

mini mouse



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Visible Language

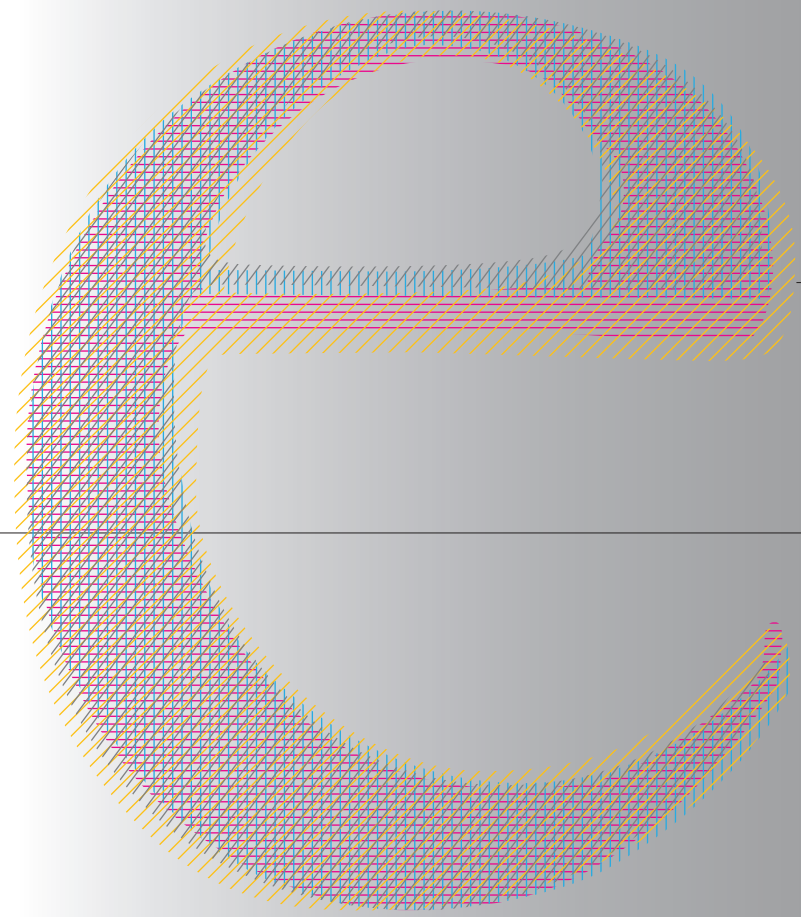
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**Kresen Kretev**

4–31

Renaissance text and display typefaces had identical widths, thick/thin contrast, and stem thicknesses, but the counters and x-heights of text sizes were larger.  
*implications for type research and design*

**Maarten Renckens**

32–47

Typographic rhythm, though ill-defined, impacts readability. A definition and means to measure it are proposed.

**Sabina Sieghart**

48–95

Graphic Design genre's: newspapers, contracts, etc., each have meta-typographic qualities that are in effect a language that aids comprehension. Guidelines intended to improve readability that ignore meta-typography may impede rather than improve communication.  
*implications for any design, particularly design for accessibility*

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Characteristics of Text and Display Sizes in 16th Century Flemish Roman Type:

Krassen Krestev

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Consequently Positioning the Rhythm in Type Based on the Letters' Longest Continuous Black Mass

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Characteristics of  
Text and Display  
Sizes in 16th  
Century Flemish  
Roman Type:

comparative analyses  
of seven types cut  
by Hendrik Van Den  
Keere in the period  
1570 – 1580

Krassen Krestev

This project attempts to bring more insight to the approach of designing type for different sizes in western Europe during 16th century by making a comparative analysis of seven different sizes of roman type (three display and four text sizes) cut for the print-house of Christophe Plantin in Antwerp by the Flemish punch-cutter Hendrik van den Keere in the period between 1570 - 1580. The aim of the comparison is to gain knowledge about the historical design of small/text and large/display type sizes that might be useful in the production of type today.

**K e y w o r d s -**

*letterform*  
*font design*  
*research methods*  
*legibility*  
*readability*  
*typography*

## Introduction

The project was developed as part of the 2017-2018 group project of the Expert class Type design (EcTd) course offered by Plantin Institute of Typography in Antwerp. The course is held at the Museum Plantin-Moretus and is taught by Dr. Frank E. Blokland.

The subject of the group project was to work on a revival of Hendrik van den Keere's text type Philosophie Romaine (aka Small Pica Roman), cut in 1578. Hendrik van den Keere was a Flemish punchcutter based in Ghent (through his father a successor to Joos Lambrecht) and the main supplier of blackletter, roman, and music type for Christophe Plantin's print-house (the biggest in Europe at that time) in the second half of the 16th century, up to his death in 1580. He is probably best known for his series of Flemish blackletter, ranging in sizes between 150 up to 5 ½ points. His roman type, however, is considered to be his most important work. Those letters have strong character and appealed to Christophe Plantin with their practicality. They were sturdy with large x-height and increased counters.

The size of the type selected for our project (Philosophie Romaine) is equivalent to 10.3 pica points. Part of the project was also to make a comparative analysis of van den Keere's Philosophie Romaine with his display type Reale Romaine with an approximate size of 18.5 pica points, cut earlier in 1575. The aim of the comparison was to examine the approach of one of the most prolific and gifted Renaissance punch-cutters on the production of small/text vs. large/display letterforms and make conclusions which could be of use today in the production of digital type.

Different stages of the revival project were separated between all participants, and I had the privilege to work on the comparative analysis. Prior to starting with the research, I thought that it would be better to expand the scope of the comparison by including two additional roman typefaces of the same style, cut by Hendrik van den Keere. These are the display type Ascendonica Romaine (aka Parangone Romaine, 1576, 20 pt.) and the text type Jolie Romaine (1575, 6.1 pt.). Preparing the current article, I decided to add to the comparison the last three roman faces from the chosen style – Nouveau Texte Romaine (1570, display – 15.5 pt.), Mediane Romaine sur la Philosophie (1574-80, text – 11.3 pt.) and Coronelle Romaine (1570-73, text – 6.5 pt.).

In the end, there were a total of seven typefaces (including Nouveau Text Romaine and Mediane Romaine sur la Philosophie, which include only characters with shorter extenders in order to adopt them to Garamond's Text and Garamond's Mediane for smaller text body), all cut by Hendrik van den Keere in the period between 1570 till 1580. These are all his roman faces from his second style (probably based on Garamond and Granjon) containing lowercase

characters. Three of them are large/display (Ascendonica Romaine, Reale Romaine, and Texte Romaine) and the other four are small/text types (Mediane Romaine; Philosophie Romaine; Coronelle Romaine and Jolie Romaine).

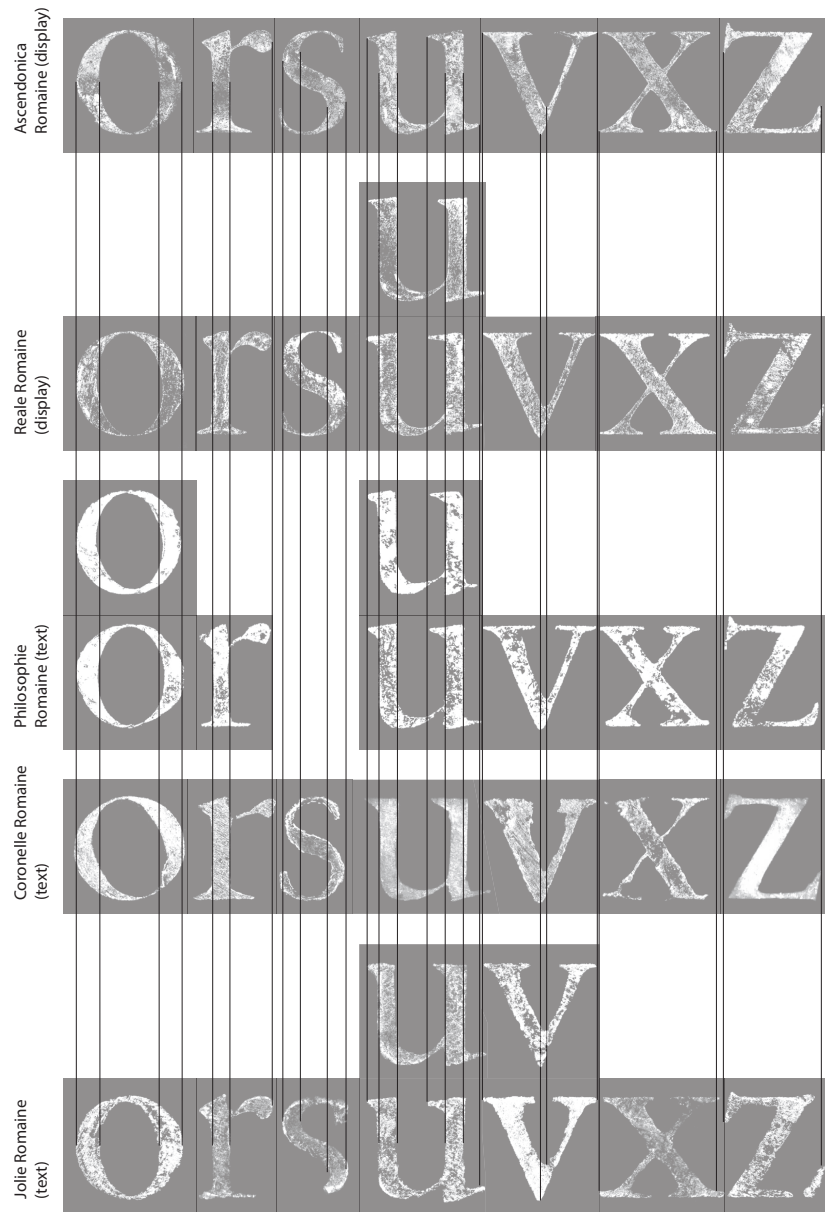
It is important to mention that for two of the display (Ascendonica Romaine and Texte Romaine) and one of the text faces (Mediane Romaine sur la Philosophie) there are no capitals included in their sets and based on that, the comparison deals only with the lowercase characters. Ascendonica Romaine was commissioned by Christophe Plantin as a bolder modification/substitution of Rober Granjon's Ascendonica Romaine (1569) lower case and punctuation, so it did not contain capitals. Nouveau Texte Romaine was commissioned by Plantin in order to adopt Garamond's Texte Romaine for smaller body, so only letters with ascenders and descenders were recut with shorter extenders and Van den Keere stayed very close to the original Garamond shapes. For example, one of the 'g's (there are two different ones in the set) exactly copied Garamond's slanted axis of the head (though the other one is with a vertical axis). Mediane Romaine sur la Philosophie was probably also ordered by Plantine as a modification/substitution (with shortened extenders) of Garamond's Mediane (1574-80), which was one of his workhorse-types, used extensively.

The research started with taking digital photographs of all available original hardware material. That included punches, matrices, and printed matter from books and type-specimens. Punches took the crucial role in the research because they clearly show the letterforms and because the biggest of all types size, Ascendonica, does not have matrices preserved. Matrices were used for characters with damaged punches, especially for Coronelle Romaine in which most of the punches are in not very good condition. Matrices were also used to compare details that were broken and worn out on some punches or because punches were lost. For example, Reale Romaine matrices are used for 'æ', 'c\_t', 'f\_f', and 'f\_l' ligature. In Philosophie, the matrix of 't' revealed that the right part of the horizontal stroke of punch was either chipped or worn out. Only matrices are used for Text Romaine because punches were lost. For Jolie Romaine, matrices were used for 'j', 'y', 'f\_f' and 'f\_l' ligature etc.

In some of the sets there are missing characters. For example, there is no lowercase 'a' in the Ascendonica set of punches. Unfortunately, as mentioned earlier, there are no matrices preserved for that typeface. For Reale Romaine, matrices are used for 'æ' and 'c\_t' ligature because the punches were lost. In the Philosophie Romaine set, the lowercase 's' is missing both in the punches and matrices. However, for some characters there are more than one punch/matrix in the set (e.g. Reale Romaine – 2e, 2u; Philosophie Romaine – 3a, 2c, 2d, 2m, 2o, 2p, 2q, 2u; Jolie Romaine – 2e, 2n, 2u, 2v, etc.).

A digital microscope was used for the photographs in order to take high-resolution micro images. After all material was collected, some Photoshop corrections were made (colour mode, brightness, contrast, exposure, darkening the background etc.) as well as mirroring the punches in order to compare the letters in the direction we are used to see and read them. After that, all lowercase characters were compared one by one taking Ascendonica Romaine (the biggest display size) as a reference. Attention was put on characters' width, stem thickness, contrast, length, and thickness/weight of serifs and terminals, length of ascenders and descenders. Overlapping is used as a method as well in order to show similarities and differences. The visual comparative analysis is presented in the following pages.

**Visual Comparative Analysis:  
Width and Weight of Characters**



Jolie Romaine (text)

b d f h i k l f t

Coronelle Romaine (text)

b d f h i k l f t

Mediane Romaine sur Philosphie (text)

b d f h f

Philosphie Romaine (text)

b d f h i k l f t

b d

Reale Romaine (display)

b d f h i k l f t

Ascendonica Romaine (display)

b d f h i k l f t

Jolie Romaine (text)

g j p q y æ

Coronelle Romaine (text)

g j p q y æ

Mediane Romaine sur Philosphie (text)

p q

Philosphie Romaine (text)

g j p q y æ

Texte Romaine (display)

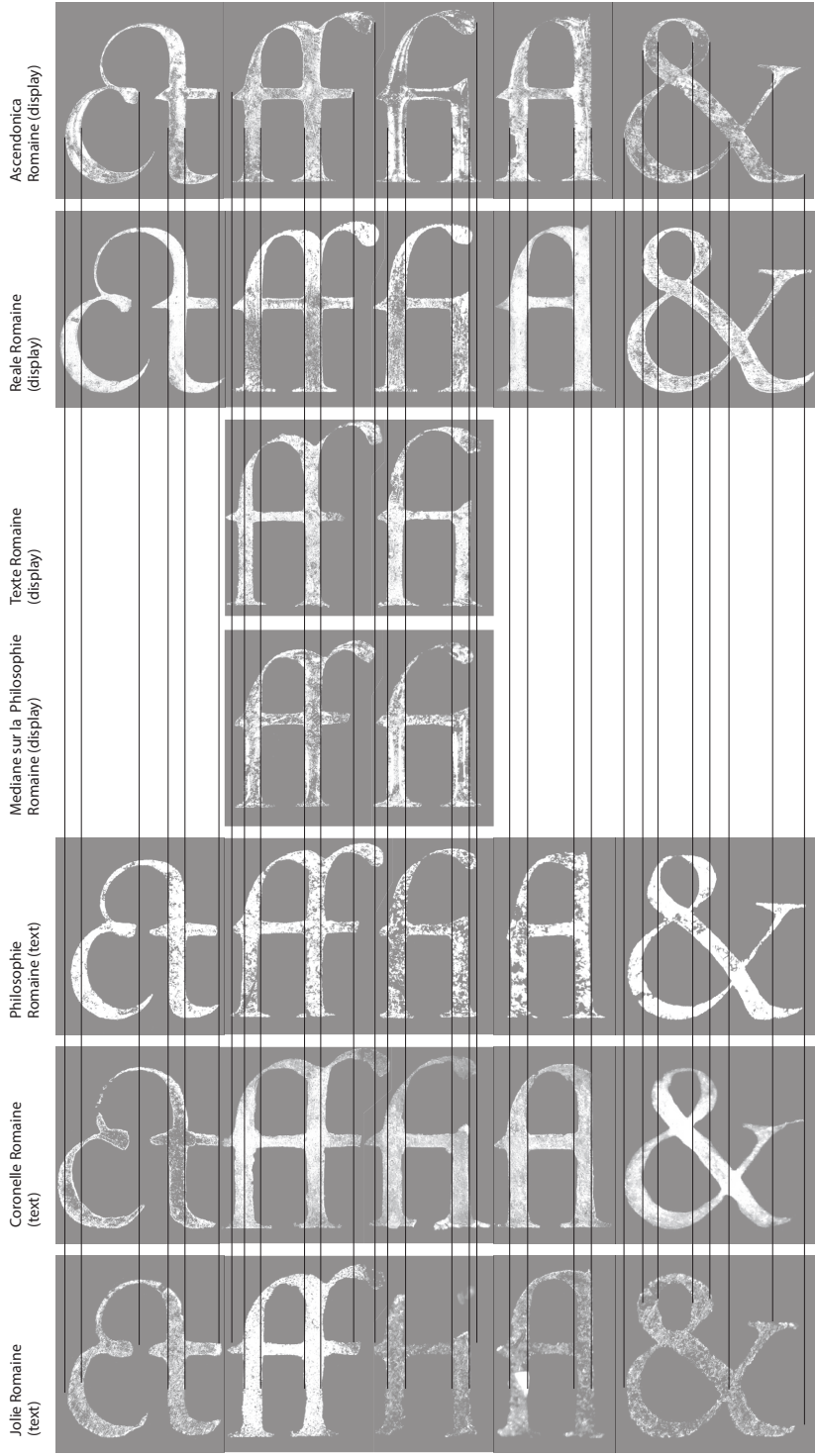
g j p q

Reale Romaine (display)

g j p q y æ

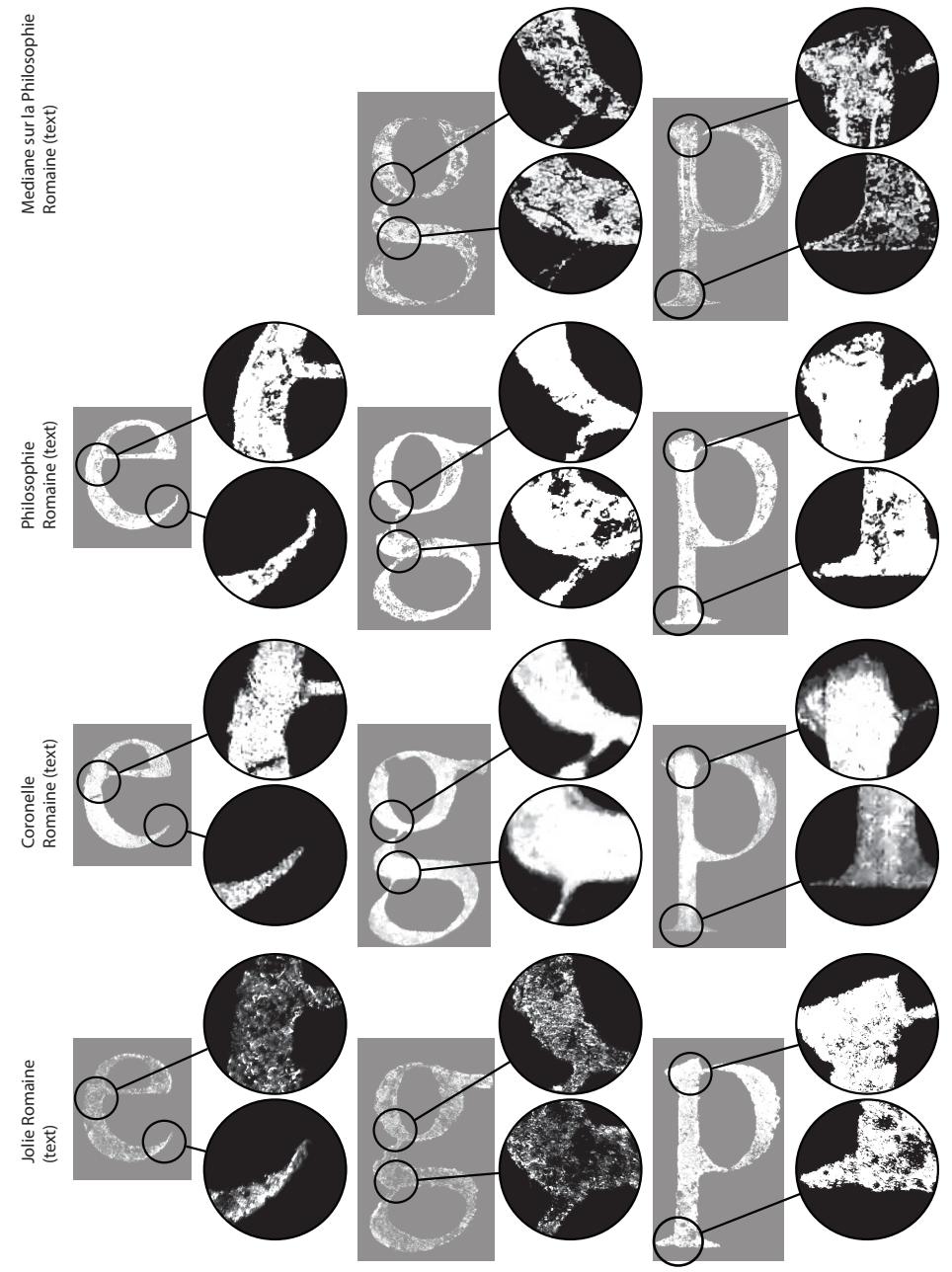
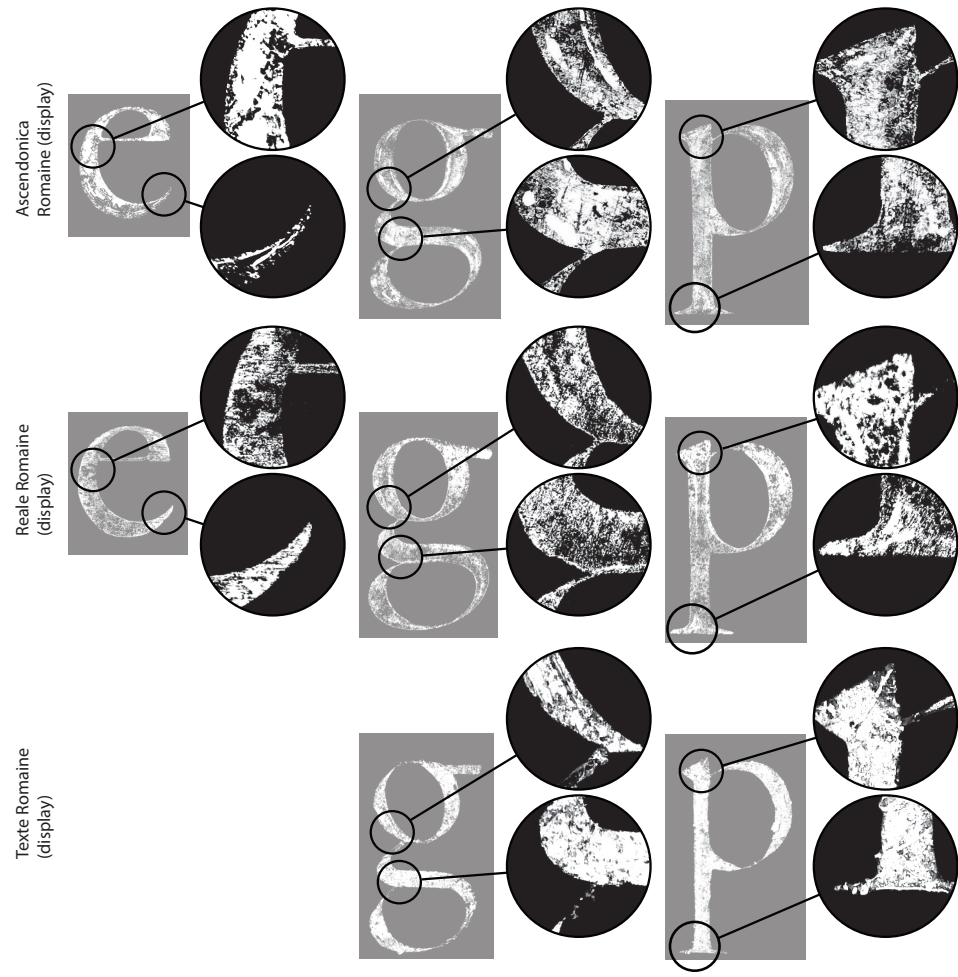
Ascendonica Romaine (display)

