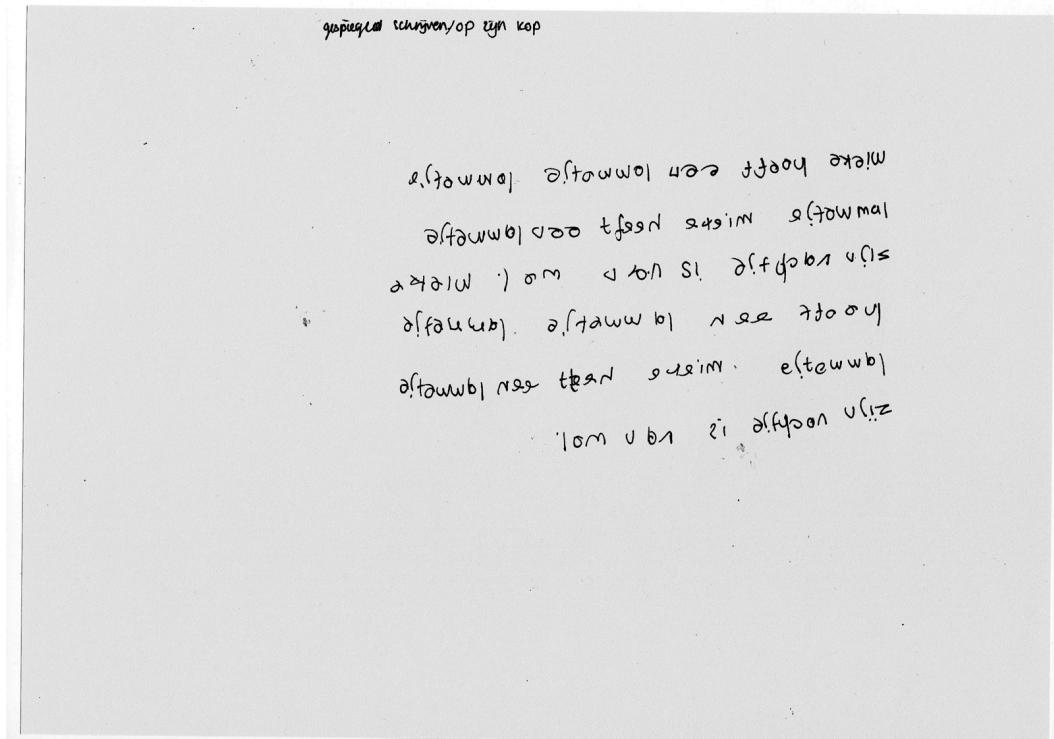
But what happens with these adjustments? These adjustments will eventually form the new rules for the writing system. Rules that determine, the harmony, rhythm and form. All these rules or conditions, will slowly be commonly accepted and turn into habits. And habits

don't often get questioned, which leads to the preservation of the rules. And these rules are the things you get taught when you grow up. What you learn is what you know and you take it to be the truth. You accept it with your eyes closed. In my opinion this means you are limited to what you have been taught. Limited to the things you know. So what is the next step in order to define my own grapheme system? Letting go of everything I know and everything I have learned? Interesting because also I didn't look at things this way, I was too busy building on the things I already knew.

My findings were clear, you're limited to what you know, so in order to create something new, you have to let go of everything you know. But what does this mean? I only just came to the conclusion that probably most of my habits are influenced by rules without even being aware of it. So what does it mean to let go of something you're not even conscious of?

My findings confused me a bit. I can't make a system that travels the world for a thousand of years and develops through time. Where does my starting point lie? What does it even mean to be limited to what I know? To discover this I decided

to do a few writing exercises, writing from right to left, mirrored, upside down, in boustrophedon etc. I tried to do all these exercises in high speed. While doing these exercises I couldn't control my hand, it felt like two different engines controlled by head and hands. I couldn't keep up the speed in which I was writing, I flipped letters back, mirrored letters when I wanted to write upside down etcetera. These exercises made me conclude one thing. Being limited to what you know, doesn't mean you only see what you know, but also that your conditioning, unconsciously, takes root in your whole existence, your whole being, in your body and



From this knowledge I wanted to make a start with defining a system. I tried to define a system from a very rational standpoint. What if I design something that only exists out of circular forms, what if I only use diagonal lines or triangles? What if I try to design letters without an x-height? I noticed that I approached everything from a certain ratio and the thought that if what I did was different than the Latin alphabet, I was heading the right direction.

"I just have to let go of what I know right?" During this process it occurred to me that this was a very optimistic thought. Every time I tried to design something with these ideas,

there was something holding me back. I had no idea what I was doing, where it was heading and what I wanted to achieve. It all didn't make sense to me. Am I so limited to what I know that I am not able to create something different? Is this a hopeless task? I noticed I couldn't work from a natural flow and began to wonder. Is this natural flow I feel when I'm writing and designing with the Latin alphabet completely attributed to my conditioning? Is this natural flow completely programmed into my existence? What is the key to start designing something different then? Is it even possible to let go of this conditioning?

