# WDT PTACPS

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## Abstract

Typographic letter shapes speak a visual language of their own that contributes, beyond legibility to the readability of written matter. Research reveals a continuous and increasing interest in the expressive potential of typography in general and typefaces in particular, along with a detrimental lack of a framework to guide semiotic questioning.

Building on previous hermeneutic speculation by Gérard Blanchard (1982), this study brings the interpretation of letter shapes down to the micro-level of typeface design, expanding the framework to include multimodal expressivity along the main categories of Semantic Differential scales (Osgood & al. 1957). Following the logic of the typeface designer and not only that of the reader, it considers shapes and connotations as continuums rather than discreet elements and carefully reframes both variables, thus providing a typographically sound foundation for the investigation of typeface connotations.

Drawing from perspectives and frameworks borrowed from linguistics, hermeneutics, artificial intelligence, neuroscience, social semiotics, statistics, sociology and psychology, it builds a theoretical approach to outline a designer's subjective interpretations of the meaning of shapes through the semiotic event. Then, by focusing on the basic design decisions that shape typefaces, such as x-height, modulation or slant, the present research further illustrates their impact on final letter shapes.

By linking shapes to a range of meanings, this research places letter shapes in a wider interpretative framework of typefaces as 'intentional agents', proposing keys to make typographetic resources serve textual content to their full potential. Furthermore, it provides researchers with an actionable theoretical framework for further interrogation, thus contributing to a discussion about the semiotics of letter shapes.

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# Preamble

1. Typeface: the design of a set of characters. 'In simple terms, the typeface is what you see and the font is what you use.' (Coles 2012: 9)

2. The Association Typographique Internationale (ATypI), founded in 1957 by Charles Peignot holds an annual conference in a different city every year. As a typeface<sup>1</sup> designer, I've long asked myself the question of 'which shapes trigger what connotations?'. The first time I came across a proper echo to my perceptions of connotations was in a book by typographer Stephen Coles. In *The Geometry of Type*, Coles details the particularities of the shapes of typefaces and comments on their history and use, dropping comments such as 'Good for mechanical simplicity with a Teutonic touch' or 'Good for debonair swagger'. There is even a foreword by typographer Erik Spiekermann that reads

> 'Details that stick out at large sizes may become invisible as the type gets smaller, but they can add warmth, texture and, yes, character. Type adds the sound to the tunes other people write. '(Coles 2012: 6)

I was not making it up, other people, or at least typographers, interpret shapes as meaningful.

I took advantage of a few Type conferences to question some leading graphic designers and typeface designers. Peter Knapp (17/11/2019, personal communication at Le Cadratin in Sottens during his exhibition) thought that we had reached a pinnacle of readability with Garamond, Bodoni and Frutiger, no need to bother with more. Nicolas Taffin (25/08/2015, personal communication at the Rencontres Internationales de Lure) casually explained that, unlike graphic design, which had developed under the pressure of marketing, typography had a humanistic superstructure. Bruno Maag, in his presentation with Alessia Nicotra (2014) at ATypI<sup>2</sup> Barcelona and later that day in conversation (21/09/2014), was firm that letter shapes conveyed emotion. Jeremy Tankard (personal communication at ATypI Barcelona 2014), when asked what he saw in text letter shapes, replied that they gave a sense of place and time. In contrast, Matthew Carter (in personal communication after his lecture at the Ecole Cantonale d'Art de Lausanne on 19/09/2018), shrugged that, at this size, it made very little difference to him.

The question looked like a fascinating research subject.



# **Reading guide**

The main text of this document is typeset in Swift Neue Pro light and *light italic*, designed by Gerard Unger (1942-2018). The light italic is used conventionally for book titles and words in languages other than English. **The most important concepts are typeset in bold.** Appendix B is typeset in DIN Next Rounded LT Pro regular.

For the sake of clarity, all the gloss is gathered in the left margin. Comments, definitions and figure descriptions are typeset in Swift Neue Pro regular and *regular italic*. Unless specified otherwise, the explanations and figures are mine.