g j p q y æ





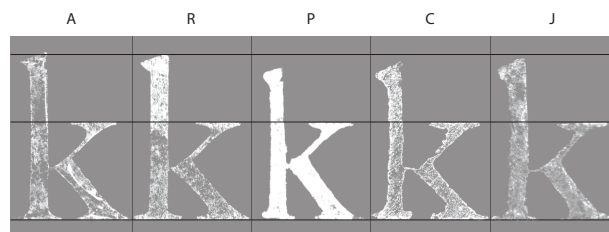
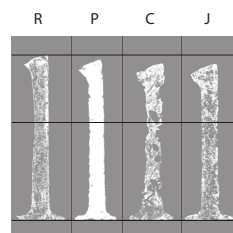
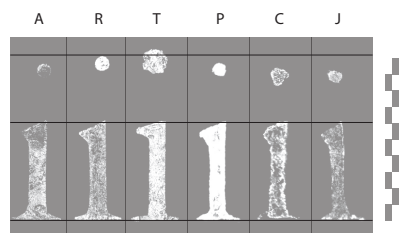
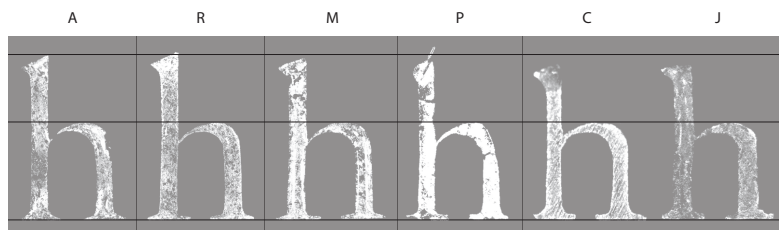
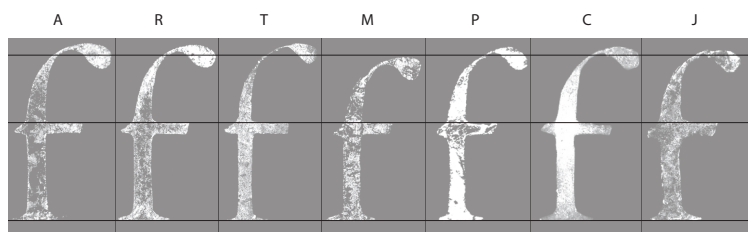
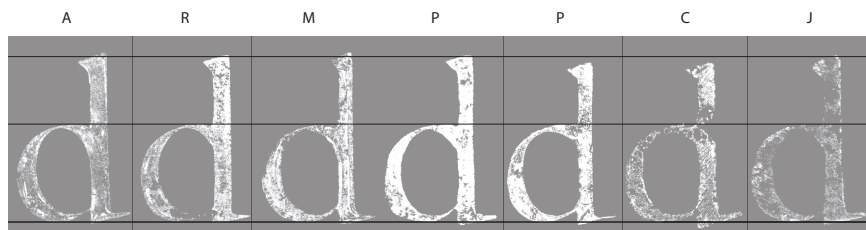
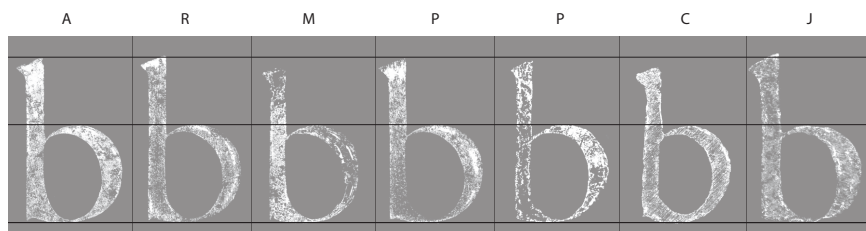
Contrast of Characters



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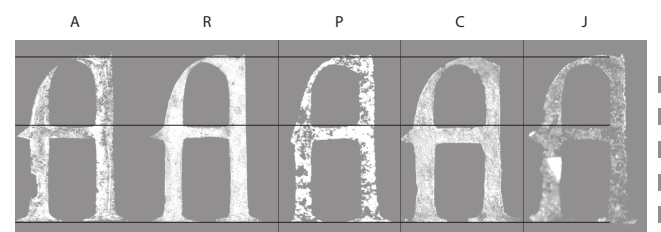
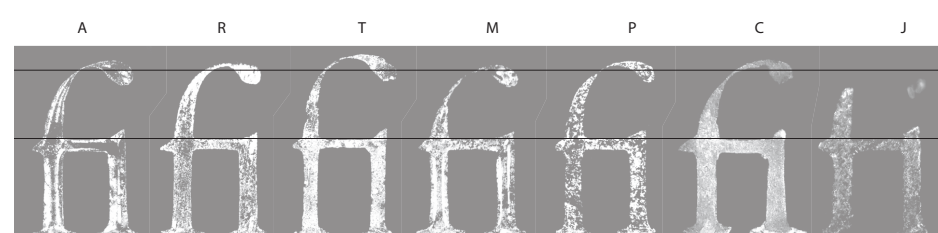
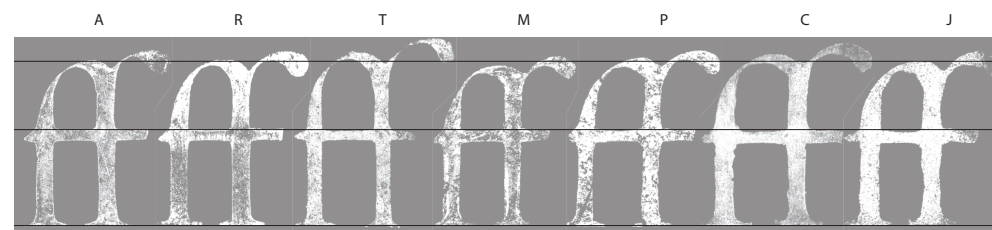
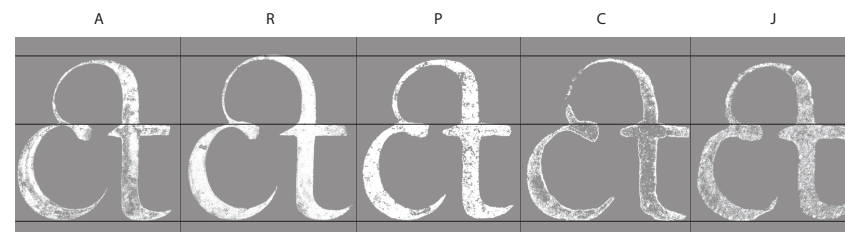
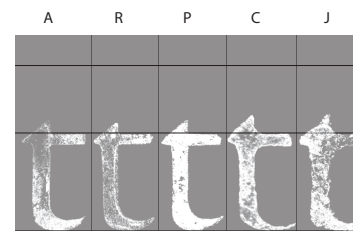
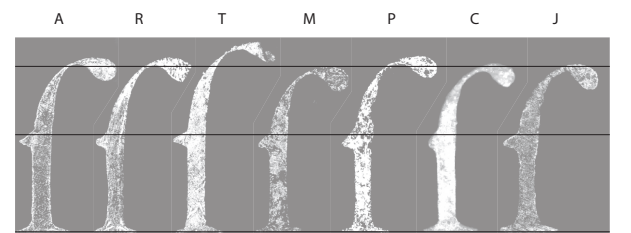
Characteristics of Text and Display Sizes in 16th Century Flemish Roman Type

Length of Ascenders



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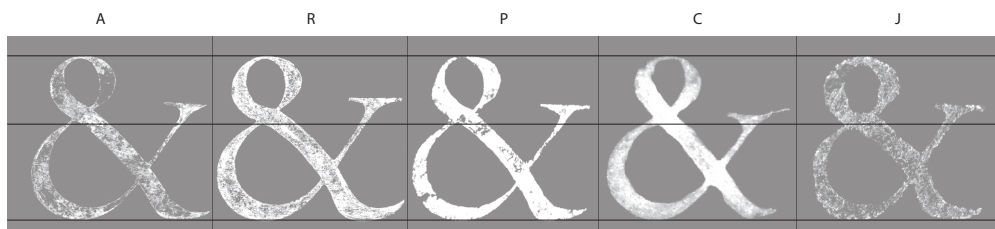
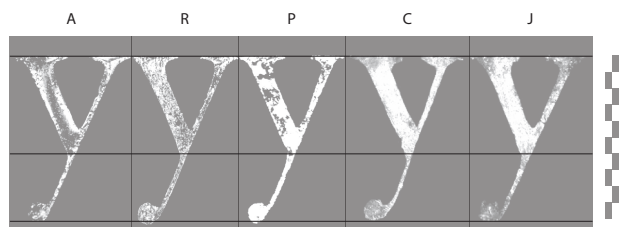
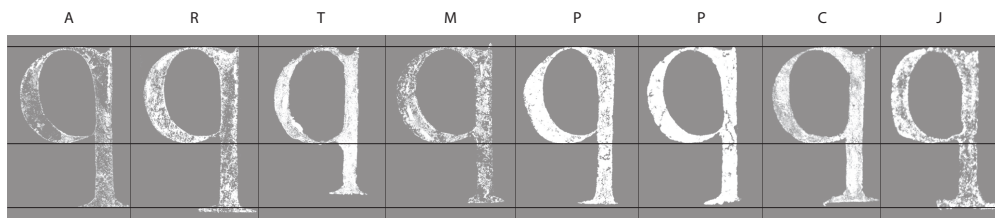
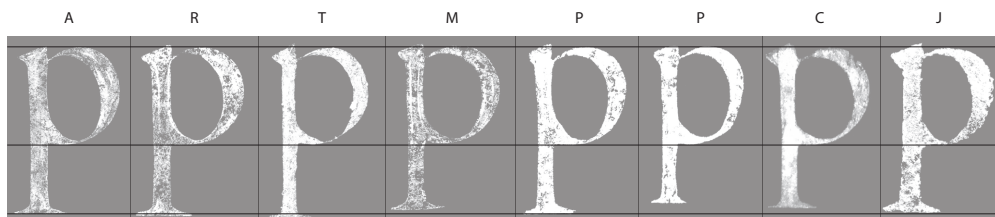
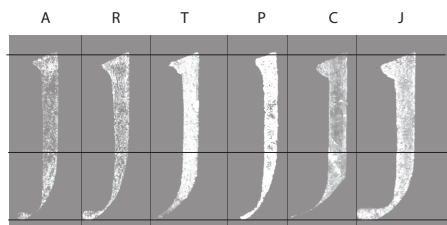
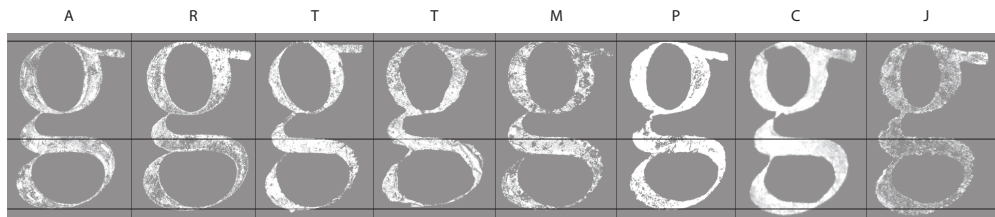
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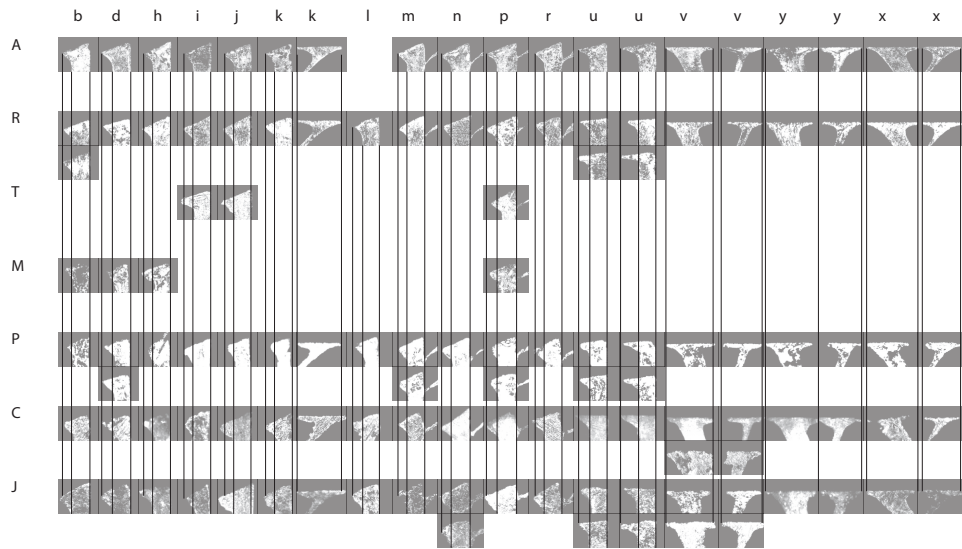
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Length of Descenders



## Shape and Length of Serifs and Terminals



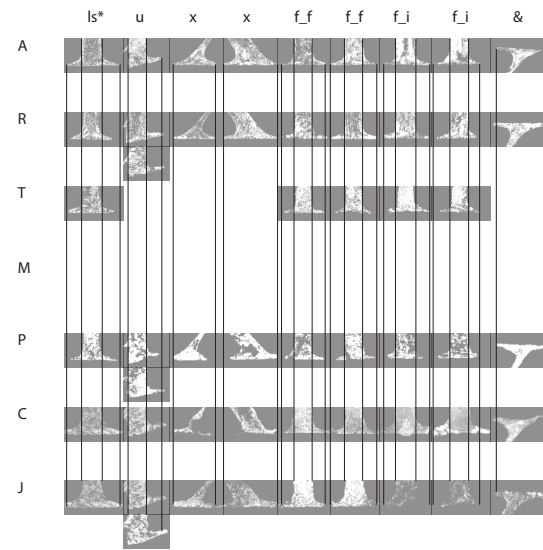
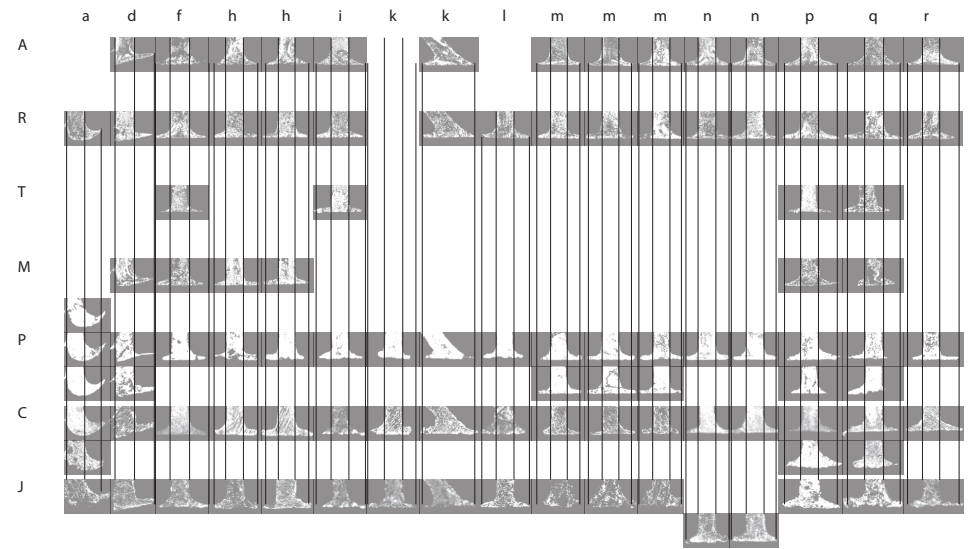
### Display sizes

A = Ascendonica  
R = Reale  
T = Texte

### Text sizes

M = Mediane sur la Philosophie  
P = Philosophie  
C = Coronelle  
J = Jolie

\* ls (long s)



### Display sizes

A = Ascendonica  
R = Reale  
T = Texte

### Text sizes

M = Mediane sur la Philosophie  
P = Philosophie  
C = Coronelle  
J = Jolie

\* ls (long s)

Overlapping:  
display type

abcdefghijklmnop  
ghijklm  
nopqrs

Display sizes

- Ascendonica
- Reale
- Text

stuvwxyz  
æœtēfffi  
A&

Display sizes

- Ascendonica
- Reale
- Text

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Characteristics  
of Text and  
Display  
Sizes in  
16th Century  
Flemish  
Roman Type

Overlapping:  
text type

abc def

ftu vxyz

ghij klm

æ ç è fff

no p qrs

A &

Text sizes

- Mediane
- Philosophie
- Coronelle
- Jolie

Text sizes

- Mediane
- Philosophie
- Coronelle
- Jolie

**Overlapping:**  
display and text type

abcdef

ftuvwxyz

ghijklm

æ œ t e f f f

nopqrs

A &

Display sizes

- Ascendonica
- Reale
- Text

Text sizes

- Mediane
- Philosophie
- Coronelle
- Jolie

Display sizes

- Ascendonica
- Reale
- Text

Text sizes

- Mediane
- Philosophie
- Coronelle
- Jolie

## Conclusions

Based on the close observation of the selected seven typefaces cut by Hendrik van den Keere in the period between 1570-1580, three of which are display (Ascendonica Romaine, Reale Romaine, Texte Romaine) and the other four are text typefaces (Mediane Romaine sur la Philosophie, Philosophie Romaine, Coronelle Romaine and Julie Romaine), some interesting revelations were made.

### 1 . C h a r a c t e r W i d t h

Similarities in character width between the seven research typefaces cut by Hendrik van den Keere are astonishing. Differences are minute. They refer to the: slightly wider 'm' second 'u' and 'æ' in Realle; narrower 'x','z','c\_t' and terminal of 'c' in Philosophie; wider 'p' and 'q' in Mediane sur Philosophie; narrower 'b','c','g','s','x','y','&' and wider 'm','n','o','u','æ','c\_t','f\_f','f\_i','f\_l' in Coronelle; wider 'b','e','e-ogonek','æ','k','m','u' and narrower 'g','n','&' in Jolie.

### 2 . C o u n t e r s

The counters of some of the text-size faces are larger than the display ones. That is very clearly visible on the overlapping in letters like 'a' and 'e' where the volume changes vertically. In letters like 'n','m','æ' and ligatures 'f\_f','f\_l' the counters increase their width. Those changes are most visible in Coronelle and Jolie Romaine, which are the smallest of the four text typefaces.

### 3 . C o n t r a s t

The contrast is toward high in all display types (Ascendonica, Reale and Texte). In Philosophie (the second large text type), it is almost identical to the mentioned display types, but slightly reduced with one idea heavier serifs and less crisp details. The two smallest text types, Coronelle and Julie differ most with middle contrast, longest chunky serifs and less detail (in Jolie those differences are more obvious).

### 4 . S t e m T h i c k n e s s

The stem thickness' are almost identical for all display and text types. Only in Texte Romaine they are slightly thinner while in Jolie Romaine they are a bit thicker. The difference are very subtle.

### 5 . A s c e n d e r s A n d D e s c e n d e r s

In all typefaces there are inconsistencies within each set e.g. the ascender of 'k' is the shortest (the 'h, l' in Jolie Romaine as well). On the other hand in 'd' the tendency is toward longer ascender. The descender of 'q' in most of the typefaces is shorter than the one in 'p'. In Texte Romaine it is almost grotesque especially considering that the extenders of that size are the longest )probably because it is following closely Garamond's Median).

Despite all inconsistencies within each set, the length of the extenders is one of the most obvious difference between all selected text and display types. Observing the comparison on

pages 16-17, the general impression is that ascenders are getting shorter with the reduction of the size. That is also visible following the dot of the 'i'. That of course suggests an increase in the x-high of the smaller text sizes, which is quite logical. Descenders, on the other hand do not show tendency of getting shorter with the reduction of size. Exception is 'q', which descenders are shorter in three of the text faces (excluding Julie).

## 6 . S e r i f s A n d T e r m i n a l s

Serifs and terminals within each of the typefaces are not of similar form, length and weight. For example if we compare the drop terminals of 'c','f' and long 's' in Ascendonica Romaine, we will see that the volume/weight in 'c' is substantially less. Some of the inconsistencies are probably caused by damage or excessive wear. The most substantial differences are in the smallest text-types Coronelle Romaine and Jolie Romaine, where both head and foot serifs become heavier/stronger and longer in comparison with the rest. However the same can not be said about Jolie's terminals with the exceptions of those in 's, z' and to a certain extend the drop terminal of 'f' which in weight is almost identical with the one in Ascendonica but more closed/slanted (facing down).