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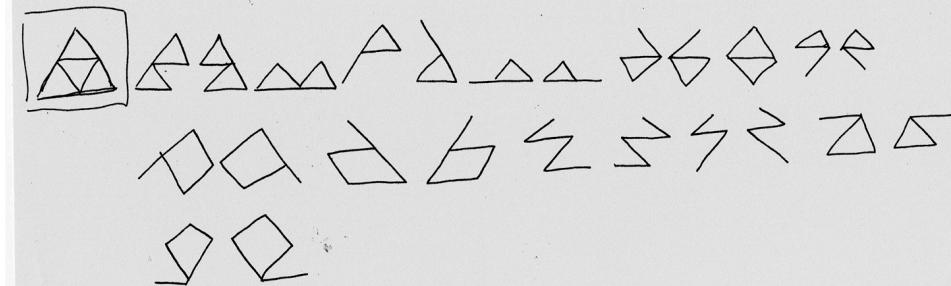
a b c d e f g h i j k l m n
o p q r s t u v w x y z

o p q r s t u v w x y z

卫——口 → 告 𠩺 𠩗 𠩗

图 5-5-5 → 图 5-5-6

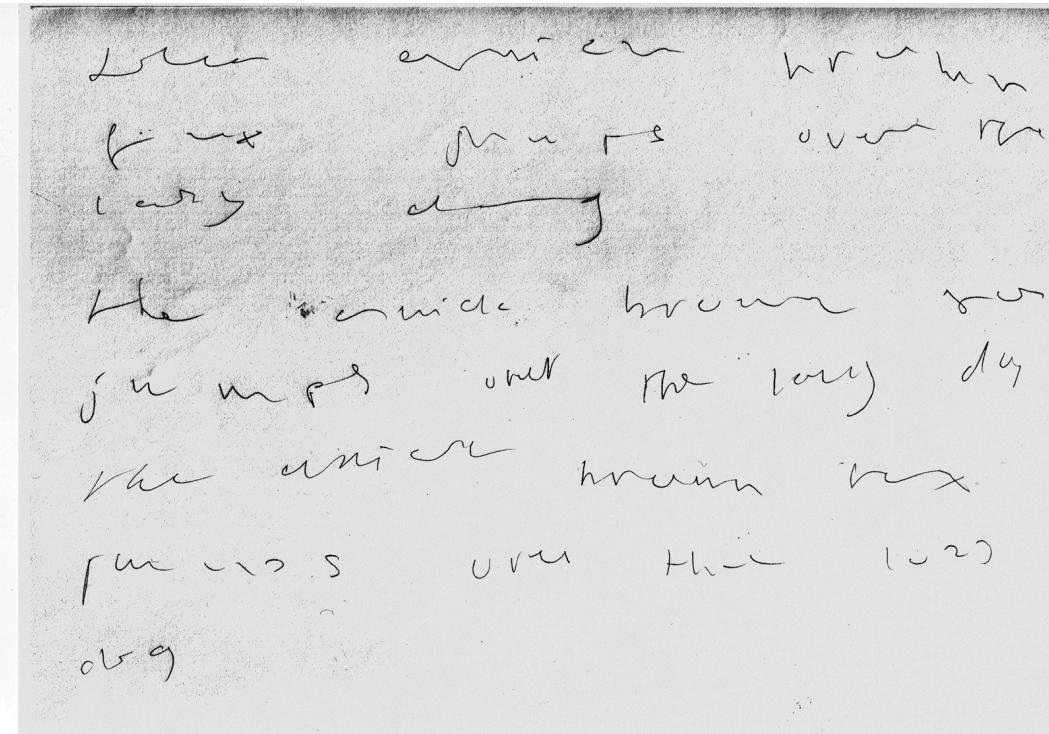
— ८



A handwriting practice sheet featuring the number '8' on the left. To its right are three rows of cursive letters. The first row contains 'c', 'o', 'u', 'c', 'r', 'r', 'c', 'r'. The second row contains 'g', 'g', 'g', 'g', 'g', 'g', 'g', 'g'. The third row contains 's', 's', 's', 's', 's', 's', 's', 's'.

C h u n c h i f
= J u k l u n c r s
✓ 31 4 m h ~~2~~ y 2

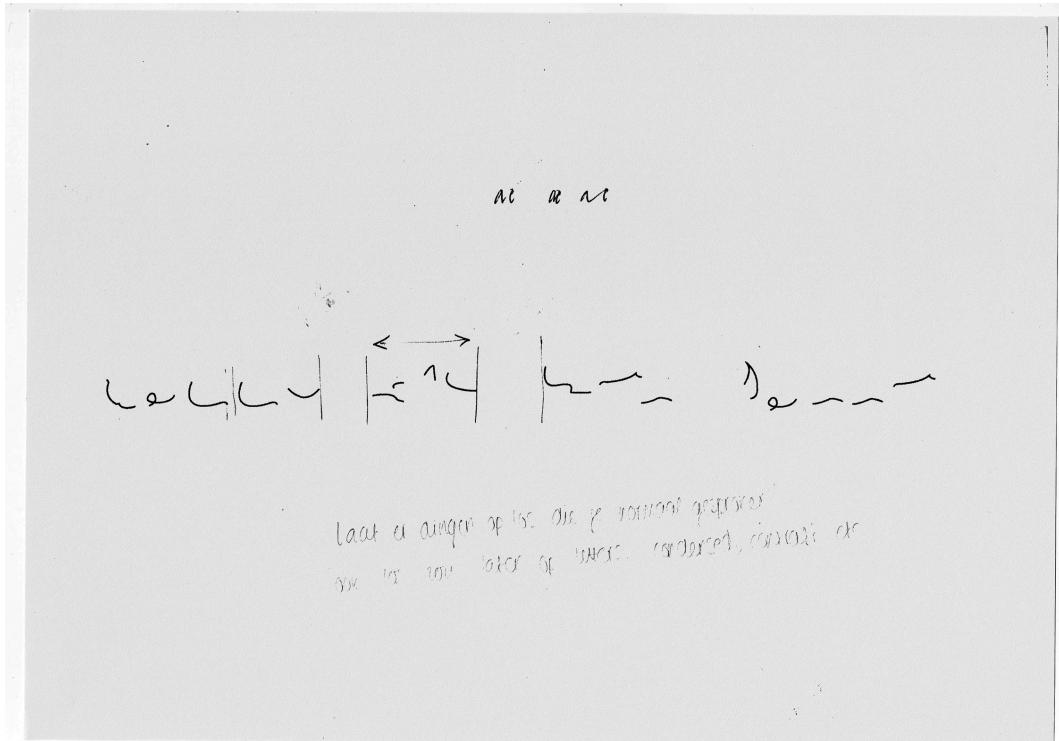
and cold air rising
comes from the sun
which