The comparison of the selected typefaces cut by Hendrik van den Keere leads to the conclusion that his approach to display and text type sizes was identical. The main differences in the text-sizes were the subtle reduction of contrast, increase of x-height (shorter extenders), increased counters, character width (in some cases) and length/weight of serifs. The smallest face Jolie also has the heaviest stems. All that suggest that it is probable the same model (construction, proportions, weight, width etc.) was used for all seven selected types, which may support Dr. Frank E. Blokland's theory about the standardization, systemization, and utilization in the production of type during the Renaissance. It would be interesting to continue this comparative analysis with types from other punchcutters (e.g. Haultin, Garamond, Granjon etc.) as well as making cross comparisons in order to find out more on how close those 16th Renaissance types follow the archetypal roman models of Nicolas Jenson and Francesco Griffo.

On the next page a brief summary of similarities and differences are presented in a table format.



## Summary of Conclusions

<b>name</b>	Ascendonica (display)	Reale (display)	Philosophie (text)	Jolie (text)
<b>year</b>	1576	1575	1578	1575
<b>Didot points</b>	18.5	17.3	9.5	5.6
<b>pica poits</b>	20	18.5	10.3	6.1
<b>mm</b>	7	6.5	3.6	2.2
<b>width</b>	normal (x-height = 6.25 stem widths)	identical with Ascendonica c and g are slightly wider	identical with Ascendonica	similar to Ascendonica exceptions: a, b, m, r, x
<b>weight</b>	regular	identical with Ascendonica	slightly less than Ascendonica	one idea heavier than Ascendonica
<b>contrast</b>	toward high	identical with Ascendonica	slightly less than Ascendonica	slightly less than Philosophie
<b>stem thickness</b>	≈% of x-height	identical with Ascendonica	slightly less than Ascendonica	similar to Ascendonica exceptions: e, g, h, o (thicker)
<b>ascenders</b>	7/10 of x-height (4 1/3 stem thickness)	identical with Ascendonica	identical with Ascendonica	identical with Ascendonica
<b>descenders</b>	g, y – same as ascenders; p – shorter; q – shortest; j – longer	identical with Ascendonica	identical with Ascendonica	identical with Ascendonica
<b>serifs</b>	triangular with bracket	identical with Ascendonica	almost identical with Ascendonica (a bit heavier)	longest and heaviest

## Acknowledgements

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Photographs by Krassen Kretev and Wouter van Nes (characters “f\_i from matrix-box MA20c [Text Romaine]; characters “v, x, y, z, æ, œ, c\_t, f\_i, f\_l” from punch-box ST21 [Coronelle Romaine]; characters “&, a, c, e, f, f\_f, f\_i, f\_l, g, j, n, o, p, q, s\_long, u, v, y, z, e\_ogonek” from matrix-box MA161 [Coronelle Romaine]; characters “œ, f\_i” from matrix-box MA70 [Jolie Romain]).

All photographs by courtesy of the Museum Plantin-Moretus.

## Author

Krassen Kretev (Sofia, Bulgaria, 1971) is a typographer, type designer and lecturer. He holds the following degrees: 2018 – Expert class Type design (Plantin Institute of Typography, Antwerp, Belgium); 2004 – TypeMedia (MDes, KABK, the Hague, the Netherlands); 2003 – Graphic Design (MDes, St. Joost Academy, Breda, the Netherlands); 1998 – Book and printed graphics (MFA, National Academy of Art, Sofia, Bulgaria). Currently he works as brand consultant, lecturer and runs his type-design studio TypeFarm (Sofia, Bulgaria).

Krassen has done workshops and presented on conferences like ING Creative Festival (Dubai), Sofia Design Week (Sofia), Typo Berlin (Berlin), Typo Fest (Sofia) etc. He took part in graphic design and typography exhibitions in Belgium (Antwerp), Bulgaria (Sofia), Czech Republic (Prague), Germany (Dusseldorf), Netherlands (Breda, the Hague, Rotterdam), Russia (Moscow), Sweden (Uppsala).

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Rhythm in Type  
Based on the  
Letters' Longest  
Continuous  
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Letters play a game of black and white. In that game, the continuous repetition of black and white creates a steadily progressing vertical and rhythmical stripe pattern, referred to as the rhythm in type. Readers conceiving the letters can perceive the rhythm as visually stressful. However, research into the rhythm in type is limited. The rhythm is only vaguely defined and there is no consequent way yet to exactly determine its position in letters.

In this article, I point to the less often discussed aspects of the rhythm. To advance research regarding the rhythm, I consequently position the rhythm with the new definition 'The rhythm in type is the sequence of the longest continuous black masses within the letters, in any direction.' This definition defines exactly where the rhythm in letters can be found and allows for more accurate comparisons of different rhythms within different letters, fonts and typefaces. This article provides an overview that summarizes how type designers can influence the shape of the rhythm.

**K e y w o r d s -**

*letterform*  
*stripe patterns*  
*rhythm*  
*font design*  
*research methods*  
*legibility*  
*readability*

Figure 1.

A legible text requires a balanced rhythm without unexpected interruptions in stroke width, letter width, or letter spacing (the image is based on Smeijers, 2011: 27; also illustrated by Unger, 2006: 95).

minimo use  
 minimouse  
 mini mouse

Figure 2.

The rhythm in serif and sans-serif typefaces differs (Bessemans, 2012: 169; Lo Celso, 2005: 21). A serif typeface contains a much more regular rhythm than a sans-serif typeface.

mini mouse  
 mini mouse

### The influence of the rhythm on reading

Letters alternate a stroke-rhythm and a white-rhythm (Lo Celso, 2005: 20) in a ‘sequence of vertical elements’ (Unger, 2019: 115; Bessemans, 2012: 155; Wilkins et al., 2007: 1788; Unger, 2006: 94; Majaj et al., 1998: 1165). Several parameters influence how this game of black and white is played. There are word spacing (Unger, 2006: 94), letter spacing (Unger, 2006: 94; Bessemans, 2012: 155), letter width (Unger, 2006: 94; Bessemans, 2012: 155), and I add the stroke width to this list. All letters apply these parameters in their own way, and it is only logical to say that the rhythm is different in each typeface and each font, being regular, bold, condensed, wide,... (Lo Celso, 2005: 21). The choice of the rhythm is one of the most fundamental decisions a type designer makes: how dark are the letters going to be (stroke thickness), and how wide are the letters going to be (spacing in-between the strokes: letter width and letter spacing)? Therefore, it is one of the most important elements of a Latin letter.

A legible typeface requires a balanced rhythm without unexpected interruptions in letter spacing, letter width, or stroke width (Smeijers, 2011: 27; Unger, 2006: 94) [Figure 1.]. Smeijers states that *“if we want to irritate the reader, we know what to do [with the rhythm: creating something like Figure 1. on top].”* However, a balanced rhythm does not necessarily mean a very rigid rhythm. Proof is found when serif and sans-serif typefaces are compared. Those two contain a different rhythm (Bessemans, 2012: 169; Lo Celso, 2005: 21). A serif typeface contains a more rigid rhythm than a sans-serif typeface [Figure 2.].

The rhythm is not only an ornamental part of the letters. It influences the letters’ effectiveness and the visual (dis)comfort while looking at letters during the reading process:

- The stripe pattern created by the rhythm can be uncomfortable to look at and can arouse illusions of color, shape, and motion (Wilkins, 2012: 64);
- The stripes interfere with reading. There even can be a difference in reading duration (Jainta et al., 2010): reading words such as “mum” takes longer than words such as “dad” (Wilkins et al., 2012);
- A less rigid rhythm improves the letters’ legibility for children with a visual impairment (Bessemans, 2012: 336);
- A less rigid rhythm can increase the speed of word recognition (Wilkins, 2007: 1788);
- The stripes from the letter strokes correlate with spatial frequencies, which can be hindering for readers sensible to visual stress, particular readers suffering from migraine (Wilkins, 2007: 1801);

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Consequently positioning the rhythm in type based on the letters’ longest continuous black mass

Large letters are identified by the edges of their shapes, small letters by their strokes (Majaj et al., 1998: 1165).

Designers are taught that the Oldstyle letter model from around 1450 contains an irregular rhythm due to wider round letters such as the letter 'o' (e.g. taught by Gerry Leonidas during the summer course TDi at Reading University, 2018). Letters gradually became more equal in width. In the contemporary early twenty-first-century letter model, round letters such as the 'o' are narrower (Unger, 2019: 116). Therefore, the contemporary letter model contains a more regular rhythm.

The height of the rhythm increased over time because the x-height increased in the last five centuries, while ascenders and descenders lengths decreased.

### A more accurate definition for the rhythm in letters

Despite knowing that the rhythm has an influence on the reading process, there is no exact definition of the rhythm yet. Defined as 'the sequence of black and white,' or as 'the sequence of strokes,' the rhythm is easily found in letters with a straight vertical stroke. But these definitions leave open the rhythm's position for interpretation when letters have no straight vertical strokes such as in round shapes, and say nothing about the height of the rhythm. Only Bessemans (2012: 155) suggests a relation with the x-height but leaves open further refinement. A new definition should:

Describe where in the letter the rhythm is positioned;

Describe exactly the rhythm's height; independent from being uppercase or lowercase letters, or being ascenders (a stroke going higher than most letters) or descenders (a stroke going lower than most letters);

Describe how round shapes should be treated;

Describe how white spaces relate to the rhythm. These white spaces are present in, for example, round shapes or in shoulders (the rounding such as present in a letter 'n');

Describe how serifs relate to the rhythm, as they are wider than strokes and thus form no part of those strokes.

Be measurable by a computer. A 'stroke' is a concept that a computer does not understand, so a more exact concept is required. Additionally, a stroke can bend in several directions, an example is the shoulder, or a stroke can be drawn in overlap with other shapes such as the serifs. In those cases, which part of the stroke should be regarded as part of the rhythm ?

Inspiration for a more accurate definition is inspired by the field of engineering. Engineers play a similar game of black and white as letter designers, but in their case they do so with the section of beams. Such sections of beams often have the shape of a Roman capital letter 'I' or letter 'T'.

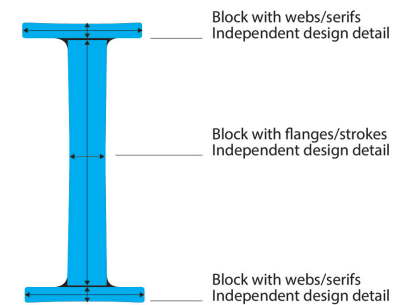
In a way, engineers regard a section as a composition of different 'building blocks' (the horizontal parts are named flanges, and the vertical parts are named the web). The amount of "mass" in a section determines the beam's resistance against bending, while larger white counters mean less material costs (Course at Provincial University College PHL, 2008; based on ir. E.O.E. van Rotterdam, 2000). The proportions of the blocks are changed independently from each other to optimize the beam's strength. [Figure 3, top] and engineers possess catalogs full of tables representing different 'I' and 'T'-shaped beams that are commercially available (e.g. ArcelorMittal, 2020).

Introducing a similar point of view into type design would mean looking at letters as different blocks of "black mass" which belong together [also Figure 3, top]. Each block can be changed mostly independently: if a serif changes, the stroke does not always need to change and vice versa. When looking to letters as blocks, the block which contributes most to the rhythm is the longest stroke. If a block has a rounding, then it can partly contribute to the rhythm [Figure 3, bottom]. What does not contribute to the rhythm are the blocks forming the serifs, nor does the white space. Serifs are wider than the vertical stroke, thus do not contribute to the (same) rhythm. The white space does not form a part of the black mass in a letter, so does not contribute to the rhythm.

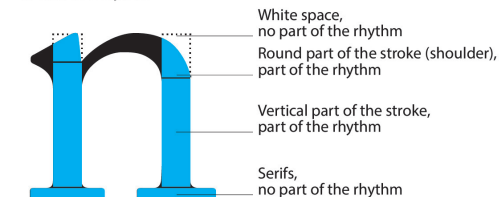
Figure 3.

The top figure represents a capital I for a type designer, but also the section of a beam for an engineer. Engineers can regard each part as an individual block and change its dimensions to provide the beam enough resistance against bending. A type designer can look at a letter in a similar way: changing the block with the serifs does not always mean a change in the block with the stroke. Bottom: dividing letters in similar blocks allows for an analysis of each part differently.

**A capital letter 'I' or a section of a beam?  
In both cases, it can be looked at as a constitution  
of independent 'building blocks'**



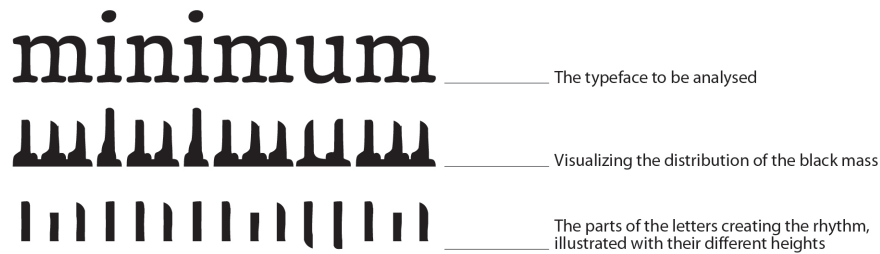
**Using different blocks within a letter  
to find the rhythm**



With the different building blocks of letters and white spaces in mind, I propose the definition *'The rhythm in type is the sequence of the longest continuous black masses within the letters, in any direction.'* This definition groups blocks that have a similar appearance (or direction) while eliminating blocks that do not contribute to the rhythm (such as the serifs and white spaces).

A 'longest continuous black mass' can be determined by measuring it. One possible way to do so is drawing a graph and measuring the distribution of the mass over several points [Figure 4, middle]. After the position of the longest continuous black mass is found, it can be cut out in the letters [Figure 4, bottom].

Figure 4.



Drawing the vertical distribution of the black mass in a graph is a fast way to find the position of the longest continuous black mass. The graphs are created by "The Rhythm Influencer", a plugin that is able to determine the rhythm in several letters, aiming to support designers in their design process (Renckens, 2020a).

Note that, according to this definition, serif and sans-serif typefaces contain a different rhythm height [Figure 5]. Treating stroke lengths and serifs separately is not yet done in earlier definitions of the rhythm, but the presence of serifs is a parameter that shortens the stroke length.

Figure 5.



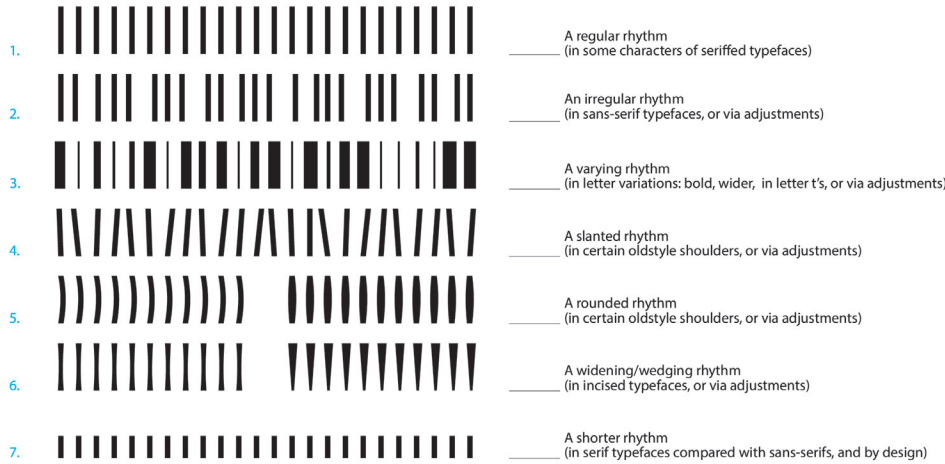
When the rhythm is defined as the 'longest continuous black mass,' Serifs become another design parameter that influences the total height of the rhythm. The presence of serifs becomes another way to compare the rhythm of serif and sans-serif typefaces. Typefaces: Verdana (sans-serif), Myriad Pro (sans-serif), Georgia (serif), Vivace (serif, designed to hide the rhythm by shortening and bending it).

### Handling non-straight rhythms

But not only vertical stripe patterns are known to be possibly harmful to look at. Other patterns are known to have similar effects. Official regulations to avoid seizures mention "A potentially harmful regular pattern contains clearly discernible stripes when there are more than five light-dark pairs of stripes in any orientation. The stripes may be parallel or radial, curved or straight, and may be formed by rows of repetitive elements such as polka dots" (Harding & Wilkins, 2005; Harding et al., 2005; British Independent Television Commission, 2001).

Also in letters, the rhythm is not always straight, nor a sequence of identical forms, nor always vertical. The 'longest continuous mass' forming the rhythm can take on several shapes [Figure 6]. In all those occurrences, the different strokes still are one 'continuous black mass' [Figure 7], so the definition remains valid. Three different examples of occurrences will be discussed in more detail. Please note that there are more adjustments possible, which do not form a part of the type design. For example: (1) using gray instead of black/white is known to decrease the visual discomfort as well (Jainta, Jaschinski & Wilkins, 2010) and (2) making the type size larger decreases the number of stripes within the visual range.

Figure 6.



Formal features that the rhythm can contain (partly based on Renckens, 2018). The rhythm can contain several of those formal features at the same time.

Figure 7.

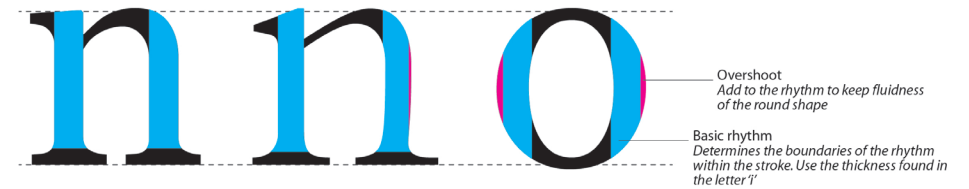
A curve still can be the longest continuous black mass within a letter.



**O c c u r r e n c e 1 :**  
**determining cut-offs**  
**for the rhythm within**  
**round strokes**

When a stroke changes direction, such as in a shoulders or round letterforms, the new definition allows setting the cut-off for the rhythm [Figure 8, left]. The remaining cut-off (gray in the figure) determines which part of the round stroke contributes to the rhythm. If a letter contains no straight part, then it is recommended to look at the thickness of the rhythm found in the letter 'i' to determine the width of the cut-off.

Figure 8.



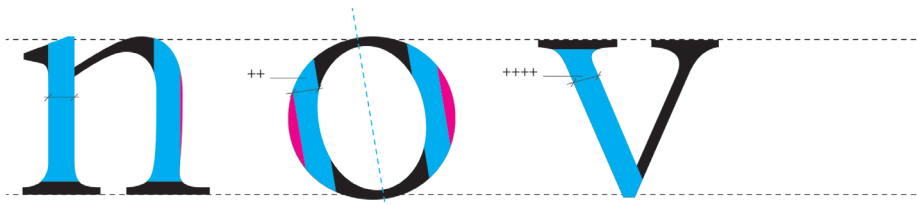
The rhythm in rounded forms according to this definition. First, determine the rhythm according to the longest continuous black mass. That determines the cut-offs. Then, include possible overshoots.

It is seen that the position of the rhythm in round letterforms, such as the ones from the letter 'o' or in rounded shoulders, does not lie completely at the left/right sides of the letter [Figure 8, right, colored darker gray]. Round forms have an overshoot on the left/right sides, similar to the overshoots that round forms have below the baseline and above the x-height (meaning: round letters are a little bit higher than the other letters). If an overshoot is found, it should be incorporated within the rhythm to honor the fluid roundness of the original design.

**O c c u r r e n c e 2 :**  
**the longest**  
**continuous black mass**  
**under an angle**

The longest continuous black mass is not always positioned vertically. That is, for example, very clear in letters 'o' with a slanted axis. If the axis of a letter is slanted, then the longest continuous mass is slanted as well [Figure 9, middle]. Other examples are letters containing diagonals, in which all letter strokes are drawn under an angle [Figure 9, right].

Figure 9.



The n, o, and v of the Bembo, illustrating that the longest continuous black mass is not always vertical. When the axis of a letter is slanted, then the longest continuous mass will probably be slanted as well. The rhythm under an angle is slightly thicker than the vertical strokes, according to Noordzij (2005).

If the longest continuous black mass is positioned under an angle, the definition can be applied as before. But it is recommended to apply Noordzij's (2005) translation theory on the rhythm. Noordzij states that the width of a pen stroke differs depending on the angle you draw the line on. A stroke under an angle is thicker/thinner than a vertical pen stroke. When determining the rhythm under an angle, it is advisable to adjust the thickness of the rhythm according to the thickness of a calligraphic pen stroke.

**O c c u r r e n c e 3 :**  
**the end of the rhythm**  
**within non-demarkated**  
**crossings such as serifs**

It often occurs that the transition between strokes and serifs is not clearly demarcated. In those cases, when the transition is unclear, the centroid (center of gravity) is the only mark that is present in any shape and engineers rely on this centroid for calculations on rounded/irregular shapes (Hibbeler, 2007: 10). It is positioned in the geometric center of the shape: if a shape is held by its centroid, it is in balance and will not turn around.

The centroid provides a consistent way to distinguish the end of the rhythm and the beginning of the serif. To define the centroid(s) within the transitions, divide the letterform again in blocks. Create separate blocks of the transitions between the stroke and the serif [Figure 10.]. Draw a dividing line between the two centroids.

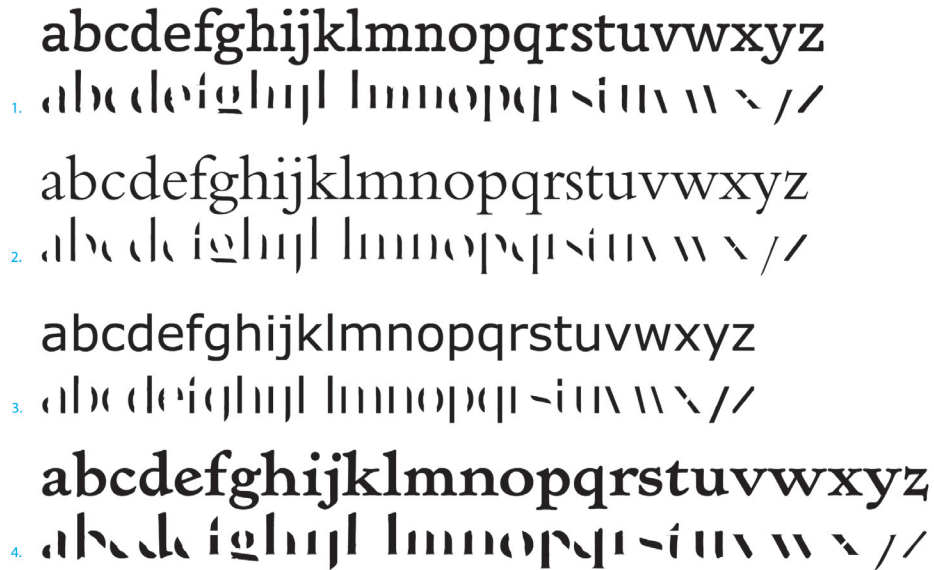
Figure 10.



Drawing a line between the centroids on non-demarkated transitions enables the separation of serifs and strokes in a consistent way.

Figure 11 shows that the new definition fits on all letters. The only letters which for now behave as an exception are the letters 'y' and 'z'. In the letter y, the thinner stroke is always longer than the thicker stroke. In the letter z, that is sometimes the case, depending on the design. In these letters, the definition positions the rhythm in the thinner stroke, while the thicker stroke would be expected in accordance with the other 24 letters. At the moment, there is no information if the length of the stroke is more important than the thickness of the stroke; thus the letters 'y' and 'z' should remain treated this way till research provides more input.

Figure 11.



The new definition of the rhythm is exemplified for several typefaces. The typefaces are shown with an equal x-height for comparison. Typefaces: Vivace (by Maarten Renckens), Bembo (Francesco Griffo), Verdana (Matthew Carter), AT Hariano (unknown designer).

### The rhythm in future studies and designs

The new definition *'The rhythm in type is the sequence of the longest continuous black masses within the letters, in any direction'* provides a measurable position about the rhythm in all letters. With this knowledge, researchers are now able to evaluate the effect of the rhythm in type on the reading process more effectively:

- Accurately compare the possible formal features of the rhythm [Figure 6];
- And determine their influence on the reading process;
- Accurately compare the spacing, width, and height of the rhythm;
- And determine their influence on the reading process;
- And determine the minimal height of the rhythm before there is an effect on the reading process. A minimal height can be added as a threshold to the definition;
- Compare the rhythm of several typefaces, such as for example the evolution of the Old Style letter model with wider letters o's, versus the contemporary 21<sup>st</sup>-century letter model (as described by Gerard Unger).

Later, the results of these legibility studies should return to type designers in the form of guidelines explaining how the rhythm influences the reading process. Type designers generally assume that a regular rhythm is required for a visually balanced text but are often not aware that their design choices have an influence on the reading process. As long as the influence of the rhythm on the reading process is not fully studied, designers can only guess about the effectiveness of their designs.

Practical output of this definition is illustrated in the ongoing project *"Rhythm Influencer"* (Renckens, 2020a, Renckens, 2020b). This project aims to gradually implement knowledge about the rhythm in design tools. In its current iteration, this Glyphs plugin analyses the rhythm in letters via the black mass (at the moment of writing, it only supports vertical analysis). Based on the rhythm, the plugin is able to automatically sketch variations on a letter such as the regular, bold, extended, condensed,...

I invite other designers and researchers to challenge the ideas described in this article, to advance the knowledge about the rhythm in letters, and to develop more knowledge about the rhythm's influence on the reading process.

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Consequently positioning the rhythm in type based on the letters' longest continuous black mass



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## Author

Maarten Renckens is a teacher and design researcher with a love for letters and a heart for people. Dealing with a reading difficulty himself, he is very interested in the reading process. His past projects include the typeface 'Schrijfmethode Bosch' (Writing Method Bosch) that learns children in how to write, and typefaces to encourage young readers and readers with hearing loss to read more expressively. With a background in architectural engineering, he is used to approach drawings mathematically. He applies this technical knowledge to unravel letterforms and to classify them in groups, in order to determine the effects of different letterforms on the reading process.

The Influence of  
Macrotypography  
on the  
Comprehensibility  
of Texts in Easy-to-  
Read Language:

an empirical study

Sabina Sieghart

Easy-to-read language (Leichte Sprache) is a tool for barrier-free communication. In Germany, easy-to-read language is utilised by means of a set of rigid rules. In practice, the rules for typography tend to promote uniform design. From a linguistic viewpoint, different types of text are not differentiated, while from a visual viewpoint, the design is not genre-specific. This interdisciplinary study investigates whether the target group uses typographical features for purposes of text comprehension and can recognize different types of text.

Six different types of text were investigated, three of which were present both in a genre-specific design and in easy-to-read language. In total, nine design examples were tested by 38 participants in the study (24 people with so-called mental handicaps and 14 so-called functional illiterates). The data of the study was triangulated with a structured interview and a written selection procedure.

The results show that the participants possess graphic knowledge and draw on this in their reception of texts. A genre-specific design enables them to make conclusions about the content of a text without even reading a word. Texts in conventional design were consistently assigned to the correct text type better than texts in generic "easy-to-read" design. This also applied to text types whose linguistic level means they are not used in everyday life by the target group of easy-to-read language. The specifications of the easy-to-read rules make it more difficult to apply graphic knowledge when reading, and more difficult to categorize texts according to their genre. The resultant design is recognised by the participants and associated with institutions for the disabled. This is a sign that a new (dysfunctional) genre has emerged here.

The target group with reading difficulties needs an optimum design for its reading materials. We may assume that a conventional, genre-oriented design is better suited than a uniform design according to the hitherto rules. One of our research aims is to determine how to adjust the design to aid the target group. The present study offers initial suggestions as to what might be the decisive parameters.

**K e y w o r d s -**

*easy-to-read language*

*typography*

*graphic knowledge of poor Readers*

comprehensibility of texts in easy-to-read language. The impact of macro-typography<sup>3</sup> and its significance for textual comprehensibility have been thematized several times in design research, but it has not yet been examined empirically with the target group of easy-to-read language readers. Both disciplines have meanwhile recognized that the linguistic and visual translation into easy-to-read language can make a contribution to the comprehensibility of a text. However, there has as yet been no interdisciplinary research project to investigate the functionality of the design requirements. The present study aims to fill this lacuna.

We here investigate the comprehensibility of products in easy-to-read language from both a linguistic and a visual/rhetorical perspective<sup>4</sup>. Our focus is not on details of typography and design; instead, we ask to what extent a typical macro-typographical design might in itself offer hints as to the content of its text. We tested six different printed products for two target groups of easy-to-read language: people with so-called mental disabilities, and so-called functional illiterates.

We are presenting the results of this interdisciplinary study from the perspective of both disciplines, in two sister articles. The linguistic pendant to the present article by Bettina M. Bock is being published in the *Zeitschrift für Angewandte Linguistik (ZfAL)* of de Gruyter-Verlag.

### 1. Problem outline

The current LEO study<sup>1</sup> has observed that 6.2 million adults in Germany have problems reading and understanding short texts (Grotlüschen et al., 2019). Their reading ability is insufficient to participate fully in society. For example, only 50% of those questioned felt confident enough to change their electricity provider (Grotlüschen, 2019). International studies, such as the PIAAC Study<sup>2</sup>, have found that the numbers are similar in all 33 countries investigated. On average, 15.5% of people aged 16–65 in OECD countries are poor at reading or are illiterate (OECD, 2013).

A measure employed in Germany and elsewhere to mitigate this lack of ability to read on the part of one sector of the population is “easy-to-read” language. It is a tool for barrier-free communication that has meanwhile become visible everywhere in public life. Electoral programs are translated into easy-to-read language, and the German railways are just one of several companies that use it on their website. This is not least a result of ratifying the UN Convention on the Rights of Persons with Disabilities on March 26, 2009. Companies and authorities have since then simply been compelled to communicate in a barrier-free manner. But for them it is not just a legal requirement and a social duty, but also an economic issue if they want to reach a heterogenous target group.

Easy-to-read language is meant to simplify texts and make their content comprehensible for their target group (Netzwerk Leichte Sprache, 2013). Up to now, designers have hardly been involved in this complex task of providing comprehensible communication. Most current brochures, websites, contracts, and newspapers in easy-to-read language are designed by laypeople (Sieghart, 2017:498 and Sieghart, 2019:127). Rigid rule books determine the use of specific typefaces, font sizes, line spacings, layouts, images, and paper. But these rules, to a certain extent, contradict good design practice and the current state of legibility and readability research (Deutscher Designtag, 2020).

For several years, these rules and their practical implementation have been the subject of scholarly research. Linguists examine the readability of texts for the target group, and recently, design researchers have also been investigating the visual factors that contribute to the

1 Conducted in 2018, the second Level One Survey (LEO 2018) assesses the reading and writing skills of the German-speaking adult population. [https://leo.blogs.uni-hamburg.de/wp-content/uploads/2019/07/LEO\\_2018\\_Living\\_with\\_Low\\_Literacy.pdf](https://leo.blogs.uni-hamburg.de/wp-content/uploads/2019/07/LEO_2018_Living_with_Low_Literacy.pdf)

2 PIAAC – International Survey of Adult Competencies is an international comparative survey initiated by the Organization for Economic Cooperation and Development (OECD) and aims to assess key adult competencies.

### 2. Contextual foundations

#### 2.1.

#### German Easy-to-Read practice

German easy-to-read documents are primarily created in the Arial font and adhere to a uniform design. The reasons are to be found in the rigid rules employed, policies and in a special aspect of design practice.

The German rules for easy-to-read language were developed out of the ideas of the international people-first movement, a self-empowerment movement of people with mental impairments. Their design rules were first fixed in the “Regelkatalog zur Vereinfachung von Sprache” (“Catalogue of rules for simplifying language”; Netzwerk Leichte Sprache, 2013). In 2014, the Federal Ministry of Labor and Social Affairs published the “Ratgeber Leichte Sprache” (“Guide to easy-to-read language”, BMSA, 2014). This catalogue of rules assumed particular importance by being published by a federal ministry.

3 Macro-typography and micro-typography form a complex system to create legibility (Cornelius, 2017: 30ff). Micro-typography makes a text *legible* on a micro-level, whereas macro-typography structures and orders it on a meta-level and can make the text *readable* (DIN, 2013). Whether or not the text is then understood is not, however, guaranteed – a book in an unknown language, for example, remains incomprehensible, however readable the typography might be.

4 Visual rhetoric analysis the effects and modes of operation of designed things by applying concepts from traditional rhetoric theory and practice to the field of design (see Joost and Scheuermann, 2008).

Sieghart  
The Influence of Macro-typography on the Comprehensibility of Texts in Easy-to-Read Language

These rules have been made permanent by design practice. The design of texts is usually just something “included” by the translation offices of social facilities. The producers of these texts (such as social pedagogues) usually have no typographical knowledge and so adhere strictly to the published rules. Their choice of font is guided by the highly restricted possibilities of Microsoft Word. All the fonts mentioned in the rule catalogue of the BMSA are free system fonts of MS Word (Sieghart, 2019:127). One reason for the strong presence of social institutions in the field of easy-to-read language is that it places a special challenge before translators: Only when a test group has read the text and confirmed its comprehensibility and conformity with the rules can this text be described as having been published in easy-to-read language.

Documents in easy-to-read language can be recognized by the choice of font (Arial in at least 14 pt.), the wide line spacing, the different length of lines, the use of single columns of text, and the placing of images beside every paragraph. These typographical specifications have, in part, been adopted and further recommended by linguistic researchers without actually being tested (Bredel and Maaß, 2016). Additionally, the publication of their “Ratgeber Leichte Sprache” (“Guide to easy-to-read language”, Bredel and Maaß, 2016) by Duden has given it the seal of officialdom – because the “Duden” is the main dictionary of the German language today and is synonymous with correct language and spelling (Weiss, 1995:7). In this guide book, Bredel and Maaß propose a *typographical basic format that should be employed for all texts in easy-to-read language* (Bredel and Maaß 2016:266), and they state that no typographical changes should be made, regardless of the function and type of the text in question.

Design researchers like Moys, on the other hand, have shown the importance of visual presentation on the initial impressions people make about documents (Moys, 2011, 2013 and 2014), and Waller has presented several arguments that suggest Clear Print guidelines do not sufficiently consider the nuances of typographic presentation that can aid how people engage with and understand a text (Waller, 2011).

2 . 2 .

**Current state of research**

Several international studies have engaged with the macro-typographic impact of typography on well-versed and “poor” readers. A metastudy that examined studies on legibility with people with reading impairments from 1926 to 2007, and that also analyzed typographical practices and theoretical texts, reached the conclusion that there is never one factor that is decisive for good readability. It is only the (successful) combination of factors that makes texts readable. *Each typographic choice affects the other* (Lonsdale, 2014:61).

A study by Cohen and Snowden (2008) with people without reading impairments demonstrated the connection between familiarity with a document and one’s reading performance. Cohen and Snowden assume a “document mental model”. The user will recognize typical structures in a document and thereby be better able to comprehend and process the new information in it. As an example, they mention a menu in which the price of a dish is usually placed to the right of its name. In order to correspond to the “document mental model” that people have learned, this structure must be maintained; the result is that a customer in a restaurant will be quicker to grasp the information on the menu.

Two metastudies into easy-to-read texts from Great Britain have shown just how heterogeneous are the research approaches and methods of the discipline. Typographical aspects are paid hardly any attention. However, they describe the impact on understanding of adding illustrations. One important factor is the reader’s familiarity with symbols, which have to be learned just like a language. Then they can have a positive effect (Poncelas and Murhy, 2007 and Jones, Long and Finlay, 2007 in Sutherland and Isherwood, 2016:305). Ticks or crosses next to the text that are intended to symbolize “good” or “bad” were not understood, however (Codling and MacDonald, 2008 in Sutherland and Isherwood, 2016:305). The second metastudy, which focused primarily on “accessible information” in the healthcare sector, proved that information is better understood when it is tailored individually. However, the authors noted that this is true for every target group (Dickinson, Hamrosi, Knapp et al., 2013 in Chinn and Homeyard, 2016:10). Establishing accessible communication had a positive effect on the collaboration of groups with and without reading impairments. People with impairments profited from their role as authors and specialists in their own living environment. The researchers criticized the lack of practical investigations, especially with regard to how people with mental impairments receive information intended for them, and what reading strategies they employ (Antaki, Finlay, Walton, Pate, 2008; Morgan, Moni, and Cuskelly, 2013 and Moni, Jobling, 2001 in Chinn and Homeyard, 2016:10). These authors also emphasized the multimodality of language. Content is communicated by the choice and coordination of elements of varying degrees of significance (such as words, images and gestures) (Kress, 2010 in Chinn and Homeyard, 2016:10).

A study employing blind readers carried out by Bertelson, Mosuty, and D’Alimonte (1985) showed that Braille readers can read some 30% quicker when they can touch the macrostructural form of a text with one hand (Maaß and Bredel 2017:265). This could also be proof of the significance of the typographical macrostructure for the reading process.

Only a few studies have up to now engaged in an empirical investigation of the visual rules of the prominent German easy-to-read guide books. Alexander has carried out several studies with her students. An analysis of the three current sets of rules showed that ca. 50% of the rules apply to typography and image use, even though they ignore important fundamentals of design (Alexander, 2019:20). She complains that the complex conglomerate that is typography has been simplified, that there are too many detailed rules, and that the result is an unattractive design and a composition that is considerably different from standard typography. One of the studies compares a text in typical easy-to-read design with an optimized text in which typographical dividing elements have been employed. The result was not unambiguous, however, in part because too many factors were altered for the researchers to draw conclusions about the efficacy of individual factors (Alexander, 2019:138).

Above and beyond this, there are numerous design course textbooks that engage with issues of micro-typography and macro-typography. One fundamental rule states that the line spacing must always be determined individually for every typeface, font size, and line length, and that there cannot be any universal line spacing such as is suggested by the rules for easy-to-read language (Willberg and Forsmann, 1997 and 1999), (Lupton, 2007), (Cornelius, 2017).

## Theoretical foundations

The present study is an interdisciplinary collaboration between textual linguistics, applied design, and design research. Findings from cognitive psychology have also influenced its theoretical foundations. We know today that some features are perceived automatically and immediately, e.g., a bold or a big form amongst regular forms. These “pop outs” happen at an *early preattentive level* (Triesmann, 1985:158) and are *hardwired in the brain, not learned* (Ware, 2008:32). These features are recorded in parallel and later assembled *into coherent objects* or a meaningful whole (Triesmann, 1985:158) Ware calls the pop-outs “sensory codes” in contrast to “arbitrary codes”, which are learned like language, for example. Most visualizations are hybrids: *There is an intricate interweaving of learned conventions and hardwired processing* (Ware, 2004:19). The sensory codes would be particularly important for the target group of poor readers because they are perceived before further processing.

Mayer dealt with the interaction of images and texts in his “Multimedia Learning Theory”. He describes Multimedia Learning as a demanding process that requires selecting relevant words and images; organizing them into coherent verbal and pictorial representations; and integrating the verbal and pictorial representations with each other and with prior knowledge (Mayer, 2005:46). He also refers to the given abilities of the human brain when he concludes: *Multimedia messages that are designed in light of how the human mind works are more likely to lead to meaningful learning than those that are not* (Mayer, 2005:47). Here, too, the question arises as to whether these fundamental insights, which were gained with people without reading impairments, do not also apply to the group of poor readers.

Visual rhetoric and the principles of appropriateness and comprehensibility form important links between the disciplines here. A new analysis tool based on the principles of appropriateness (referred to as *aptum* in classic rhetoric) and comprehensibility was developed out of this study (see outlook and Bock and Sieghart, 2019).

Analytical methods follow the theories of Tywman, Kostelnick, and Waller using genres and patterns. Waller states that as soon as we leave the level of the words themselves, the information conveyed by design becomes more and more important:

*Above the sentence – at the level of paragraphs, sections, chapters, or stories – we become increasingly less dependent on syntax and more on the presence of explicit structural or cohesive cues.* (Waller, 2012:10)

The combination of font size, text arrangement, image use, and the proximity or distance of images and texts allows the reader to apply reading strategies. Typical design norms have thereby arisen that allow the reader to differentiate between a newspaper and a contract at just a glance. These design norms are given names in everyday practice (such as newspaper, brochure, website), and design research calls them “genres” (Waller, 1987 and 2017). Genre-typical design offers readers indications as to how they should use the text, and what reading strategies they might apply. In this, the macro-typography provides an accessible structure for the text. Its function is inscribed in the macro-typographical elements of the layout, which in design research are called “patterns” (Delin and Waller, 2010). Such a pattern solves a design problem, such as by creating hierarchies. Headlines and image/text combinations in a newspaper enable the reader to skim over the text and to choose an interesting article for closer reading. Patterns function because they have been adapted directly to our percep-

tual system, not just because we have learnt them. Headlines, for example, are set in bigger, bolder type and are thus recognized quicker than the smaller, running text.

The repeated use of macro-typographical elements in genre-typical combinations creates a “supra-textual language” (Kostelnick, 1996). Readers learn these supra-textual conventions and are able to link them up with their extant reading knowledge and then apply that knowledge to their current reading process. People without reading impairments recognize a design genre at first glance thanks to these supra-textual conventions, even before they have read a word of the text in question. The type of design lets them draw conclusions about the significance of the text, its originator and the credibility of the information it contains (Moys, 2014). But this functions only when we have recourse to a common visual language (Tywman, 1979).

Whether or not the target group of easy-to-read language possesses this type of visual knowledge has hitherto remained uncertain; the present study aims to fill this research gap.

## 3. Empirical study

### 3 . 1 .

#### Point of departure and research question

The impact of “typographical features” on the reader has already been demonstrated in studies with people without reading impairments (Moys, 2014). Readers were able to discern the genre and type of information from an initial impression (Moys, 2013). Readers of easy-to-read language are often deemed not to possess this ability. For example, Bredel and Maaß assume that

*one’s knowledge and command [of these features] arises from a passive and active participation in textual practices either general or specific, and such participation is either partially or wholly absent in the case of the primary addressees of easy-to-read language.* (Bredel and Maaß 2016:195f.)

An initial, qualitative reading study as part of the linguistic section of the LeiSA project<sup>5</sup> showed, however, that the target group generally possesses knowledge of different text types even when they have lesser reading abilities, and that they are able to apply this knowledge (with varying success) when reading (Bock, 2019:56ff; see Bock and Lange, 2016). Specific text types were understood with varying degrees of accuracy, also depending on how abstract they were (for example, an article on human rights as opposed to an instruction manual). What’s more, there were individual differences in the manner and extent of knowledge about text types and the ability to grasp the pragmatic dimension of texts. A large number of participants in this previous study also belonged to the group examined in the present study.

5 “Leichte Sprache im Arbeitsleben” (LeiSA) of 2014-2018, supported by the Federal Ministry of Labor and Social Affairs (funding code 01KM141109); project head: Saskia Schuppener, University of Leipzig.

In the reception study, the focus was on macro-typographical design and its contribution to textual comprehensibility; this applied both to the readers (1) and to the text (2): (1) Does the target group use the macro-typographical design to help them understand the text? (2) Does typical easy-to-read language design improve understanding of the text when compared to conventional, genre-typical design?

3 . 2 .

### Methodological procedure

The structure of the study was conceived by the present writer in close collaboration with the linguists Bettina M. Bock and Daisy Lange. Julia Schmidt assisted with evaluating the results.

3 . 2 . 1 .

### Choice of text type and test materials

For this study, we chose nine representative designs of six types of text, using linguistic and typographical criteria to make our choice. When selecting our examples, we were able to draw on the corpus from the LeiSA study that included 792 documents in easy-to-read language in their multimodal form. We chose three typical texts: a contract, a newspaper, and a poster in easy-to-read language. We also looked for equivalents for each in “difficult” language (again, a newspaper, a contract, and a poster). The other test examples we used were a novel, an operating manual, and a menu. This enabled us to cover all the following text types: news, contract, menu, operating manual, novel, and notice/advertisement.

When choosing the prototypical design examples, we relied on the expertise of the present writer, who is a trained graphic designer and a lecturer in typography. This is the method proposed by Waller because only an experienced, practicing designer has the specialist knowledge necessary for identifying typical examples, as he or she possesses the “emic perspective” (Waller, 2017:4) that can enable them to choose both the best example of a genre and also an example that is typical, i.e., that also possesses the typical mistakes and dysfunctionalities of the genre (such as the notoriously bad design of operating manuals).