I figured I needed another approach. If I can't let go of my conditioning, why not I use it? Every writing system is eventually been modified due to different influences, so why not do the same?

In order to do so, I thought of an alter ego. I figured that making up something fictive, like an alter ego, gave me a sense of freedom. This way I could let go of the rational approach I had before. As my alter ego, I was an Empress in some faraway country.

My handwriting was very unreadable. Every document I provided was written by hand and I got a lot of complaints about the illegibility. Of course, as an empress I didn't adapt myself to the people, they had to adapt to me. So I developed a brand new writing system, derived from my handwriting.



hallo ik ben sanne

To begin I started to write 'The quick brown fox jumps over the lazy dog', in a very high speed so that the letters became less and less recognizable as the letters from the Latin alphabet.

I scanned these in and started tracing these letters, which left me with a series of forms that all represented a letter of the alphabet. My next step was to extract a system out of these forms.

How can I define a system? Where do I base my decisions on? I decided to extract my system through the analysis. Firstly, I placed a line of one centimetre over the lines I wrote. The position of the letters inside or

outside this line, decided of the placement of the letters. So in my system there is no x-height or baseline, but every letter has its unique placement.

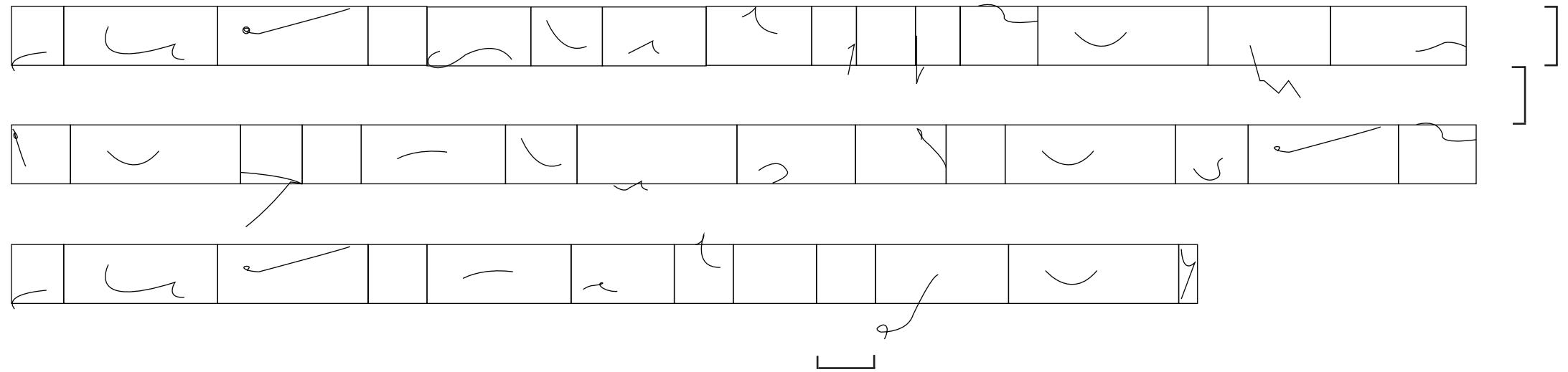
Then it was time to decide the letter-spacing. How can I extract this from the script? I noticed that this was already decided for me. The amount of whitespace around one letter was decided by the placement of the previous and the next letter. And so I placed a block around every letter. I could start writing lines.