All linguistic information was removed from the chosen documents. Their image information was also made unrecognisable in order to remove any hint as to the content of the actual text. The documents were otherwise copied exactly. The fonts, line spacings, grid, colours,

- A Newspaper in difficult language (Das Parlament)
- B Newspaper in easy-to-read language (Das Parlament)
- C Operating manual (for an HP printer)
- D Novel
- E Poster/Notice
- F Notice in easy-to-read language (Obb. region)
- G Contract in difficult language (DRL)
- H Contract in easy-to-read language (Caritas)
- I Two Menus

FIGURE 1 Selected prototypical designs

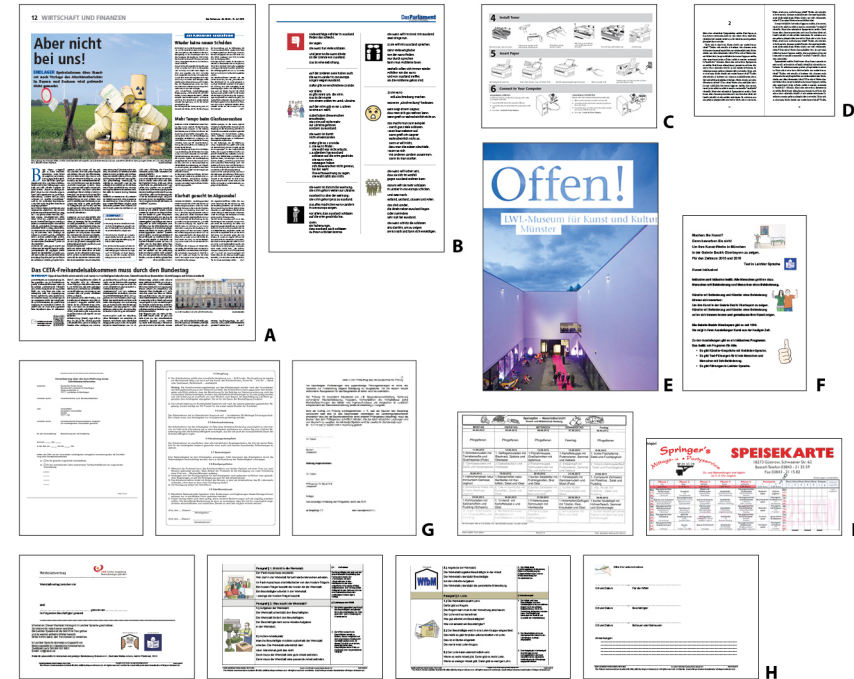
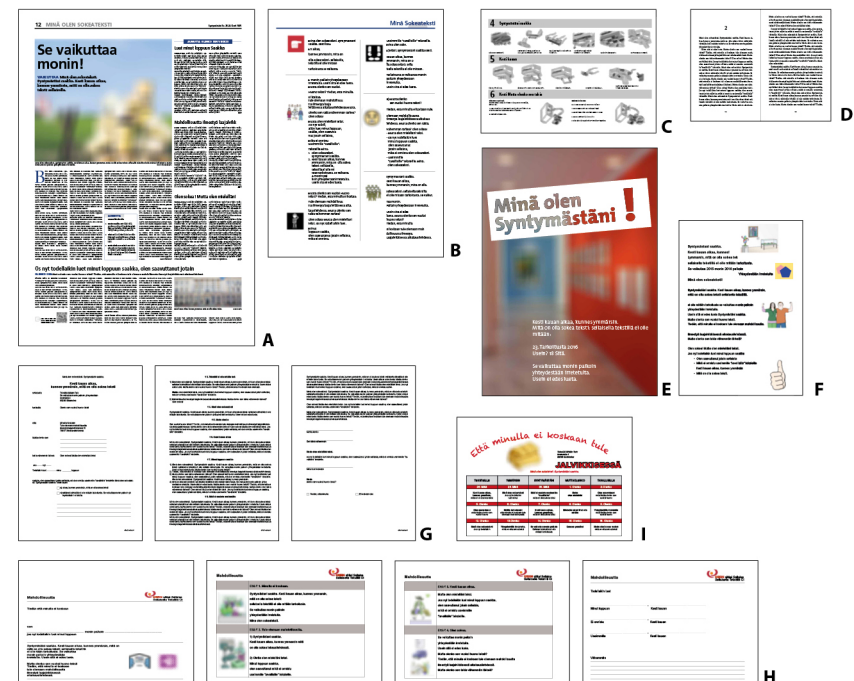


FIGURE 2 Test sheets with dummy text and distorted images



graphic elements, format, and paper were kept as they were. The text itself, however, was replaced by a dummy text in Finnish (because the length of its words and its capitalization correspond roughly to that of German). The pictures were processed using blur filters, rotations, and mirror imaging until only their colour world and their original position were the same as before. The result was nine test sheets that were identical to the originals in all their micro-typographical and macro-typographical details, but which were “unreadable” in linguistic and visual terms. From a textual linguistic perspective, all linguistic and non-linguistic elements had been deleted that would enable one to draw conclusions about text type aspects such as topic/content, linguistic acts, and text function. The levels of style and formulation, however, were assessed semiotically and reduced to the typography and materiality of the text type in question (see Fix et al. 2003:219).

3 . 2 . 2 .

### Participants in the study



FIGURE 3

Test group  
Even the typical types of paper were kept when making the sheets.

The LeiSa study was organized in a participatory manner, i.e., the people who were to be investigated participated in the research process themselves as “experts” in their own everyday reality. There are several different models for doing this. This study was carried out with a so-called focus group (Goldbach and Bergelt, 2019:17). This focus group comprised 30 people with so-called mental disabilities and 20 so-called functional illiterates. They were not just the test subjects but also participated in reflecting on the methodologies and results. This study involved 38 people from the focus group, 24 people with so-called mental disabilities and 14

so-called functional illiterates. They were aged between 20 and 65, with an average age of 41.8 years. Selection criteria for the participants with a so-called intellectual disability were employment in a workshop for people with disabilities and the confirmation of a diagnosed mental retardation. The functional illiterates had participated in a basic education course with a literacy component or were members of an appropriate self-help group. A further criterion was reading skills, which should be as heterogeneous as possible within the group. The reading comprehension was determined by means of the “Ilea. diagnostics”-tool (see Kretschmann and Wieken, 2010), which is designed for the differentiated assessment of basic reading skills based on six so-called alpha levels (Kretschmann and Wieken, 2010:236–240): In the corresponding linguistic article, the selection criteria and individual degrees of reading competence of the participants are described in-depth (Bock, 2020:15ff).

3 . 2 . 3 .

### Method

The data for this study was generated using two methods. In the first method, the participants’ associations were assessed using a structured interview. The second was a written selection procedure with single-choice answers. By triangulating both methods, we were able to safeguard our interpretations during the evaluation process. The quantitative data did contribute to the clarification of the qualitative data and vice versa.

#### Examples of questions in the interview

- What type of text could this be? Do you have a name for such texts? (This was intended to get the participant to identify the text type, and to find out their designations for text types and genres.)
- Where might this text appear? (To get the participant to identify the text type, and to find out their designations for text types and genres.)
- For whom might the text be intended? (To get the participant to identify the context in which the text might appear, and its communicative situation.)
- Who is supposed to read the text? (To get the participant to identify possible addressees.)

#### Examples of the single-choice questions (in the genres newspaper/text type “news”)

- The text is an excerpt from the Bible (to get the participant to identify the text type or genre).
- The text could hang on the wall as a poster (to get the participant to identify the context in which the text might appear, and its communicative situation).
- You can buy this sort of text at a kiosk (to get the participant to identify the context in which the text might appear, and its communicative situation).

A pilot study was carried out with 14 linguistics students, after which the test sheets and questionnaires were slightly revised. On the day the test was carried out, two studies were processed in a session lasting a maximum of 60 minutes. The macro-typographical study required between 20 and 40 minutes, depending on the individual participant. The participants were able to take the test sheets in their hands and look at them according to the amount of time they needed individually. Depending on their respective speed, they were presented with a different number of test sheets (the criterion for breaking off the test was the maximum processing time). The text-type associations were initially gathered as audio

files by means of an open, oral, guided interview. Then the single-choice questionnaire was filled out. There were three possible answers, according to which the statement made was “correct”, “not correct”, or “I don’t know”. The sequence of statements offered was varied; there were three variants for each questionnaire. The statements were either read by the participants or read out by the person conducting the session. The participants were required to explain their choices verbally. These audio files were then transcribed<sup>6</sup> and evaluated in a reconstructive, hermeneutic procedure that was primarily focused on the content (see the basic assumptions and principles in Kruse 2015:384ff.). The data was analyzed and interpreted by two researchers in order to ensure intersubjectivity; in cases of doubt, a third person was brought in to evaluate the data. Attention was paid to the quality of the statements made, as also to the precision of oral formulation, the rigor of the associations and descriptions offered, contradictions in the content, and the quickness and directness with which the participants made their statements. We also paid attention to aspects of interaction and sequentiality. In methodological terms, we must note that the interviews did not take place according to any “natural” process of reception and that the linguistic limitations of the participants meant it was not possible to determine with complete certainty whether we might distinguish between the difficulties they experienced in expressing themselves and their actual difficulties in comprehending different genres. This was compensated for in part by triangulating the two methods.

3 . 3 .

### Summary of the study and quantitative results

The quantitative data was enumerated for every test sheet. Some participants were unable to look at all the test sheets for lack of time, which meant that we had a different number of participants for the individual test sheets. Two participants were not considered in the evaluation because they showed a strongly one-sided tendency in their answers.

FIGURE 4 Quantitative results of the questionnaire answers

Text type		News	News ETR	Contract	Contract ETR	Poster	Poster ETR	Novel	Menu	Manual
Participant No.		N=36	N=36	N=35	N=35	N=26	N=26	N=26	N=35	N=35
Percentage of answers (rounded off)	correct	83.28	45.14	78.21	48.93	74.52	68.27	86.06	76.43	78.21
	wrong	10.8	41.32	13.57	36.79	18.27	18.75	6.73	11.79	13.93
	don't know	5.91	13.54	7.86	13.93	7.21	12.98	7.21	11.43	7.86

The proportion of correct answers for genre-typical design was between 76.43% and 86.06% and thus considerably higher than the number of wrong answers. For the test sheets in easy-to-read language design, this difference was smaller, lying between 45.14% and 68.27%. What's more, the proportion of “don't know” answers was higher for texts with many wrong answers. This suggests that “don't know” answers can be interpreted as uncertainty in assigning the text type. With the test sheets offered in both design types, it is striking that the error rate was considerably lower for conventional design than for easy-to-read design. There are also fewer “don't know” answers. This lets us surmise that the participants consistently recognized genre-typical design better.

6 See the Appendix for a transcription of the signs used.

The qualitative data support these findings, and also provide more differentiated insights into the graphic knowledge of the test participants. We shall describe these hereinafter, together with a design-theory analysis of the genres. The statements made by the test subjects offer information into what patterns were recognized and how they drew conclusions about the genres in question.

## 4. Interpreting the results from a design-research perspective, qualitative results

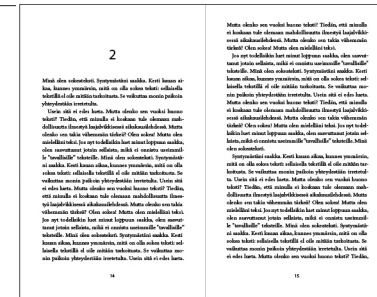
4 . 1 .

### Novel / Book

FIGURE 5

Test Sheet 1: Novel

20% of original image size



The text type “novel” corresponds to the genre “book.” This test sheet was only available in conventional design. Given their difficulty in reading, we could not assume that the test subjects would read novels. Nevertheless, this test sheet had the highest score in the quantitative survey, with 86.06%. The qualitative survey provided an emphatically similar result. Several participants recognized the book unambiguously and quickly:

“That’s a book.” (P40\_ZLe),  
 “I recognize it straightaway.” (TC21\_HHu)  
 “Yes, it looks familiar somehow. A bit like a book.  
 (.) A page of a book.” (BZ25\_HOR)

„Das is 'n Buch.“ (P40\_ZLe),  
 „Das erkenn ich sofort.“ (TC21\_HHu)  
 „Ja, das kommt mir irgendwie bekannt vor. Wie  
 so 'n bisschen vom Buch. (.) 'Ne Seite vom Buch.“  
 (BZ25\_HOR)

This was determined by the size of the sheet, among other things; the word “format” was also mentioned:

“(I // / perhaps) like a small book.” (TI51\_ZLe)  
 “Well, / like a KIND of small book, with a format  
 like this.” (SI51\_HOR)

„(Ich // / Vielleicht) wie 'n kleines Buch.“ (TI51\_ZLe)  
 „Na so / so 'ne ART kleines Büchlein, so wie das  
 dieses Format hat.“ (SI51\_HOR)

The double-sided design also hinted in the same direction:

“Because it’s got two pages, I think (.) and that //  
 that can only be // only be a book.” (P40\_ZLe)

„Weil das zwei Seiten sind, denk ich mir, (.) und das  
 // das kann nur 'n // nur 'n Buch sein.“ (P40\_ZLe)



The layout was also recognized:

“(Well) that’s typical, here the // (...) layout and //”  
(CC58\_HOR)

„(Also) das is typisch, hier so die // (...) Wie’s angeordnet is und //” (CC58\_HOR)

The chapter layout with the page numbers also seemed to indicate a book:

“Book, really the pages are always here below. (...) The two up there, that could perhaps be (like a) chapter somehow // First chapter, second chapter. (...) Of a novel, perhaps.” (EL50\_LCI)

„Buch, eigentlich stehen ja so Seiten immer hier unten. (...) Die Zwei da oben, das könnte vielleicht (wie ’n) Kapitel irgendwie // Erstes Kapitel, zweites Kapitel. (...) Von ’nem Roman vielleicht.” (EL50\_LCI)

“Well because that here // the // the two before is (perhaps) the second chapter or suchlike. (...) or second story.” (JW47\_HOR)

„Na weil da hier das // die // die Zwei davor is, (vielleicht) wegen ,s zweite Kapitel’ oder so. (...) Oder ,Zweite Geschichte.” (JW47\_HOR)

“From the numbers (a) fourteen, page fourteen, page fifteen, that could be a book.” (RV49\_ZLe)

„Aus den Zahlen. (’Ne) vierzehn. Seite vierzehn, Seite fünfzehn. Das könnte ’n Buch sein.” (RV49\_ZLe)

The font size was also a topic:

“(...) Because it’s printed as small as that, there//”  
(EI27\_HHu)

„(...) Weil so klein wie das geschrieben is schon, da //” (EI27\_HHu)

The associations as to what kind of book it might be are also interesting: Those mentioned were a novel, fairy tales, a love story, a thriller and (eleven times) the Bible. A book can depict diverse types of text. One participant summed this up in detail:

“It could be an advertisement, it could be a // (...) (well, wait a minute,) what else is there? It could be a thriller. Could be a // (...) thriller. What else is there? There are fairy tales, (...) what else? Stories. (...) and what else? Stories, fairy tales, thrillers (...) and novels. Int could be one of these four possibilities.” (BW55\_LCI)

„Es könnte ’ne Werbung sein, es könnte ’n // (...) (Na warte mal,) was gibt’s ’n noch? Es könnte ’n Krimi sein. Könnte eine // (...) Krimi. Was gibt’s ’n noch? Gibt’s Märchen. (...) Was gibt’s ’n noch? Geschichten. (...) Und was gibt’s noch? Geschichten, Märchen, Krimi (...) und Romane. Die vier Möglichkeiten könnte ’s sein.” (BW55\_LCI)

Some immediately recognized a book that seemed to be well-known to them:

“That’s from the Bible. (...) That’s what I say. (...) When little texts like that are in the Bible.” (EG20\_HHu)

„Das kommt aus der Bibel. (...) Sag ich jetzt mal so. (...) Wenn solche kleinen Texte in der Bibel stehen.” (EG20\_HHu)

“It’s like out of a Bible, when you read a text like that (...) or from a book.” (TC21\_HHu)

„Wie aus so ’ner Bibel, wenn man so ’n Text liest. (...) Oder aus (ein) Buch.” (TC21\_HHu)

“Novels perhaps. (...) Or a Bible.” (P40\_ZLe)

„Romane vielleicht. (...) Oder ’n Bibel.” (P40\_ZLe)

“That looks like a Bible. (...) There are stories in it. (...) Or like Moby Dick.” (ST27\_HHu)

„Das sieht aus wie bei ’ner Bibel. (...) Da sind Geschichten drinne. (...) Oder wie bei Moby Dick.” (ST27\_HHu)

One explanation is surely that several participants live in an institution run by the Church. On the other hand, the Bible is one of those books (along with philosophical and historical works) that long determined the genre of the “book.” If we look at an edition of the works

of Julius Caesar from 1475<sup>7</sup>, published by the printer and typographer Nicolas Jenson, it is striking how little the typical design features of this genre have changed in the past 550 years. Our prototype – printed in 2010 – is similar in how it uses text, line spacing, and measure. This unremarkable design has the function of providing the reader with as concentrated and unhindered a reading experience as is possible. The individual chapters are marked by a graphic indication that diverges from the strict layout of the rest of the text. In the historical example, this is done by a striking initial letter; in the contemporary novel it is done by a number placed in the middle of the page. Here, the zeitgeist becomes visible. The function does not change; by being placed outside the running text, a disturbance is created that announces the beginning of a new chapter to the reader and, at the same time provides a point of orientation in the text. The page numbers also serve as orientation points.

When we look closer, the ostensibly unobtrusive pattern of the running text is actually highly complex. Nicolas Jenson used a typeface he himself created that is extremely easy to read. This is partly because of the balanced form of the letters, but also partly because of his typographic configuration. Centuries later, the typographer Beatrice Warde coined the phrase “crystal goblet” for it. With this, she means a typographic design that becomes invisible, as it were, enabling the reader to concentrate completely on the text and its contents (Warde, 1955).

The high degree of legibility of the “Jenson” typeface can be explained by its Humanist design, its open, easily distinguishable letter forms, and the balanced contrast in its stroke widths. This typeface was immensely different from those commonly in use (Germany, for example, used Broken Script/Black Letter!) and had a major impact on design, down to the present day (Olocco, 2017). “Jenson” and typefaces of the same family, such as “Minion” used on our test sheets (designed by Robert Slimbach in 1990) are very legible because they make optimum use of the physical and cognitive parameters of our reading ability (see Tiefenthaler, 2019 and Pool, 2019).

This functionality is also created by the typography. The letter spacing, word spacing, line width, line spacing, and composition are all optimized for the reader’s needs. The line length, for example, is oriented on the possibilities and limitations of the eye. Today, we know that the next line will begin after 50 to 70 characters per line; when there are a lot more characters per line, the eye cannot cope properly (Cornelius, 2017:148). When text is justified left and right and well balanced, it also creates a pleasant rhythm that promotes deep, prolonged pleasure in reading. Jenson’s number of characters per line is exactly conceived within this bandwidth, and the perfectly balanced justified text of the old, professional lead typesetters is an ideal that is barely attained even today with the technological means at our disposal (since the loss of the profession of the typesetter).

There are two further features that everyone can grasp, even without understanding the complex process of reading. All novels have broad margins and a certain format. The function of the margins is obvious – we need a certain amount of space to be able to hold the book, and if we want to be undisturbed when reading, then we do not want to have our fingers obscuring the text. The format is also derived from the physical needs of the user. Books that are too big are not ergonomic and people do not like using them.

7 <https://specialcollections.vassar.edu/exhibit-highlights/2001-2005/Incunabula/>

image6.html or <https://www.antiquetrade gazette.com/print-edition/2018/september/2360/>

[auction-reports/15th-century-venetian-edition-of-julius-caesars-commentarii-takes-19-000-at-sothebys/](https://www.auction-reports.com/15th-century-venetian-edition-of-julius-caesars-commentarii-takes-19-000-at-sothebys/)

Even though this historical background and the functionality of the individual patterns will hardly have been well known to our participants, they nevertheless recognized the typical patterns of this genre. Their free associations with regard to format, layout and the function of chapter and page numbers were astonishingly accurate and detailed. This suggests that they have indeed learned the “semiotic resources” (Spitzmüller, 2006:233) or the “supra-textual language” (Kostelnick, 1996), even though they have a low level of literacy.

4.2.

News / Newspaper

FIGURE 6

Test Sheet 2: News/Newspaper

20% of original image size



Typical patterns for a newspaper are the format (in this case, 40 x 57 cm), the paper, and a clear grid (here in six columns) that features images and text.

Different headline formats and configurations for the running text create hierarchies, and a header serves to orient the reader, offering the column title (here in capitals), the page number, and the number of the edition. Readers can thus orient themselves quickly across the whole of the newspaper, and they will even be able to match individual pages to the relevant edition several days later. The title story is usually introduced with a combination of a headline and an image. Here, the image has a large title, followed by a subhead. Under the image there is the image caption with a typographical label for the copyright. The beginning of the title story is marked by an initial over six lines; in this way, one recognizes immediately which text is the most important on this page.

The running text is in ITC Giovanni in 9 pt. with a line spacing of 10.8 pt. Frutiger was used for the display typeface – Frutiger bold in 76 pt. and Frutiger bold condensed in 22 pt. for headlines; Frutiger bold in 9 pt. was used for image captions, Frutiger black and Melior black in 18 pt. for the sub-headlines, and Frutiger black in 9 pt. in capitals for the beginnings of texts and subheadings. Simply listing the fonts and font sizes here demonstrates the complex typographical concept of even an average newspaper. In addition, this page used an information box and a reference to another medium (with a QR code).

We can explain the function of micro-typography and macro-typography by taking the headline at the top right as an example. It is centered in the blue box and is in a negative, white type and summarizes the three articles that are given below it. This is done by means of the darker (blue) color value and the lines that extend the text box. They show the breadth of the column, i.e., here two columns are used for each text. The three texts themselves each have a left-aligned headline in the same font format, one to two introductory words, a running text that is fully justified, and an abbreviation for the author's name that closes the text and is right-aligned. The main text extends over four columns plus the information box and is held together visually by the image and the headline. The fifth article extends over six columns, four of them with text and two with a picture. Here it is important that the headline is five columns long, because otherwise the image could not be clearly associated with the correct text.

A baseline grid unites all the elements. The line spacing of the running text determines the spacing between the baselines. All the texts, including the larger headlines, sit on these baselines. This effect, called “register accuracy”, is a prerequisite for readability on thin, transparent, rotary offset paper. Only when the higher black content of the small letters is placed identically on the front and back of the page can a constant gray value emerge, and it is possible to avoid the black print from the opposite page becoming visible in the empty white space on the other side.

The test sheets reproduced these typographical details exactly. Even the materiality was imitated – in this case, the typical paper used for newspapers, which was a natural paper of 90 g. (for reasons of cost, we had to put our newspaper together from A3 sheets).

The text type “news” and the chosen genre of “newspaper” achieved a success rate of 83.28% in conventional design, making this almost as easily recognizable as the book. The easy-to-read design was far less often recognized correctly, at 45.15%.

And yet in June 2016, the German Parliament expanded its weekly newspaper *Das Parlament* by adding a four-page, detachable supplement in easy-to-read language in order to disseminate current political concepts and topics in words and images, appropriately prepared in comprehensible language by experts. The newspaper in “difficult language” keeps to the traditional design that is typical of the genre, whereas the supplement largely follows the guidelines for easy-to-read language.

Siegwart

The Influence of Macro-typography on the Comprehensibility of Easy-to-Read Language

The test subjects recognized the newspaper straightaway:

“That’s a newspaper.” (BZ25\_HOR)  
“That’s // a typical newspaper sheet.” (CC58\_HOR)

„Das is ‘ne Zeitung.“ (BZ25\_HOR)  
„Is so das // (so das) // typisch Zeitung blatt.“  
(CC58\_HOR)

The newspaper was recognized ...

... “by the layout.” (H48\_ZLe)

... „An der Aufmachung.“ (H48\_ZLe)

and its format:

“First, it’s as big as a newspaper.” (CC58\_HOR)  
“(And) the size //” (GN55\_HOR)  
“Yeah, first of all there’s the SIZE ...” (ST42\_CJD)

„Erstmal is es schon so groß wie ‘ne Zeitung.“  
(CC58\_HOR)  
„(Und) das Große //” (GN55\_HOR)  
„Ja erstmal schon die GRÖSSE...“ (ST42\_CJD)

The images were also an indication:

“Because that’s // because that’s big, because it’s,  
more the type / articles are on it. (.) A picture’s on  
it, or pictures are on it. And you can (read it better).”  
(S47\_ZLe)  
“It’s the pictures...” (FZXX\_CJD)

„Weil das // weil das groß is, weil das is, weil mehr  
Art/ Artikel drauf sind. (.) ‘N Bild da drauf sind, oder  
Bilder mit drauf sind. Und da (kann man besser)  
lesen.“ (S47\_ZLe)  
„Eben die Bilder...” (FZXX\_CJD)

This participant mentioned the combination of image and headline and the information box:

“The picture and (.) the headlines are printed bold  
like in a newspaper. (.) And that whole page looks  
like a newspaper.” (S151\_HOR)  
“And that here, that’s an explanation of this picture.  
/ The big one. And this one here // here it says what  
you mustn’t do. (.) It’s divided into three (the box)  
... because // this picture and this / this part here  
with it. (.) And because that here is right next to it.  
It’s/ divided up for the picture. (.) You can do it like  
that, you’ve got to do it like that, and not like this.”  
(GN55\_HOR)

„Das Bild und (.) die Überschriften fettgedruckt wie  
in der Zeitung. (.) Und da sieht mir das ganze Blatt  
wie ‘ne Zeitung.“ (S151\_HOR)  
„Und das hier, das is ‘ne Erläuterung zu diesem Bild.  
D/ Das große. Und das hier // Hier steht, was man  
nicht machen darf. (.) Die drei Mal aufgliedert  
(Kästchen) ... Weil // Dieses Bild und diese/ dieses  
Teil hier dazu. (.) Und weil da das hier direkt  
daneben is. Als Aufg/ Aufgliederung für dieses Bild.  
(.) So kann man’s machen, so muss man’s machen  
und so sollte’s man nich machen.“ (GN55\_HOR)

The volume of text was another feature:

“because there are so many letters and little pictures  
here.” (BZ25\_HOR)

„Weil hier so (..) viele Buchstaben und Bildchen sind.“  
(BZ25\_HOR)

The topline with the date was noticed several times:

“Well. There’s also the date up there, or // twenty-  
eight, twenty-nine (that’s what it is) (.) Hm.”  
(CC58\_HOR)  
“First, because of the typeface, and (then) the  
number at the top and the // the (.) date and  
everything. (.) You can recognize it.” (P40\_ZLe)  
Well, yeah. (.) (And then / Yes. / Hm.) (.) Yes, and  
perhaps because the DATE here, well, the date too  
maybe. But I can’t any more / No.” (ST42\_CJD)

„Na ja, steht auch noch ‘s Datum drauf, hier oben,  
oder // achtundzwanzig, neunundzwanzig, (so  
heißt das) (.) Hm.“ (CC58\_HOR)  
„An die Schrift, erstens, und (dann / an) oben die  
Zahl und die // die (.) Datum und alles. (.) Erkennt  
man das “ (P40\_ZLe)  
Ja, ne. (.) (Und dann / Ja. / Hm.) (.) Ja, und weil  
vielleicht auch hier das DATUM, ne, das Datum  
vielleicht auch. Aber mehr kann ich jetzt nicht / Ne.”  
(ST42\_CJD)

Different articles were also identified:

“Because of the articles that are in it.”  
(TM55\_CJD)

„Wegen die Artikeln, die drinne stehen.”  
(TM55\_CJD)

The headlines also contributed to the genre being recognized:

“Yes, because of the headlines. A lot. (..) The  
headlines and how it’s all divided up. (.) Well there  
(are) yes, er (.) ‘h er texts that perhaps someone  
// (.) something important might be in it which is  
important to (.) everyone. Let’s say that, or where  
he can get information.” (FT57\_CJD)

„Ja, durch die Überschriften. Viel. (..) Die  
Überschriften und in der Hinsicht, wie das Ganze  
dann aufgeteilt is. (.) Also da (sind) ja äh ‘h (.) äh  
Texte, was vielleicht jemand // (.) was Wichtiges  
drinnesteht, was für jeden (.) zählt. Sagen wir mal  
so, oder wo er sich informieren kann.” (FT57\_CJD)

The structure of the right-hand article and its headline were mentioned specifically:

“Yes. They belong together, because of this writing  
above (and) (.) (somewhere) behind it.”  
(GN55\_HOR)

„Ja. Diese gehören zusammen, weil hier oben diese  
Schrift (und) (.) (irgendwo) dahinter.”  
(GN55\_HOR)

The test subjects had precise notions about the type of newspaper:

“(4) Either the SZ or the Sächsische Zeitung. (.) One  
of those two.” (E127\_HHu)  
“A newspaper (...) (Maybe) the Sächsische Zeitung  
or (.) the Wochenkurier. (.) (But) that one doesn’t  
look like that.” (TC21\_HHu)  
“It could be a (.) daily paper, like a Volkszeitung or (.)  
like there is in every federal state in Germany, like  
where we are. (.) I would say, a daily newspaper.”  
(EL50\_LCI)

„(4) Entweder die SZ oder die Sächsische Zeitung. (.)  
Eins von den beiden.” (E127\_HHu)  
„‘Ne Zeitung. (...) (Gar) die Sächsische Zeitung oder  
(.) Wochenkurier. (.) (Aber) die sieht nich so aus.”  
(TC21\_HHu)  
„Das könnte ‘ne (.) Tageszeitung sein, so wie ‘ne  
Volkszeitung oder (.) in jedem Bundesland, wie bei  
uns, gibt. (.) Ich würde sagen, so ‘ne Tageszeitung.”  
(EL50\_LCI)

This participant also made suggestions as to the content:

“Well, because it’s a newspaper. It usually has stuff  
about what’s happening right now. (.) And there’s  
also politics. (So it’s) all mixed.” (TNXX\_CJD)

„Na ja, weil das ‘ne Zeitung is. Da steht ja meistens  
über Dinge, was grad passiert. (.) Und Politik ist  
auch dabei. (Also/is) alles gemischt.” (TNXX\_CJD)

The supplement in easy-to-read language uses the “Thesis the Mix” font, which is based on the Humanist style and is actually very legible. However, its typographical details ruin it. The line spacing is not only suboptimal, but also varies from one paragraph to the next, sometimes even from one line to the next; one moment it is 16.7 pt., the next 16 pt., 25 pt., 19 pt. or 18 pt. No optimal line spacing is ever attained. Poor line spacing hinders the reading flow and counteracts the eye’s ability to recognize the structure of paragraphs and series items. To mitigate this, the text begins with lines that are supposed to divide up the individual articles. But the top-line is reduced in format, giving the newspaper’s logo in miniaturized form, and does not include either the date or the issue number of the paper, which means its functionality is lacking. Apparently, it is assumed that people with reading impairments need no such points of orientation.

FIGURE 7

Test Sheet 3:  
News/Newspaper easy-to-read

20% of original image size



It is also unclear why the possibilities of the layout are not utilized. This is published as the supplement to a standard newspaper; it can refer back to the news given in “difficult language,” and explain the title story in language appropriate to less capable readers. This title story always picks up on a current event, with a representative photo. But these images are not used in the easy-to-read supplement, which instead offers generic illustrations. This results in absurdly incongruent moments in the content. For example, in the issue about the attack on Charlie Hebdo, the “Prophet Mohammed” is explained by means of an illustration showing Christian pilgrims carrying a cross (Bock and Sieghart, 2019). In a workshop with students, some of whom also had reading difficulties, this supplement design was harshly criticized. The students said they would never want to go public with such a childish newspaper. *If you have to do something like this, then it should look cool! I'd be ashamed to read it.* (Sieghart, 2018:41).

The newspaper in easy-to-read language was not recognized as a newspaper by the test subjects. Some suspected it to be a poster, others a set of operating instructions or a fire-hazard warning. It was only because some of these concepts come under the text type “news” that the test sheet got 45.14% correct answers.

This participant offered an apt description of the design:

*“They’re showing something (here) that // that // (4) They’re showing a few images and a few sentences alongside them.”* (RV49\_ZLe)

*„Die zeigen (hier), was // was // (4) Die zeigen hier 'n paar Bilder und dazu stehen paar Sätze.“* (RV49\_ZLe)

The participants tried to discern some meaning from the blurred images:

*“That could be (4) a // well, I'd say (.) it could (.) hang on the wall of a company. (.) °H Maybe a fire warning // (.) that kind of information board. (.) I'd say so. Where // is the assembly point? °H Where is the (.) Red Cross or the fire extinguisher? (.) I don't see anything looking like a fire extinguisher or something // Hm. I suspect something like that. (.) Or // there's a bunch of people here. °H Hh° Yes, I // (.) don't know now, what I should //”* (EL50\_LCI)

*„Das könnte (4) eine // °H Ich sag jetzt mal (.) es könnte (.) in 'ne Betrieb hängen. (.) °H Wenn jetzt wegen Brandschutz // (.) so 'ne Infotafel. (.) Würd ich jetzt sagen. ,Wo // Wo is der Sammelpunkt? °H Wo is der (.) Rotkreuz oder Feuerlöscher? (.) Ich seh zwar keinen ähnlichen Feuerlöscher oder was, das // Hm. Ich vermute mal sowas. (.) Oder // Hier sind 'n Haufen Menschen. °H Hh° Ja, ich // (.) Weiß ich jetzt nich, was ich dazu //”* (EL50\_LCI)

The participants recognized the images as being complementary to the content of the text, in line with their intended function according to the easy-to-read language rules. They then tried to decipher them:

*“These signboards. (..) with these pictures you get the impression that that's what it is. (.) Signs. (..) A // So that // There/ So that what's written here, (.) more precisely // (.) Well. If you're too // too lazy to read, you can recognize it.”* (GN55\_HOR)

*„Durch diese Schilder. (..) Bei die Bilder hat man den Eindruck, dass das so is. (.) Hinweisbilder. (..) Eine // Damit die // Da/ Damit das, was hier steht, (.) genauer // (.) Tja. Wenn man zu // zu faul is zum lesen, zu erkennen is.“* (GN55\_HOR)

They also tried to decipher the content:

*“I'd say (it would) offer information where people maybe have to / (.) Hm, how can I / er / Maybe what you can do, in the building, if you can't read properly, like me. Perhaps, yes / (So /)”* (ST42\_CJD)

*„Ich würde sagen, (es soll) eine Information, wo vielleicht die Leute darauf hin/ (.) Hm, wie kann ich das / das äh / Was man vielleicht da machen kann, in das Gebäude, wer nich richtig lesen kann, wie ich. Vielleicht, ja / (Also /)”* (ST42\_CJD)

The research person (RP) repeats that ST42\_CJD believes the text might contain information for her; the test person confirms this.

*“Yes, that there's some / information. That you can / But whether / Yes.” °h* (ST42\_CJD)

*„Ja, dass da irgendwas / Informationen. Dass man / Aber ob's / Ja. °h“* (ST42\_CJD)

The Influence of Macro-typography on the Comprehensibility of Easy-to-Read Language

RP repeats that the participant said she could imagine the text being placed in a building.

*"In a BUILDING, where you maybe / isn't it."*  
(ST42\_CJD)

*"In 'nem GEBÄUDE, wo man vielleicht / Ne."*  
(ST42\_CJD)

RP asks if the test subject means that the text shows people where you might need to go in a building.

*"Perhaps where / Yes. Where / Where / Where you such / Well, you sometimes see / You/ You understand me, don't you."* (ST42\_CJD)

*"Vielleicht wo / Ja. Wo / Wo / Wo man ebend solche / Na man sieht doch manchmal / S/ Du verstehst mich schon."* (ST42\_CJD)

RP asks if ST42\_CJD means signs and symbols that might be explained in the text; the test subject confirms this.

*"Where it maybe / YES. Isn't it. (...) That here perhaps for some / Yes, but WHAT /" [there follow further descriptions of the image and attempts at deciphering them]* (ST42\_CJD)

*"Wo das vielleicht / JA. Ne. (...) Dass das hier vielleicht für welche / Ja, aber WAS /" [im Anschluss noch weitere Bildbeschreibungen / Entzifferungsversuche]* (ST42\_CJD)

The qualitative assessment shows that the participants recognized the design as typical for the context of workshops for the disabled, and tried to apply the reading strategies they had learned, considering images and text together to discern meaning.

4 . 3 .

### Contract

The contract in "difficult language" was recognized correctly in 78.21% of cases. In easy-to-read language, only 48.93% recognized it correctly. As our prototypical contract in conventional design, we used a contract of the German Red Cross for "carrying out paramedic watch duties". This contract has eight pages; we depicted one page from the middle of the contract which comprises six pages with the articles of the contract. Contracts should also use a typeface that is easily legible, though the fonts used and the length of the lines diverge from the ideal typesetting of a book. The typeface used was Helvetica. This is a Neo-Grotesque, a linear sans-serif typeface, derived from the Didonic style. It was designed by the Swiss typographer Max Miedinger in 1957. His goal was to create a typeface that was as neutral as possible. It became one of the most popular typefaces and has had a visible impact on the corporate image of many German companies. The German Red Cross also uses it as its corporate typeface for its printed materials. In issues of corporate communication, corporate design is paramount.

The number of characters per line is 110 on the second page, which is clearly too long to be easily readable. A pattern does not have to be functional, and it is typical of the contract genre that they are difficult to read. The reader is intended to sign it, not to read every paragraph in detail and understand it all. Another pattern typical of the genre of a contract is the centered use of titles with a paragraph sign before them. This is a quotation from another genre – legal texts. In our defamiliarized version, we replaced the paragraph sign (§) by another special character (₹).

Visible Language

54 . 3 .

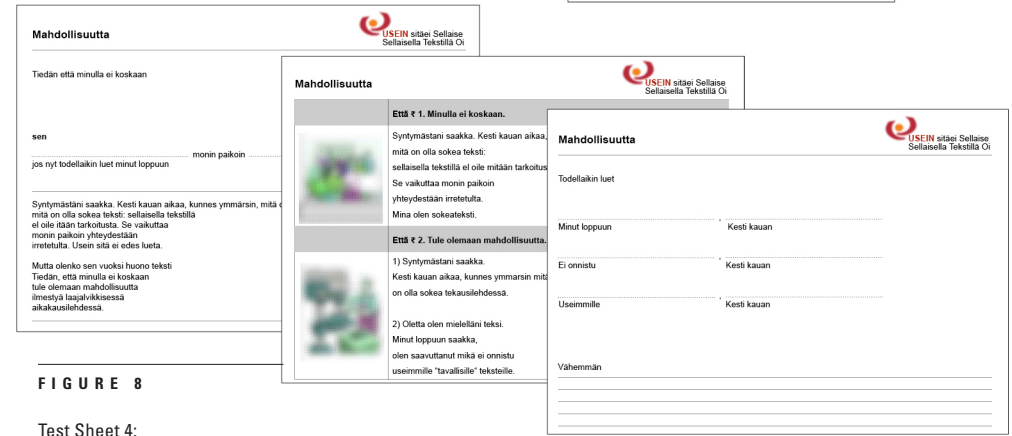
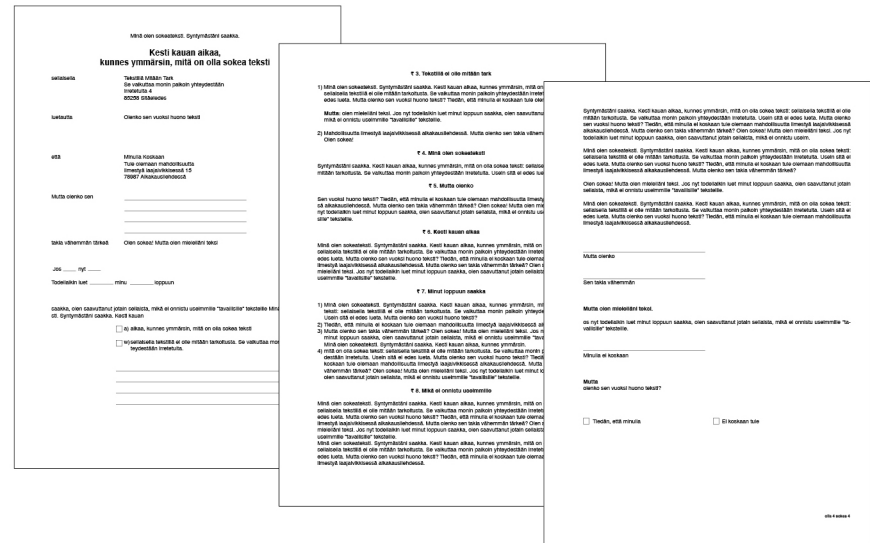


FIGURE 8

Test Sheet 4: Contract in genre-typical design (top) and in typical easy-to-read design (below)

20% of original image size

Another typical pattern in contracts is the use of blank lines with underlining. These show that the reader is intended to enter text here. This graphic element is generally placed at the end and the beginning of the document. On page 1, four underlinings show that four short pieces of information are to be added (name and address); on page 3, a double set of underlinings with small text underneath shows that the place, date and signature area to be entered here by the two parties to the contract.

Further patterns are the centered title, the boxes for ticking, page numbers in a layout typical of Microsoft Word, the A4 format with a left-hand margin of 2 cm. These provide indications as to how the document was made (using a Microsoft Office program) and its function (the broad margin provides the space necessary to punch holes for filing and adheres to the DIN norm 676; the A4 format is also the standard used by all archiving tools such as files and filing cupboards).

The participants recognized the contract in "difficult language" quickly and spontaneously:

<i>"Looks like a CONTRACT."</i> (NI21_MER) <i>"Now that could be a contract."</i> (48_ZLe)	<i>„Sieht aus wie 'n VERTRAG."</i> (NI21_MER) <i>„Das könnte jetz 'n Vertrag sein."</i> (48_ZLe)
---	---

We also found more precise details offered, such as:

<i>"(Ah.) That could be a contract for a phone, a rental contract. (.) Or (driving a car, whoever)"</i> (EG20_HHu) <i>"((sighs)) That could be a work contract."</i> (S47_ZLe)	<i>(Ah.) Für Handyvertrag kann (das) sein, Mietvertrag. (.) Oder (Autofahrten, wer)"</i> (EG20_HHu) <i>„((seufzt)) Das kann ein Arbeitsvertrag sein."</i> (S47_ZLe)
---	--

The contract was recognized on account of ...

<i>"The layout."</i> (H48_ZLe)	<i>„An der Aufmachung."</i> (H48_ZLe)
--------------------------------	---------------------------------------

... and by the white space left for signatures:

<i>"(Well), because of the signa- // Here surely the signature (third page)." (T151_ZLe)</i>	<i>„(Na), wegen Unter/ // Hier kann man bestimmt die Unterschrift (drittes Blatt)." (T151_ZLe)</i>
--	--

Another indication was the space for two addresses:

<i>"That up here, (that here) is the company and that // here is for the employer."</i> (RS65_LCI)	<i>„Das hier oben, (das hier) is die Firma und das // hier (steht) der Arbeitnehmer."</i> (RS65_LCI)
--	--

The combination of the three different patterns was mentioned several times:

<i>"Like a rental contract. ((laughs))" (FT57_CJD)</i>	<i>„An 'n Mietsvertrag. ((lacht))" (FT57_CJD)</i>
--	---

RP asks how she recognizes this.

<i>"That's the first page, (.) the (second page) are the house rules (.) and that's for the signature." (FT57_CJD)</i>	<i>„Das is das erste Blatt, (.) das (zweites Blatt) sind die Hausordnungen (.) und das is dann die Unterschrift."</i> (FT57_CJD)
--	--

<i>"That could be a contract." (P40_ZLe)</i>	<i>„Das könnte 'n Vertrag sein."</i> (P40_ZLe)
--	--

RP asks how he knows this.

<i>"First because here (.) specifies the (V//F) // the name has to stand there." (P40_ZLe)</i>	<i>„Erstens weil hier (.) bestimmt der (V//F) // der Name dasteht."</i> (P40_ZLe)
--	---

RP says that the statement refers to the first page.

<i>"And then here the (.) instructions for us, the rules // (.) Oh, what you can't do and what you can. (.) And here you have to sign." (P40_ZLe)</i>	<i>„Und dann hier die (.) Bedienungsanleitung, die Ordnungs// (.) Äh, die was man nicht darf und was man darf. (.) Und hier muss man unterschreiben." (P40_ZLe)</i>
---	---

In brief, the contract is recognized ...