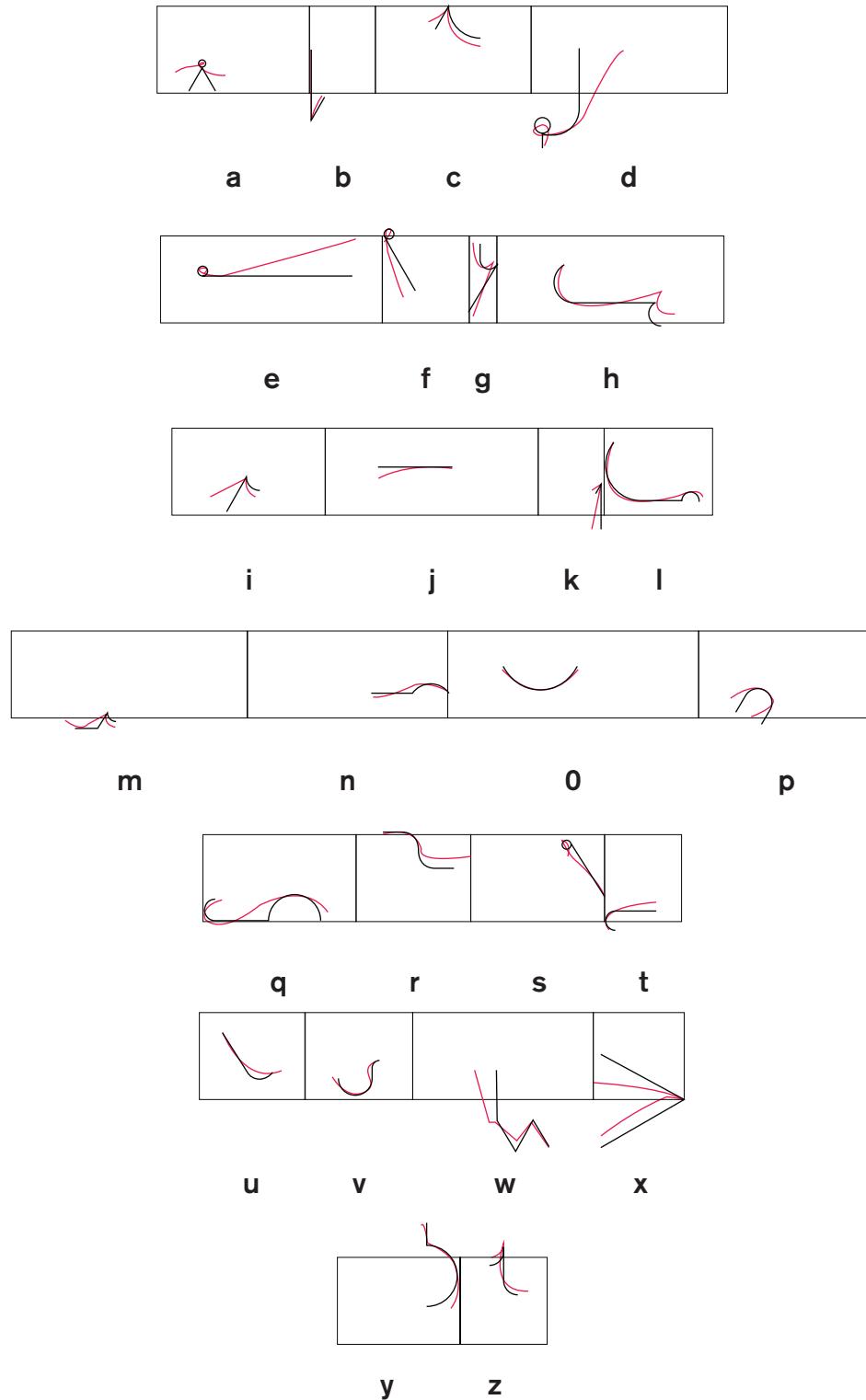
Father of mine, how you
 If up I jumped on my
 I am ~~the~~ ^{the} ~~the~~ ^{the} ~~the~~
 I am ~~the~~ ^{the} ~~the~~ ^{the} ~~the~~
 when I walk over the
 for jumps over the
 pants

Father of mine, how you
 If up I jumped on my
 I am ~~the~~ ^{the} ~~the~~ ^{the} ~~the~~
 I am ~~the~~ ^{the} ~~the~~ ^{the} ~~the~~
 when I walk over the
 for jumps over the
 pants

a	b	c	d	e	f	g	h	i	j	k	l	m
s	h	r	t	u	v	w	x	y	z			
sh	hr	rt	uv	wx	yz							
sh	hr	rt	uv	wx	yz							
sh	hr	rt	uv	wx	yz							

ey with the, how you
 I am ~~the~~ ^{the} ~~the~~ ^{the} ~~the~~
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 when I walk over the
 for jumps over the
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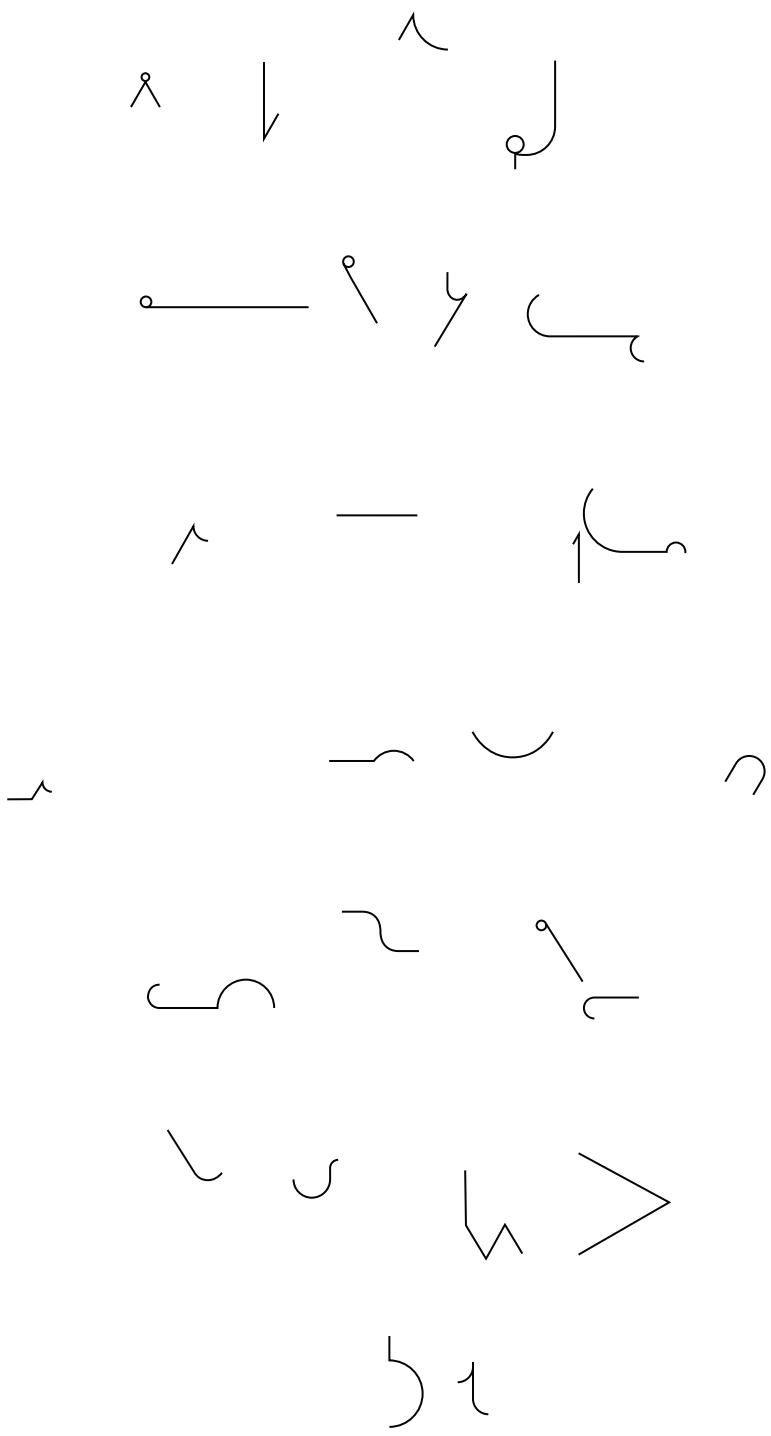
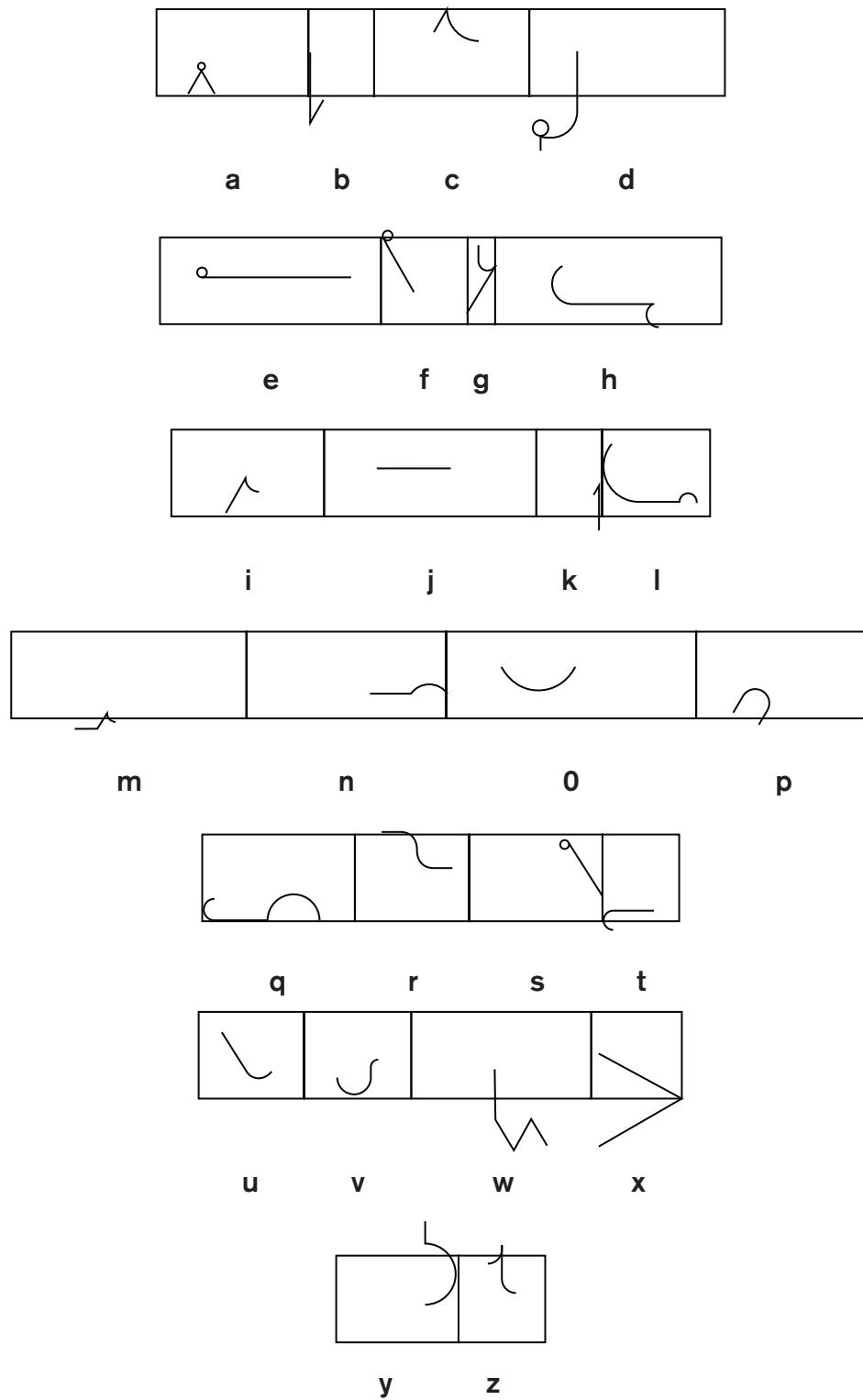




I had an alphabet I could write with, but the letters had a very informal character. There was no harmony or rhythm in it, a certain relation between the letters was missing. This was my next step.