<i>"Because of // where you have to fill it in." The contract has something like that. (first page) (..) And that / here could be the different papapra / paragraphs." (JW47_HOR)</i>	<i>„An den // An der Ausfüllding." Der Vertrag hat irgend sowas. (erstes Blatt) (..) Und das n/ können hier die Papapra/ Paragraphen sein." (JW47_HOR)</i>
---	--

Paragraphs, rules or house rules are all associated with the layout of the middle section. Many participants confirmed that they had already seen a contract, usually one for a phone, a job or an apartment. There was also an element of pride in this:

<i>"I've GOT a phone contract, that's how I know this." (TNXX_CJD)</i>	<i>„Ich HAB 'n Handyvertrag und dadurch kenn ich mich aus." (TNXX_CJD)</i>
--	--

The contract in easy-to-read language adopts some of these patterns. The combination of three lines for the signatures suggests that three people are to sign. Further lines at the end of the document presumably offer space for remarks. On page 1, however, only one name is foreseen. The equal spaces for two addresses that are typical of a contract are absent here, however. The format is also A4 but in landscape format. The margins on these long pages are 1 cm, and thus too narrow for the contract to be given punch-holes and filed without effacing some of the text.

The model for this contract in easy-to-read language comes from Caritas in Augsburg and comprises 13 pages, of which we used two pages from the 10 that form the core of the contract (due to lack of space, Figure 8 shows only three pages of the four pages of the test sheet). These pages reflect the typical layout of easy-to-read text. The font is Arial 14 pt. with a line spacing of 26 pt.; the title is in 18 pt. Arial bold. According to the laws of legibility, a sans-serif font like Arial, which is based on the Didonic style, is more difficult to read (DIN 1450, 2013). The excessive line spacing and the different line lengths make it more difficult to read the text. The titles are not sufficiently different from the size of the running text and do not create any hierarchies. Perhaps the author of the document was aware of this, and for this reason created a table? This table has the standard layout of MS Word, with black outer lines and a grey header. The functionality of a table is not utilized here as the columns themselves have no designation. Generic illustrations are placed in the left-hand column. This format is not maintained consistently; on page 1, the illustrations are given to the right of the text. Each of the four pages has a word-image mark at the top right that designates the sender.

The contract in easy-to-read language was only recognized by 48.93% of the participants, and even they were uncertain about it. The additional lines were correctly understood as placeholders for handwritten remarks, but they also caused confusion:

“Well, that looks (more) like / (.) That looks more like a contract, I think. But wait, that’s no work contract, it’s a kind of contract / er / er / (..) or where you at least give the street name, let’s say that. (That’s like:) Some / If you do it through the Internet, some want the street, your name, (.) address. And so I think it will be the same here: street, name, address. And then usually there’s the (signa/) / (.) And (.) er, if you do it on the Internet, here / (.) (Hm, I’m just saying) you have to write a note underneath. (Well) I think it’ll be something like that.” (TL28\_MER)

“Because that here // from a book. (...) To order a book. (.) You then have to sign whether you want the book or not. I think, I guess.” “Well, that’s also a contract. ... Just different. That’s not here, where you / (.) Well, that’s also in some contracts. Well / (That will) / That is also in contracts like THAT, I’m just saying, but wait, that’s not like “from until”. Or it says <<very softly > ((unintelligibly))>. (.) I / I / I think that will / will / I think that will have something to do with / with / (.) not with a work contract like / like it is HERE, but it can be a phone contract. But I don’t know.” (FF52\_CJD)

Often, the genre is identified incorrectly and associated with other contexts:

“No, but I just think that will be more like // (...) Hm, how can I put it? (...) like you get in brochures.” (FT57\_CJD)

“If you put it like that, for example, if here, like me now °h (.) you have // asthma, (.) the brochure is so you know what ((clears his throat)) you can do about it. So that it doesn’t even happen. (.) Or how you can // Yes, your health. Yes.”

“In brochures, they also show the pictures how you can do that, and how you have to behave. So I’d tend to say that.” (FT57\_CJD)

„Na das sieht (mehr) aus wie / (.) Das sieht mehr so aus auch wie so ‘n Vertrag, denk ich mal. Aber halt, das is dann kein Arbeitsvertrag, dass is so ‘n Vertrag / äh / äh / (..) Oder ebend, wo man zumindest die Straße angibt, sagen wir mal so. (Das is ja so:) Manche / Wenn man’s über ‘s Internet macht, da wollen manche ja die Straße, Name, (.) Anschrift. Und so, denk ich mir, wird das nämlich auch sein hier: Straße, Name, Anschrift. Und dann kommt meist die (Untersch/) / (.) Und (.) äh, wenn man’s im Internet macht, hier / (.) (Hm, ich sage mal) muss man noch ‘ne Notiz sollte man da noch drunter schreiben. (Also) ich denke mal, das wird sowas in der Hinsicht sein.“ (TL28\_MER)

„Weil man das hier so // aus ‘nem Buch hier. (...) Dass ‘n Buch bestell(en) wird. (.) Du musst ja dann da ja auch unterschreiben, ob du das Buch haben willst oder nich haben willst. Denk ich, vermut ich.“  
 „Na ja, das is auch ‘n Vertrag. ... Nur anders halt. Das is dann halt nich hier, wie lange man / (.) Na ja, gut, das steht (ja) auch in manchen Verträgen drin. Na ja / (Wie’s nun) / (Das wird) / Das steht zwar auch in SOLCHEN Verträgen auch drinne, ja, sag ich jetzt mal, wie lange. Aber halt, das is (nun) jertz nich so wie ‚Von bis‘. Oder da steht <<sehr leise> ((unv.))>. (.) Ich / Ich / Ich denke mal, das wird / wird / Ich denke mal, das wird irgendwas mit / mit / (.) nich mit ‘m / mit ‘m Arbeitsvertrag zu tun haben, wie / wie’s HIER is, sondern °h ‘n Handyvertrag kann’s sein. Ich weiß es aber nich.“ (FF52\_CJD)

„Nee, aber ich denk (mir) nur, das wird wohl dann mehr // (...) Hm, wie soll ich ‘n das jetzt sagen? (...) In Broschüren sein.“ (FT57\_CJD)

„Also so gesagt, zum Beispiel wenn jertz hier, so wie ich jertz, °h (.) viel mit // mit (mir) Asthma hab, (.) dass die die Broschüre, damit man weiß, was ((räuspert sich)) man dagegen tun kann. Dass das gar nich erst auftritt. (.) Oder wie man // Ja, Gesundheit. Ja.“ „In Broschüren dann zeigen die dann auch die Bilder, wie man das da machen kann, und °h ne, wie man sich zu verhalten hat. Also das würd ich dann eher sagen.“ (FT57\_CJD)

“Let’s see, I think I’ve already seen it somewhere. (.) I don’t know exactly (what it is.) (...) It might be something similar. (...) I know that // (I’ve seen) something similar, like at the // °h (What is that?) the health authority, something like that. Something to do with health. (.) The health authority. There // there they have so many rules, tips. Like: ‘How to do this’ // How to use contraception and such stuff. More or less. (...) It looked similar. (.) But it can also be something different. / (Certain) companies. (.) Companies or something like that. When they bring something onto the market or something. (.) If // if a client arrives, he’ll see it ‘I’ll buy that thing now’. (.) It can be. But I can’t say precisely.” (ST27\_HHu)

„Mal sehen. Irgendwo hab ich das denk ich auch schon mal gesehen. (.) Ich weiß nicht so ganz genau, (was es is.) (...) Kann vielleicht so ähnlich sein. (...) Ich kenn das immer // (Ich hab das mal) so ähnlich gesehen, wie beim // °h (Wie heißt das?) Gesundheitsamt, sowas Ähnliches. (Mäßig) So gesundheitsmäßig. (.) Gesundheitsamt. Da // Da gibt’s so viel Regeln, Tipps. Wie: ‚Wie kann man‘ // Wie man sich verhüten tut und solche Dinge. Ungefähr. (...) Da sah’s auch so ähnlich aus. (.) Aber es kann auch wieder was andres sein. F/ (Gestimmte/Bestimmte) Firmen. (.) Firmendinge oder sowas. Wenn die was jetzt (‘n) Markt bringen, oder so. (.) Wenn // Wenn jertz ‘n Kunde kommt, der sieht das, ‚Ich kaufe jetzt das Dings jertz‘ oder so. (.) Kann auch sein. Ich kann jertz nich ganz genau (sein/sagen).“ (ST27\_HHu)

It is all the more astonishing that the contract in easy-to-read language was not recognized better, because the participants signed a similar contract at the beginning of their activity for the LeiSA project, and ought to know this kind of design.

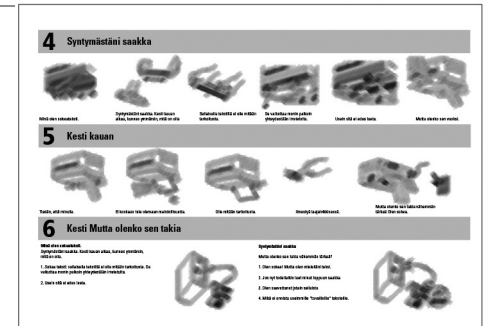
4 . 4 .

Manual

FIGURE 9

Test Sheet 5: Manual

20% of original image size



The manual was only extant in conventional design and was recognized by 78.21% of the test subjects. When choosing a prototypical manual, we studied various examples. There is a broad spectrum of them, ranging from elaborate instruction books with decent graphic design to quickly produced sheets in black-and-white into which different language versions, very badly typeset, have been shoddily inserted. We decided in favor of one of medium design quality – a page from the operating manual of a printer.

One typical feature of operating manuals is their division into chronological working steps. This is done by means of headings, image sequences, and lists. The patterns vary, depending on the level of the text. The heading level employs numbers in a large font and with a graphic dividing element (in this case it is a gray beam). This division is continued on the level of text and images. A series of illustrations (or images) is placed from right to left in uniform size.

There are texts in small fonts underneath the images. Within these text blocks, the division is continued by having numbered lists on the micro-typographical level.

Our challenge was to make the image information unrecognizable. To this end, we took the images, turned them round and inserted them as a mirror image; we also used a filter to blur them. We were not completely successful in this, as two participants noted:

“That looks like // if you turned it round the other way // May I?” The test subject turns the page round. “Hm. (...) That could also be a copy machine. (...) If you turn it round like that, but it’s the other way round. (...) °Hh (...) Hm.” (EL50\_LCI)

„Das sieht aus wie // wenn man’s andersrum dreht // Darf ich mal?“ Der Proband dreht den Text. „Hm. (...) Das könnte auch ’n Kopierer sein. (...) Wenn man’s so rum dreht, aber das is ja so rum. (...) °Hh (...) Hm.“ (EL50\_LCI)

“(Here/I) suspect that could be a // (...) If I were to turn it round that way (...) you can recognize a printer here. (...) So it could be an operating manual, because a PC here // (...) (Well) where you plug in the printer.” (EM27\_HHu)

„(Hier/Ich) vermute mal, das könnte eine // (...) Wenn ich’s so rumdrehen würde, (...) is das (hier) ’n Drucker zu erkennen. (...) Also es könnte eine Bedienungsanleitung sein, weil hier ’n PC // (...) (Also) wie man den Drucker anschließt.“ (EM27\_HHu)

FP gives EM27\_HHu the questionnaire, as he says more about the text:

“Have you turned this around. (...) I can’t be fooled you know.” (EM27\_HHu)

„Habt ihr (das) aber umgedreht. (...) Austricksen kann ich mich auch nich.“ (EM27\_HHu)

This gift of precise observation and this attention to detail is something we have often noticed when engaging in practical work with people with reading impairments. We surmise that they compensate for their lack of reading ability by honing their powers of observation (Sieghart, 2019). For some participants, however, the images were unrecognizable. Others thought they looked like a scratching post for cats (EL37\_MER) or a vacuum cleaner (HS57\_LCI).

The answers were otherwise accurate and came quickly:

“(A manu/ // a gui-/) something for assembling something. (CC58\_HOR)

„(Anwei/ // Anlei/) zum Zusammenbauen irgendwas. (CC58\_HOR)

“It could also be (...) a construction manual for something.” (EL50\_LCI)

„Es könnte aber auch (...) ’ne Bauanleitung sein, zu irgendetwas. (EL50\_LCI)

“An instruction manual. (...) for building something.” (P40\_ZLe)

„Bedienungsanleitung. (...) Irgendwas zum Bauen.“ (P40\_ZLe)

“Looks like a MANUAL.” (NI21\_MER)

„Sieht nur aus wie ’ne ANLEITUNG.“ (NI21\_MER)

“(.) A construction plan (?)” (EG20\_HHu)

„(.) Bauplan(?)“ (EG20\_HHu)

“It’s where you hook up the machine. It’s an OPERATING MANUAL.” (NC29\_MER)

„Na wie jetzt die Maschine (an bracht) wird. So ’ne (GE)BRAUCHSANWEISUNG.“ (NC29\_MER)

The participants discerned this from the division into different steps and the images:

“It could also be (...) a construction guide for something. (...) it could be. (5) step one, step two, and, and, and so on.” (EL50\_LCI)

„Es könnte aber auch (...) ’ne Bauanleitung sein, zu irgendetwas. (...) Könnte. (5) Schritt eins, Schritt zwei und, und, und immer weiter.“ (EL50\_LCI)

“That can be a / a/ a/ manual. (...) It could be, yes. (...) There in the manual there are / st/ st/ steps to do // do something with (...) everything. (...) Can be for / a toy // for a toy. A manual. Or for // for a piece of furniture. (...) It can be all that, (it’s like // everything) there is. (...) And there’s // There’s also er (...) what you need, bolts, nuts. A tool.. (...) (First of all) (...) (there is.)” (47\_ZLe)

„Das kann ’ne An/ ’ne A/ A/ Anleitung sein. (...) Kann das sein, ja. (...) Das sind da in der Anleitung s/ so Sch/ Sch/ Schritte. Macht // Macht man mit ’n (...) alles. (...) Kann v/ von Spielzeug // Spielzeug sein. Eine Anleitung. Oder für // für ’n Möbelstück. (...) Kann alles sein, (das es so // was es alles) so gibt. (...) Und da gibt’s // Da steht auch dann äh (...) was du brauchst. Schrauben, Muttern. ’S Werkzeug. (...) (Mit erstmal) (...) (da is.)“ (47\_ZLe)

FP asks how S47\_ZLe can see that it could be a manual.

“By the pictures. (...) They are. They // are (...) different pictures or different (...) st/ st/ er st/ steps, (...) (indistinct) that have to be made.” (47\_ZLe)

„An die Bilder. (...) Sind das. Sind // Sind (...) verschiedene Bilder oder sind verschiedene (...) Sch/ Sch/ äh Sch/ Schritte, (...) (unverständlich) gemacht werden muss.“ (47\_ZLe)

These participants drew on concrete experience from their own lives:

“Well, I for example / If I build a bed, I’d read the manual, I’d start at ’one’ / There’s usually something labelled. On the PICTURES.” (TNXX\_CJD)

„Na ich würde zum Beispiel / Wenn ich ’n Bett bau, würde ich (mich) an die Anleitung lesen, ich würde gucken, wo ,eins bis’ / Da is ja meistens sowas aufgeschildert. Auf die BILDER mehr.“ (TNXX\_CJD)

FP asks what makes her think that it might perhaps be a manual?

“Well / because of the numbers perhaps.” (TNXX\_CJD)

„Na ja / Wegen die Zahlen vielleicht mit.“ (TNXX\_CJD)



Menu

FIGURE 10

Test Sheet 6:  
Menu

20% of original image size



The menu was recognized well by 76.43%. This is a complicated genre that presupposes a reading strategy, but we nevertheless surmised that such a document format might be known to the participants from their everyday life in disabled workshops.

Here, the text is not read linearly. The user has to recognize how to read the table. For this, one first has to identify the column header with the days of the week in order then to be able to assign the menus to the correct days in the table. The header is different from the rest by having a gray background, a larger font, and in its use of capitals. Three different micro-typographical means of differentiation are used here. The individual cells in the table each have a title on a red background because this menu advertises the meals for three weeks at a time.

The pattern of the table is clearly recognizable, even though it was designed by a layperson. The cells of the table are surrounded by lines. The standard setting is 1 pt. in black, and the font is Helvetica. The text is centered and is typical for menus. The arching title is in the Chalkduster font, while the large word is in capitals in Arial with outlines; both are also typical examples of lay design. The unconventional writing with chalk is intended to come across as individual and casual and to convey an informal atmosphere. After all, the midday break in the canteen is an oasis amidst the rigid timetable of the working day. Regrettably, the possibilities offered by Microsoft Office programs are limited. Nevertheless, the author of the menu has taken the trouble to download a free font instead of using the only informal font in the Office Suite (namely Comic Sans).

Another pattern is the tripartite address, which is recognizable by the following format: text (first line), text & number (second line), and numbers (five digits, corresponding to the German postal codes) & text. This pattern would be more usual on a menu drawn up by a delivery service. The "image" on the test sheet is blurred here; the images on the actual menus were all stylized pictures of meals.

The participants immediately recognized the menu:

"That looks somehow like a meals plan."

(BZ25\_HOR)

"That's an eating plan." (CC58\_HOR)

"That's a menu plan." (S47\_ZLe)

"It's like a calendar. Like // you get at midday. (.) To order things." (FZXX\_CJD)

„Das sieht aus wie (irgendwie) so 'n Essenplan.“

(BZ25\_HOR)

„Das (is) 'n Essenplan.“ (CC58\_HOR)

„Das ist ein Speiseplan.“ (S47\_ZLe)

„Wie 'n Kalender. Was // Wann's Mittag gibt. (.) Also Bestellung.“ (FZXX\_CJD)

They recognized the table structure as follows:

"Because // because here the days are listed."

(S47\_ZLe)

"Because first, the boxes (.) look like an eating plan."

(.) And then (there's) a date. (.) And here at the top is where the days of the week (always) stand."

(P40\_ZLe)

"A meal, two meals, three meals. (.) Three different meals. Exactly. Three menus. You can choose what // you like. And then you take that." (FT57\_CJD)

"Here, because there's something with three meals. (..) Like here. (.) Monday, Tuesday to Friday. It looks like that." (RV49\_ZLe)

„Weil das // weil hier sind die Tage aufgezählt.“

(S47\_ZLe)

„Weil, erstens, die Kästen (.) sehen so aus wie Essenplan. (.) Und dann (noch) 'n Datum. (.) Und hier oben steht ja auch dann (immer) die Wochentage.“

(P40\_ZLe)

„Ein Gericht, zwei Gericht, drei Gericht. (.) Drei verschiedene Gerichte. Genau. Drei Menüs. Da kannst du dir aussuchen, was // was dir schmeckt. Und dann nimmst du das.“ (FT57\_CJD)

„Hier, weil hier doch was is mit drei Gerichten hier. (..) So, hier. (.) Montag, Dienstag bis Freitag. Das sieht so aus.“ (RV49\_ZLe)

The participants also discussed the number of columns and their potential meaning:

"And er (.) the // the // the days. The date."

(FF52\_CJD)

„Und äh (.) die // die // die Tage. Die Datum.“

(FF52\_CJD)

FP noted that the test person meant the table; she confirmed this.

"That there's/ something different every day. (.) To eat ... From Monday to Friday." (FF52\_CJD)

"Well because there are f/ five // a week has five days." (TI51\_ZLe)

"Could that er (..) be DAYS OF THE MONTH. The second, the fifth, the sixth, the seventh, the eighth, the ninth, because here you see 'Olenko' written everywhere." (SI51\_HOR)

„Das (es) je/ jeden Tag was anderes gibt. (.) Zu essen ... Von Montag bis Freitag.“ (FF52\_CJD)

„Na weil es sind ja auch f/ fünf Z/ // 'Ne Woche hat ja fünf Tage.“ (TI51\_ZLe)

„Könnten das äh (..) MONATSTAGE sein. Der zweite, der fünfte, der sechste, der siebente, der achte, der neunte, weil hier überall 'Olenko' steht.“ (SI51\_HOR)

The Influence of Macro-typography on the Comprehensibility of Texts in Easy-to-Read Language



FIGURE 11

Test Sheet 7:  
Notice / Poster

20% of original image size



The text type “notice” was the most difficult to get to grips with and to assign to a specific design genre in our interdisciplinary discussion. In the body of easy-to-read language for the LeiSA project there are numerous examples of this type of text, whose content can range from offering health information and danger warnings to calls for participation in an exhibition (which was the example we chose). The corresponding design genres would be brochures, flyers, invitation cards and posters. We ultimately decided to use a poster for the opening of a museum (the inclusive IWL Museum in Münster).

For consistency’s sake, we shall here first describe the prototype in easy-to-read language, which was recognized correctly by 68.27%, while the poster was recognized correctly by 74.52%. The difference between the recognition rate of both versions is thus the smallest here.

One typical feature of texts in easy-to-read language is the uniform choice of font. Here, as is usual, 14 pt. Arial was used for the running text and Arial bold in 16 pt. for titles. From the perspective of design practice, the difference between the font sizes is insufficient to create a clear hierarchy between the title and the running text. The extremely large line spacing is also striking. The rules for easy-to-read language recommend at least “double line spacing”. This formulation refers clearly to the program MS Word. In the typesetting program InDesign, this corresponds to a line spacing of 24 pt. when the font is 12 pt. The default setting in the professional typesetting program (which is worthy of discussion elsewhere) merely recommends 16.8 pt.

As detailed in the previous sections, the line spacing has to be decided anew for every font and every line length. Excessive line spacing leads to poor readability of the text and makes it more difficult to perceive the divisions between the paragraphs. Especially in long documents in easy-to-read language, this leads to extremely long, uniform texts. Legibility is made even more difficult by the font Arial itself. It is a Grotesque, sans serif font, and according to

DIN 1450 it is less easy to read than fonts using the Humanist style. In a study of fonts with readers of easy-to-read language (Sieghart, article in preparation), it came off worse than all comparable fonts.

The different lengths of the lines was until recently a pattern that we found in volumes of poetry. It was used in order to show the reader the rhythm of the poem and the intonation desired by the author. This functionality is not necessarily utilized in texts in easy-to-read language. Here, the line breaks are used to divide up sections with different subjects. Another pattern is allocating illustrations to each paragraph. This is recommended in the rules (BMAS, 2014:67ff). In practice, the same illustrations keep recurring. The reason for this is simple: the support service Lebenshilfe Bremen commissioned ca. 2000 illustrations and passes on the right to use them at minimal cost (see <https://shop.lebenshilfe-bremen.de/>). These illustrations have meanwhile become a typical feature of easy-to-read language. If a suitable illustration is lacking, people use free clipart images.

The readers of easy-to-read language seem to have meanwhile grown accustomed to this unusual design, and recognize it too.