I started to analyse the script and tried to figure out where the similarities were. I noticed a few things, some letters had loops, some had round forms and some had straight lines. To create a rhythm I defined a few rules with which I wanted to adjust the letters. I

decided to derive all the round forms from a circle, to pull all the semi straight lines to straight lines and derive all the diagonal lines from a triangle. This way I wanted to create more relations between the different letters.



Now I defined a system, without the rules and restrictions of type we use nowadays. I wanted to test if the rules and elements we apply on nowadays type are applicable on my system. Does it mean that my alphabet only works if these elements are applicable on my system? Or do we think that it has to be applicable, because those rules are simply what we know?

Contrast, condensed versions, bold, light, legibility. How do I even test something as legibility on a writing system that is developed with totally different rules? It seemed interesting to test these things on my writing system, to see if they can even be applied at all.

*'How many letters or words fit on one line?
Can I make sentences with a regular length?
When do I consider it as readable? I
researched how lines written with my system
relate to lines written with a regular font.
Is het possible to treat my system with the
same rules?'*

Immediately I run into a number of things. My letters don't have an x-height, so how do I for example what a 12 point text looks like? I started by searching for some kind of measuring system. I wrote down a few lines in a regular font in 10 pt, 12 pt and 18 pt and tried to figure out a way to scale my letters to fit these points. First I tried to create a fictive x-height, by giving the line around my letters the same height as the x-height of the font. Did didn't make any sense because my letters simply don't have an x-height. The letters turned out to be very small and illegible this way and were only readable from 18 points. Next I started to scale the fictive x-height of my letters to the height of the x-height plus the ascenders of the regular font. This also wasn't what I was

hoping to find. After this I scaled my letters to the complete height of the regular font, the x-height plus the ascenders and descenders, this way I could get the most desired result.

What I could conclude, was that my letters are only readable from a fairly large size. This of course, because my letters are derived from a script, which is generally very big and not developed as a text letter. Secondly I could conclude that it isn't possible to write sentences with a length that is considered as readable. My letters take in a lot of space per letter, mainly because of the large amount of whitespace around them. Of course, I could argue that also readability is relative to what one has learned. For every writing system all over the world, legibility is approached differently, because every system is build on different rules that fit their own form. If we were used to sentences of two words, than we considered that as readable. But considering the rules used in nowadays type design with the Latin alphabet, I can conclude that my system isn't considered as readable.

LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPSICING ELIT, SED

10 pt

A single staff of handwritten musical notation. It consists of a series of vertical stems with various horizontal strokes indicating pitch and rhythm. The notation includes several 'L' shaped strokes representing quarter notes, as well as other vertical and diagonal strokes of varying lengths.

LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPSICING ELIT, SED

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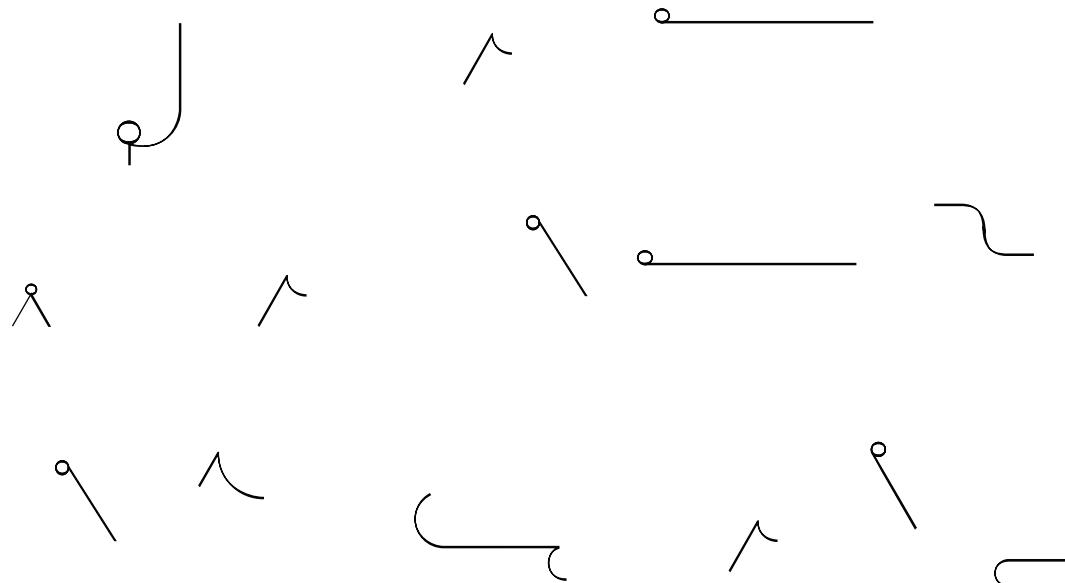
12 pt

The image shows five horizontal lines representing musical staves. On these staves, there are various handwritten musical elements: notes (dots), rests (empty circles), and stems (short lines). The notes and rests are connected by horizontal lines, creating a continuous flow of musical patterns across all five staves.