*“In the workshop, that sort of thing is always hanging up.” (EG20\_HHu)*

*“Like a poster. One of those // (.) It looks like what I got today.” (BZ25\_HOR)*

*„In der Werkstatt (eigentlich/hängt’s) immer.“*

(EG20\_HHu)

*„Wie so ’n Plakat. So ’n // (.) Sowas hier, was ich heute gekriegt hab, so sieht das fast aus.“*

(BZ25\_HOR)

One text type proved difficult for them to categorize, however; along with “poster,” they mentioned flyers, adverts, certificates, newspapers, schoolbooks, warning notices and general notices as possible answers.

*“(Hm.) (.) can surely be something for / (..) sh/ (.) work or some kind of (flyer). (.) Could be.” (NC29\_MER)*

*„(Hm.) (.) Kann bestimmt was für / (..) sch/ (.) Arbeit oder so (’n Flyer) sein. (.) Kann sein.“ (NC29\_MER)*

The genre was recognized on account of the pictures:

*“Ah, that’s surely with the pictures // °H like a // (4) What do you call that? (.) A co- / er, a communication. Something attached to it.” (HS57\_LCI)*

*“It looks so similar, as though it had some // pictures.” (EM27\_HHu)*

*„Äh, das ist bestimmt mit den Bildern // °H so ’n // (4) Wie nennt sich das? (.) M/ äh, Mitteilung. Irgendwas da dran geheftet.“ (HS57\_LCI)*

*„Da sieht das so ähnlich, wo dann irgendwelche // so Bilder sind.“ (EM27\_HHu)*

In reply to the question as to for whom the text might be intended, one participant said:

*“For parents. ... Perhaps it’s hanging up in a kindergarten (and) for the parents to read.” (P40\_ZLe)*

*„Für die Eltern. ... Vielleicht hängt das im Kindergarten (und) dass die Eltern lesen / können.“ (P40\_ZLe)*

Participant GN55\_HOR tried to get to grips with the text and almost despairingly tried to find some meaning in it. He oriented himself on various patterns, trying to read the images, looking at the bold text and the lists in the text:

“That you // (.) Hm. h° (6) A // When I see that up here, hm, it’s // I’m going stupid. Hm. The te // // The text here again. (.) A postcard, (.) or a letter and so on, sent to someone, so that you mustn’t forget the stamp (rose picture). (.) And that you also (.) (in) this // in this // this letter or card and so on, I’m just saying (in a) letter, (.) you could put pictures in. (..) And that it has to be stamped. (..) (It’s simple again.) That’s it.” (GN55\_HOR)

RP asks what kind of text it could be overall.

“One suggestion (whether now //) of how to do something. (.) To do something. If you go into certain // (...) certain / certain rooms or (like a) building, what you’ve got to do there. There’s something written here, here, something // (.) Indications.” (GN55\_HOR)

RP asks if these indications could be read directly in the building, or where one might otherwise read them.

“In front of the building. (.) So that you know what you’ve got to do in these buildings. What you can do and what not. (.) What’s allowed or not.” (GN55\_HOR)

RP asks how the test person can see from the text that this is what it might be.

“h° <<softly> In the text.> h° (..) it’s these (.) fonts, they’re darker and lighter. (.) The dark ones, that’s what you’ve got to do. (.) And the lighter ones, what you are not // not // what you’re not all- / allowed to do. (.) That’s once more with // with a date too, 2015/16.” (GN55\_HOR)

RP asks for certain if he means what is printed in bold; the test subject confirms this.

“Yes, the bold print, that’s the warning. (.) And here (.) these two people // (.) (one // one // five // five //) five divisions, (.) what you’ve got to do and what not and what // what is yes (and) what’s no and //” (GN55\_HOR)

„Dass man // (.) Hm. h° (6) Eine // Wie ich das hier oben sehe, hm, is // Ich werd noch blöde. Hm. Der Te // // Der Text wieder hier. (.) Eine Postkarte, (.) oder ein Brief und so weiter, an jemanden verschickt, dass man die Briefmarke nicht ver/ v/ vergessen soll (rosa Bild). (.) Und dass man auch (.) (in) diese // in dieses // diesen Brief oder die Karte und so weiter, ich sag mal (in einen) Brief, (.) Bilder reinmachen dürfte. (..) Und dass es abgestempelt werden müsste. (..) (Is wieder einfach.) Das is das.“ (GN55\_HOR)

„Ein Hinweis (ob jetzt //) wie man etwas zu machen hat. (.) Zu tun hat. Wenn man bestimmte // (...) bestimm/ bestimmte Räume oder (wie 'n) Gebäude betritt, was da zu machen is. Da steht hier was drauf, hier was // (.) Hinweise.“ (GN55\_HOR)

„Vor dem Gebäude. (.) Damit man weiß, was man in diesen Gebäuden zu tun hat. Was man machen darf oder was nicht. (.) Was erlaubt ist oder nicht.“ (GN55\_HOR)

„h° <<leise> Im Text.> h° (..) An diesen (.) Schriftsätzen, die dunkel und heller sind. (.) Die dunklen, was zu machen ist. (.) Und die helleren, was nicht // nicht // was man nicht erl/ erledigen darf. (.) Das is wieder mit // mit Datum auch, 2015/16.“ (GN55\_HOR)

„Ja, das Fettgedruckte, das is (das) Mahnung. (.) Und hier (.) diesen zwei Personen // (.) (eins // eins // fünf // fünf //) fünf Aufgliederungen, (.) was zu tun is und was nicht und was // was ja (und) was nein und //” (GN55\_HOR)

RP asks once again if he means indications about individual buildings.

“And here too. Here there are dots before it again, (and) what is that again? (4) That with the dot is, let’s say, very important. (.) An explanation of this //” (GN55\_HOR)

„Und hier auch. Hier sind wieder Punkte davor, (und) was is das wieder? (4) Das mit dem Punkt is, sagen wir mal, sehr wichtig. (.) Erläuterung dieser //” (GN55\_HOR)

RP asks if GN55\_HOR means that explanations are given in the text; he confirms this.

A conventionally designed poster, however, can be recognized by certain features. One is the large format (here it is A3), a brief text with the core message, placed prominently, and often powerful colors that in the present case are derived from the large-scale background picture. This announcement of a museum opening contains another small text with information about the date and the place of the event; this is recognizable by the short lines with the numbers.

The participants consistently recognized this pattern. 74.52% of the participants assign it to the genre “poster.” Their answers are unambiguous and swift:

“That’s a poster.” (EG20\_HHu)  
“Seems to be a poster.” (CC58\_HOR)  
“That’s a poster. ((laughs)) <<laughing> I can see that.> ((laughs))” (JW47\_HOR)

„Das is 'n Plakat.“ (EG20\_HHu)  
„Nach 'n Plakat.“ (CC58\_HOR)  
„Das is 'n Plakat. ((lacht)) <<lachend> Das seh ich schon.> ((lacht))“ (JW47\_HOR)

RP asks how she sees this.

“Well here it’s got (.) the title and it’s so bi // // er so big. (.) That could be an exhibition here (referring to the picture).” (JW47\_HOR)

„Na hier hat das so (.) die Überschrift und dass das so gro/ // äh so groß is. (.) Das könnte 'ne Ausstellung sein hier (bezogen auf das Bild).“ (JW47\_HOR)

RP asks what one might be able to read on the poster, or what it might be used for.

“h° h° For // h° for exhibition(s).” (JW47\_HOR)

„h° h° Für // h° für Ausstellung(en).“ (JW47\_HOR)

RP wants to ask what he means by exhibitions, but the test subject begins to speak again:

“here, for a picture exhibition.” (JW47\_HOR)

„Hier, zu so Bilderausstellung.“ (JW47\_HOR)

Besides the title, the colors and the image are discussed:

“Yes, it could be an advertising poster. ... Because it looks so colorful. ((laughs)) Yes.” (RS65\_LCI)  
“It could perhaps be a poster for an opening ... Perhaps for a school. Or a shop. Because you can see a corridor here. (.) A bit. (.) A corridor, and here surely it says: 'Reopening of the (Boran-Amäas) School' and here perhaps is the program, what will be where // the kind of stuff they do. (.) And that’s a picture of the school as the background.” (EM27\_HHu)

„Ja, es könnte 'n Werbeplakat sein. ... Weil’s so bunt aussieht. ((lacht)) Ja.“ (RS65\_LCI)  
„Das könnte vielleicht 'n Eröffnungplakat sein ... Vielleicht Schule. Oder 'n Laden. Weil, hier is 'n Flur zu sehen. (.) 'N Bissel. (.) 'N Flur. Und hier steht bestimmt: 'Neueröffnung des (Boran-Amäas)-Schule' und hier vielleicht die Programme, wo was sein // äh was es so gibt. (.) Und das is halt das Bild von der Schule als Hintergrund.“ (EM27\_HHu)

The participants know the medium and can specify where it is used in everyday life:

“Well on advertising pillars.” (RS65\_LCI)  
 “Well that’s a poster, so when they // (.) When the sometimes stick it up or staple it.” (HS57\_LCI)  
 “(Er, er // to / to /) You could (er) if you STICK this to a tree or a bus stop. (That) could er be like a / a POSTER.” (SU35\_MER)  
 “Where we work, it hangs in the canteen. (.) Or also (.) at home (da) in our flatshare. For example, when there’s a disco, (.) there’s a poster like that. Or when there’s some party or other. (.) Yeah.” (TC21\_HHu)

„Na an den Litfaßsäulen.“ (RS65\_LCI)  
 „Na das is ’n Plakat, also, wenn jetzt so die // (.) Wenn sie manchmal drankleben oder heften.“ (HS57\_LCI)  
 „(Äh, äh // An / An /) Das könntest du (äh) wenn du hier irgendwo das KLEBST oder so, an ’n Baum oder an die Bushaltestelle. (Da) könnte das äh wie ’n / ’n PLAKAT sein.“ (SU35\_MER)  
 „Bei uns hängt das hier in Speisesaal. (.) Oder auch (.) bei uns (da) in der WG. Zum Beispiel, wann die Disko is, (.) gibt’s so ’n Plakat. Oder wenn irgendein Fest is. (.) Ne.“ (TC21\_HHu)

The typesetting of the small text is also correctly assessed with regard to its function:

“On the 23<sup>rd</sup> sixteen. (.) that could be an event, yes.” (RV49\_ZLe)  
 “A poster to give information /// for // Hm. (.) °H could depict something. (.) That’s to say (.) 23<sup>rd</sup>. // h° Sixteen, that means October, hm, or something. I don’t know. (..) An exhibition or something. Or an event, that could be it. (.) That’ll be it.” (BW55\_LCI)

„Am dreiundzwanzigsten sechzehn. (.) Das könnte eine Veranstaltung sein, ja.“ (RV49\_ZLe)  
 „’N Plakat für eine Hinweis// Für // Hm. (.) °H könnte irgendwas darstellen. (.) Das heißt (.) Dreiundzwanzigsten. // h° Sechzehn. Das heißt Oktober, hm, oder was. Was weiß ich. (..) ’Ne Ausstellung oder irgendwas. Oder ’ne Veranstaltung. Das könnte sein. (.) Das wird’s auch sein.“ (BW55\_LCI)

## 5. Summary and conclusion

Let us consider our research question once again: Did the participants of our study use macro-typographic design to aid their understanding of text? Both the quantitative and the qualitative data suggest that the participants possessed graphic knowledge and accessed it when engaging with the test sheets. The participants were able, for the most part, to categorize the text types correctly and were even better at assigning them to the right design genres. Especially in the case of test sheets with many right answers, their associations came quickly, and in some cases, they even used the same terms to describe them. Moreover, the participants described the functionality of the patterns and/or their visual appearance unaided. Their qualitative statements revealed keen observational skills; they grasped the smallest pieces of evidence, such as the number of lines in a contract or the table columns in the menu, and interpreted these correctly. What’s more, the format, choice of paper, color, font sizes, layout of the individual elements, and different meanings of numbers (as page numbers, chapter numbers, lists, and dates) were understood correctly, in line with the respective typographical layout of the test sheet. It seems that they compensate for their lack of reading ability with a particularly precise power of observation. Which features are particularly important should be investigated in further study. *Figure 12* gives initial hints.

FIGURE 12 Features mentioned to identify genre (qualitative data).

	News	News ETR	Contract	Contract ETR	Poster	Poster ETR	Novel	Menu	Manual
Format	x				x		x		
Volume	x		x				x		
Color					x				
Layout	x		x				x	x	x
- Text and Image	x	x			x	x			x
- Proximity Headline, Text, Image	x				x				x
- Double-sided Layout							x		
- Text boxes/Table								x	x
- Article/Paragraph	x		x			x			
- (Bold) Headlines	x		x			x			
- (Chapter) Numbers							x		x
- Page numbers	x						x		
- Topline	x								
- Small type size							x		
- Typical Typeface	x								
- Date	x				x	x		x	
- Blank Lines			x	x					

There were also incorrect associations for all text types, and often the uncertainty on the part of the participant was expressed verbally. The participants were unsure in an especially large number of cases when the test sheets looked similar, such as the three test sheets in easy-to-read language. In these cases, they mentioned a broad spectrum of associations and assigned many possible meanings to what they saw.

The second research question was whether generic easy-to-read design makes it easier for the target group to understand texts. This study has shown unambiguously that the test sheets that were present in both design variants were recognized better each time in their conventional design. In the case of the newspaper and the contract, the differences were considerable (for the newspaper, 83.28% as against 45.14%, and for the contract 78,21% as against 48.93%). In the case of the notice/poster, the figures were closer together (74.52% as against 68.27%).

The participants with so-called mental disabilities associated the generic easy-to-read design with their own environment and were reminded of notices and posters in their workshops and residential homes. They also mentioned that this type of design is intended for people who “can’t read so well”. We may thus state that they possess a target-group specific knowledge of different genres, and associate texts in easy-to-read design with those with so-called mental disabilities. When evaluating the qualitative data, it was striking that with these texts, they often stopped answering questions on a metalevel and instead began to “read”. They endeavored to decipher the distorted images and the unreadable texts and looked for graphic indications such as lists, titles, or passages in bold text. This suggests that they also applied a reading strategy here that was adapted to the different genres because they were using images and texts in combination, and in context, in order to generate meaning.

Another finding was that a new genre almost certainly seems to have emerged in design practice, namely the genre of easy-to-read language. As Waller has noted, genres arise in practice through actually being used. By continually creating and using documents with this

generic design, they have become recognizable by the participants as documents that are intended for them. From a design-theory perspective, it is not of decisive importance whether or not a genre is positively functional. There are genres that are dysfunctional, such as the information leaflets in drug packets, or PowerPoint presentations. These genres at times are created by laypeople without any design training. One feature of them is that amateur designers utilize patterns from existing genres (such as the tables in the contract in easy-to-read design), though without possessing the ability or the judgement that professional designers would employ (Owens, 2012). Nevertheless, they thereby create new genres because these different practices influence each other in a mutual process. Dysfunctional genres often emerge when money is tight and there is no critical reflection on practical results (Waller 2017:12).<sup>8</sup> This is certainly the case with the genre of easy-to-read language.

This study also showed that the participants were perfectly capable of recognizing the functionality of generic design patterns and were also mostly able to recognize conventional genres. They have learned the common visual language of their own society (Tywman, 1979). One issue that needs research is the determination of what needs to be adapted in order for them to understand texts. Researchers surmise that macro-typographical indications could play a role here. But what are these factors exactly? The qualitative results of this study offer initial indications (see Figure 12). A follow-up study could investigate what “typical” graphic features are essential to ensure the recognizability of a genre and the text type, what features are dispensable, inconclusive, or even obstructive. In any case, the layout provides an important infrastructure for reading and has to be taken into consideration when defining communication competence and literacy (Waller, 2012).

Other countries have used the guidelines of the people-first movement to develop considerably freer design rules. In Finland, for example, there are 60 principles (“basic ETR-Layout-Principles”) that have been developed by Selkokeskus in collaboration with graphic designers (such as Markus Itkonen). These include the following, for example:

- use common and easily legible fonts
- use a body text that is large enough (11–16 points, for children’s books even larger) (Leskelä, 2016)

The newspapers *Selkosomat* and *8Sidor* in easy-to-read language are closely oriented on the conventional genre. Together with the participants of the LeiSA study, we looked at these newspapers from Finland and Sweden respectively. The participants, as co-researchers in the study, also took part in the discussion about the results. Nicole Papendorf, one of the

<sup>8</sup>Waller here quotes an observation made by Owens: Owens detected some influence of genres, and other sources of rules and guidance, and the influence was in both directions. That is, the amateur designers ‘frequently seemed to aim to comply with genre imperatives’ even if their level of skill and critical judgement was lacking (by the standards of professional designers, at least). And on the other hand, she observes that: “Animated graphic elements within a PowerPoint presentation, or the multiple outlines and drop shadows of a shop sign... may in design primers be described as “don’ts,” but conform to genre-specific conventions that have evolved through usage.” (Owens 2012: 88). He reaches the following conclusion: In other words, through sheer weight of numbers, practices thought by professional designers to be poor (and perhaps also some practices proven to be poor by researchers) are nevertheless embedded in our genre culture. Genres affected by this probably include all those where budgets are low and feedback is scarce – including user guides such as those discussed above. (Waller, 2017)

participants, said at the end of the discussion that she would in principle be in favor of a more flexible approach to the rules for macro-typography:

“... because there are also different people. But I would find it good if it were done together with the people who need it, and that they assess whether what they’ve come up with – that they should always assess it straightaway – whether it’s really what it should be.”  
“I think you’ve got to get the people on board for whom you’re doing it, and then consider together how it can function. Or how it might be done, don’t you see? And then I think it’s a good idea. When you do it together and when you take all that into consideration, I think it would be a good thing, because people are different too, so why shouldn’t it be different as well, don’t you see? [...] And I think – I also know the newspaper in Finland, for example, I’ve already seen it, and I think it’s in part pretty well constructed, as it is.” (Papendorf in Bock, 2018:72)

Not all users of easy-to-read language can imagine using a different layout – especially those who have a long acquaintance with the genre. Because easy-to-read language is a relatively young form of language and is also a young design genre, we may assume that it will change a lot in the coming years as a result of research and practice. Rob Waller writes about this as follows:

“Design may not be the obvious route to solving the problem of literacy, where words would seem to be the main issue, but there are good reasons to take this path.” ... “higher-level literacy is about more than just reading the words. It is about reading purposefully and strategically. And it is easier to do this if the words have some shape and texture, if they are legible and accessible, and if someone has thought carefully about graphic alternatives when these work better than words alone.” (Waller, 2018)

## 6. Outlook

This study was preceded by a lengthy phase in which the participating disciplines discussed the proposed content of it. There was especially extensive reflection on how relevant factors might be analyzed simultaneously on a linguistic and a visual/rhetorical level.

Ultimately, we decided upon a meta-perspective. Already in an article of 2015, Bettina M. Bock proposed the “principle of appropriateness” for a reflective form of linguistic assessment. An analytical grid with five factors aids the assessment of the functionality of texts in easy-to-read language. Here, addressee-specific, communication-area-specific, content-specific, situational and sender-specific factors are differentiated. This analysis was carried out on an exemplary text (Bock, 2015). However, here, too, the text was only depicted and analyzed on the level of words and sentences. The actual appearance of the text is multimodal, however. The choice of font, font size, line length, images, white spaces, the paper, and the situational appearance all provide the text with further levels of information.

The design theoretician Hanno Ehse has also written about appropriateness; he believes that “... it is the task of the communication designer to develop an appropriate, visually effective solution while taking into consideration the aims and limitations of a project.” (Ehse in Joost and Scheuermann, 2008).

Siegwart  
The Influence  
of Macro-  
typography  
on the  
Comprehensibility of  
Texts in  
Easy-to-Read  
Language

The typographer Kurt Weidemann also sees the task of typography as follows:

*“To make language readable and comprehensible in a form appropriate to it; in other words, to make it clear.” (Weidemann, 1990).*

A visual/rhetorical analysis in accordance with the five factors of appropriateness can complement the linguistic analyses and create a comprehensive view of the document (Sieghart, 2018:39).

In the further course of the study, we expanded the analytical model by means of core findings from psychological intelligibility research (Christmann, 2000 and Groeben, 1982). The four linguistic intelligibility factors “linguistic simplicity”, “semantic brevity or verbosity (redundance)”, “cognitive structure/order”, and “motivational stimulants” (Bock, 2018) correspond to the following aspects of visual design: “legibility”, “readability”, “cognitive structure/order”, and “motivational stimulants.”

In this manner, we developed a transdisciplinary analytical tool with nine criteria. This enables us to analyze documents linguistically and visually from a meta-perspective (Bock and Sieghart, 2019). Initial practical tests have been successful. We are currently working on expanding this analysis instrument. Our goal is to provide marketing and press representatives in authorities and companies with a tool to understand the complex factors of accessible communication on a meta-level; and use it as a basis for briefings, and to assess the quality of results. This analytical tool can thus aid us on several levels to develop comprehensible, successful means of communication. It is to be hoped that future researchers will engage in scholarly reflection on, and in an empirical assessment of, this analytical tool also in an international context, and help in the further development of the tool.

**A p p e n d i x :**

**Inventory of signs  
for the transcriptions  
(excerpt)**

This is based on orthographic transcription rules (Dresing and Pehl 2018:20ff.), expanded by aspects of conversational linguistics according to GAT 2 (Selting et al., 2009).

Phenomena / rules	Signs / examples
<b>Deletions, elisions</b>	'ne, geht's, is 'n
<b>Words/sentences that are broken off</b>	gen/ gen/ ach so, genug Geld Das is ja wie 'ne / (.) Es geht um Kinofilme, ...
<b>Punctuation</b>	
- Point	Das weiß ich nich. (.)
- Comma	ich habe das und das Problem, ich möchte... ..., dass ...; Nee, ...; ..., ne?
- Question mark	So 'n Text hier?
- Colon	So, das Erste is:...; und da weiß ich: Aha,...
- Exclamation mark	Also Michael!
<b>Pauses (length)</b>	(.), (..), (...), (4)
<b>Breathing in and out</b>	°h / h° audible breathing in and out of ca. 0.2-0.5 seconds in duration °hh / hh° audible breathing in and out of ca. 0.5-0.8 seconds °hhh / hhh° audible breathing in and out of ca. 0.8-1.0 seconds
<b>Unintelligible statements</b>	
- Unintelligible passages	((unv.)), ((unv., very quiet)) Menschen(rechne)
- Assumed words	(Glaub ich jetzt.) (Der) Erste (Na/Nee), (nicht/nichts)
<b>Explanations of words, metalinguistic matters</b>	die 'Wäsche' kommt ja von 'waschen'

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