Elit, sed

A handwritten musical score for two voices, consisting of two staves. The top staff is for the soprano voice and the bottom staff is for the alto voice. Both staves begin with a clef, key signature, and time signature of common time. The music consists of measures containing various note heads, stems, and rests, typical of early printed music notation.

18 pt



laagcontrast

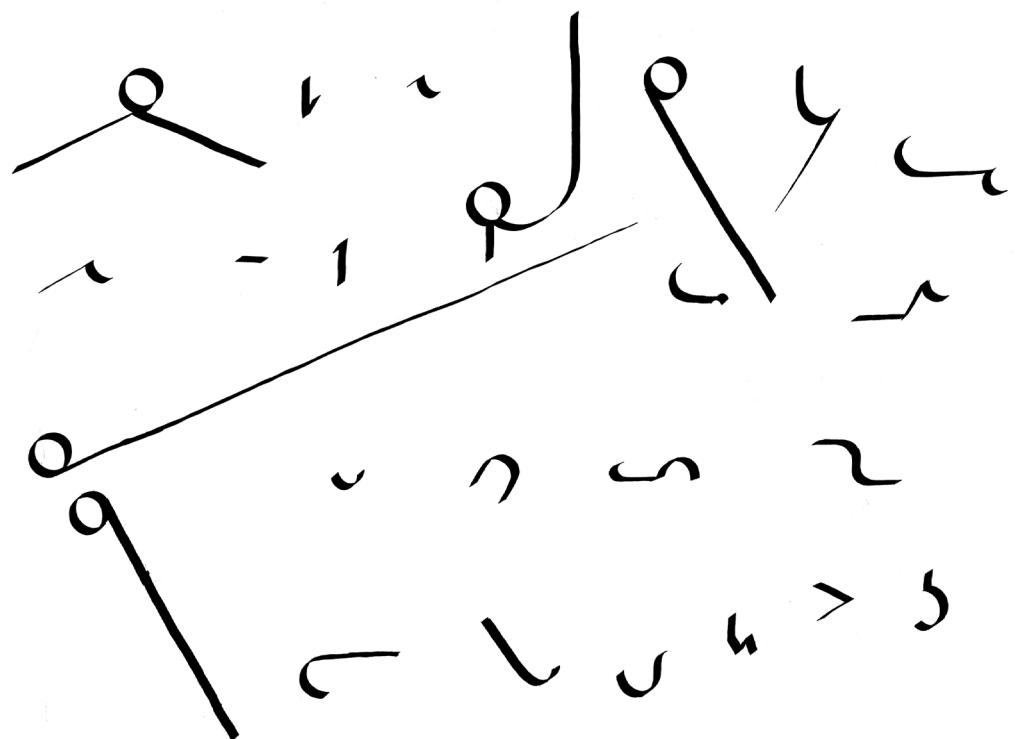
'In my next experiment I wanted to focus on contrast. Can I apply contrast to my letters with the use of the broad nib pen according to the rules of western calligraphy?'

The research showed this wasn't possible, since my letters never originated from writing with a broad nib. The letters are initially written with a grey pencil, with a single line. Because of this the anatomy of my letters isn't related to the proportions of writing with a broad nib.

The fact that there, among other things, is no x-height and no rhythm between the stems i.e. the whitespaces of the letters, makes it impossible to apply the rules of calligraphy with the broad nib. So how can I even start writing with these rules? You will have to need an x-height that is determined by 4 pen widths.

Despite these findings, I tried to apply contrast to my letters with the broad nib. First, I scaled all the circular forms in my letters to the size of four pen widths and then I tried to scale all the letters to a height of four pen widths. Both ways I had to scale all the letters individually, to give them the desired height. This is of course not right in the first place. I also found that writing in a thirty degree angle wasn't possible, because the angles of my letters weren't thirty degrees. The results showed that if I tried to apply contrast in my letters this way all I got was chaos. Very thick and very thin lines, circular forms that clogged etcetera. The only form of contrast I could apply to my letters had to be artificial.

Testing the system



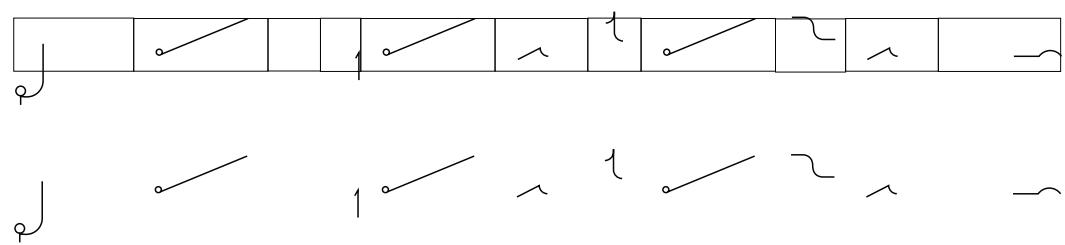
አ እ ወ ተ አ እ ዓ -
1 ተ ተ ተ ተ
ሁ ተ ተ ተ ተ

'Are my letters flexible enough to make different versions of them?'

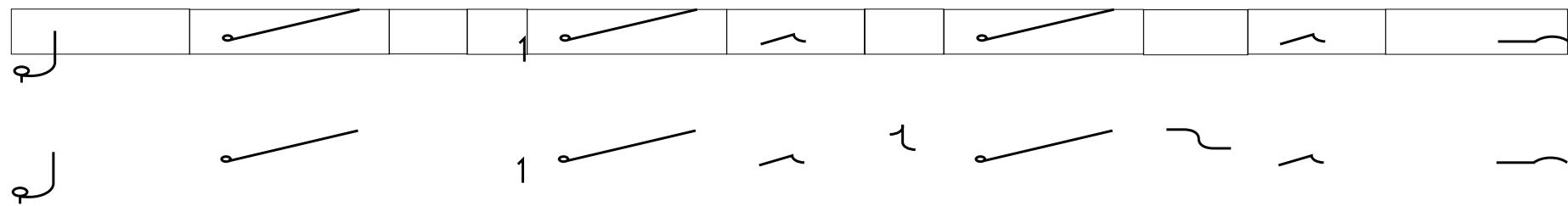
I made a condensed and an extended version. The extended version worked well in my opinion. The letters remain recognizable and are usable on smaller sizes. The condensed version however is only usable on large size. In the condensed version the letters become so narrow that a lot of whitespace is lost and especially the smaller circular forms that are characteristic for the letters vanish.

I also tried to make a bold version, also this is very hard to achieve. The round forms and little hooks, like the one on the k, clog. The letters can't keep their original form. This is due to the fact that there is a high variation in proportions between each of the letters. Because of the variation in proportions, small circular forms, big circular forms, long lines, short lines etcetera the letters aren't very flexible. To adjust the letters they would all have to be treated in a unique way.

keizerin

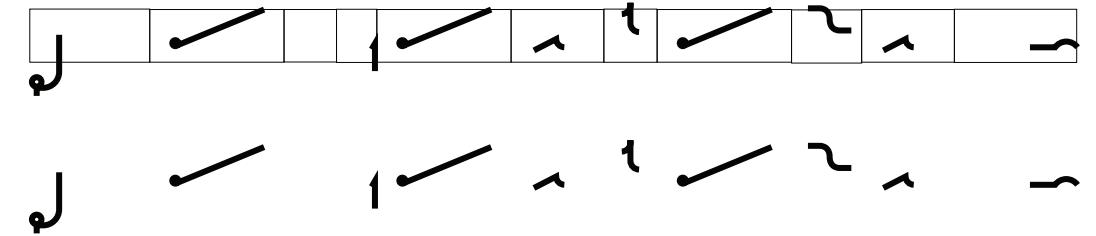
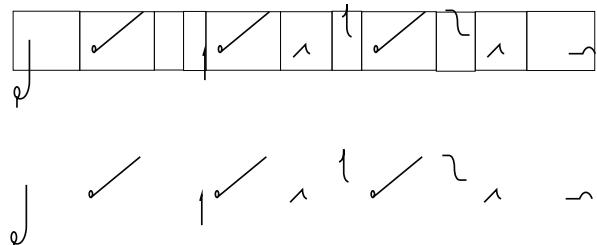


keizerin



keizerin

keizerin



'Is it possible to ignore or circumvent current conventions and to define new grapheme system, i.e. rules, without the restrictions of the type we use nowadays?'

First of all, I would like to emphasise my first conclusion. You are limited to what you know and that is what you see and take on as the truth, which you are not likely to question. What it means to be limited in this way is not just confined to the fact that you don't question things. The limitation also takes root in your entire life. In this case, you learn to read and write from a very early age. You learn a particular writing system inside out. This learning process takes root in your physical as well as your mental being, with other words, your conditioning becomes part of your subconsciousness.

During my research I discovered that you can't just break loose from this. You will never reach the complete objectivity to create a new writing system without existing rules and restrictions, because your conditioning will always be that zooming factor in the back of your head. For me it was only possible to continue this assignment, if I made up a fictive character for myself. Only this way I could experience some sense of freedom. Even as this fictive character I made use of my conditioning, by trying to transform it into something else.

Another aspect I want to elaborate on is the fact that I found it very difficult to define a basis to build a system on. You can make shapes, but what to do with them and what do they mean? When trying this, I felt lost in the dark and confused, because it just couldn't make sense to me. I think this is due to a number of things. Amongst others,

that basically all writing systems have been through an evolution of thousands of years, to develop to what they are right now. They are being exposed to many different elements, like language, religion, various writing tools etcetera. It is impossible to mimic this and what it especially tells me is that the systems could evolve because there was already a foundation to build on. What my system is concerned, I did exactly this. I took the Latin alphabet and modified it into something different. My research concerning density, flexibility and contrast points this out. None of these elements were applicable on my system, at least not with the rules of nowadays type design. This because my system was built upon different criteria. The rhythm and harmony of this system doesn't allow these rules to be applied on them.

Finally I would like to say that for me this was a very interesting research. If I succeeded in defining a new grapheme system, I can only answer subjectively. The main thing I am very happy with is that I found a manner to pave my way through one of the toughest things in life; trying to acknowledge and let go of my conditioning. My trick was to use my conditioning and, with help of my alter ego, to look at it from a different perspective. I would like to think I contributed a little to the evolution of the Latin alphabet. One that will surely not be generally accepted, but just a part that I added to the journey the Latin alphabet is already travelling for thousands of years. - -