The references are gathered in a bibliography starting on page 363. The definitions signalled by \* are expanded and gathered in a glossary of terms starting on page 377. While everything necessary for the comprehension of the text is on the pages themselves, the glossary expands on the definitions and opens perspectives and controversies, thus replacing long footnotes and gathering them in one place, with their own references.

1. The ampersand is an ET ligature, replacing the Latin word 'and'. The sections are separated by ampersands<sup>1</sup>, both from text and display typefaces. Their conventional meaning 'and' connects the various perspectives and symbolises the cumulative effect of layers of understanding they provide. Selected to show both repetition and variation, they appear in no particular order. Displayed on a full page, at the kind of size used by typeface designers to shape them, they give an opportunity for closer inspection of design features and their expressive potential.



# 1. Introduction

### 1.1. Dual system of notation and expression

Spoken words carry non-verbal information through human sound and gestures. While not quite replacing real human presence, letter forms in combination give a material body to literally voiceless words, allowing the message to travel through space and time. They constitute our best way to dress our thoughts for longevity. Like humans, letters are capable of extensive and flexible cooperation, making them an important vector of today's globalisation.

Whether for knowledge, trade or worship, the compound effects of written communication leave us with a network of roads that take readers on different subjective journeys. On these journeys, the expressivity of letter shapes is the equivalent of the scenic qualities of the landscape, a real plus when the purpose of travel is tourism, something to gladden the heart when commuting regularly. On the other hand, it can be a distraction for a traveler wishing to take advantage of the journey to concentrate on some tasks.

Johannes Gutenberg's introduction of typographic process in Europe in the 1450's triggered a number of chain reactions that deeply shaped the world we know and are the object of 1. Printing type being known in the far East several centuries before Gutenberg, there may be studies about this effect pertaining to CJK characters, I chose to focus here on the Latin alphabet.

2. The exploration is inspired by the definition of Art proposed by Enrique Martinez Celava in a conversation with Krista Tippett (2017): '[It is art] when something has the capacity to embody consciousness in a way that can be unfolded.' (On Being, June 15th, 2017)

\* punch cutting: the process of making a punch by cutting the design on it. hundreds of studies. This research is concerned with a particular side effect of the typographic process that typographer Fernand Baudin (1994) called *'l'effet Gutenberg'*<sup>1</sup>: Gutenberg separated people who draw letter shapes from those who assemble them to design documents. Thus, writing with 'prefabricated letters', as typographer Gerrit Noordzij (2005: 16) calls the activity of typography, implies that the shaping of the page is done by someone else, and at a different time, than the shaping of the letters. The focus of this research is on the shaping of the letters. And particularly, considering typeface design as an art form rather than merely a craft defined by a brief, it sets out to explore the embedding of formal intention into the letter shapes<sup>2</sup> by the typeface designer, an embodiment of intention that can be unfolded through reading.

Designers create this embedding almost intuitively: my aim in this research is to bridge some of the knowing-doing gap through the formulation of the questions arising from my own practice as a typeface designer and the search for answers in other disciplines.

In the process of designing text typefaces, I became aware of a narrow space of freedom where the placement of points and the shaping of curves were not imposed by technical requirements or typographic customs. Moving the black / white edge hither and thither seems to bear meaning in a way I didn't then understand.

I speculated that our tendency to project human qualities on written words stems from their status as substitute voice and possibly the fact that for a long time, most written records were religious texts, probably believed by illiterate people to allow the clergy to speak the words of gods. In any case, in the first couple of centuries of punch cutting<sup>\*</sup>, typefaces were developed to give a familiar shape to ancient texts. The forms handwritten by monks to conserve religious texts along with the writings of Greek and Roman scholars were copied to shape movable type, rooting the art of typography in humanistic tradition and giving readers a sense of appropriateness of form to content. But how does this appropriateness really work? What is this perceived expression and what triggers it?

As a typeface design student at the University of Reading at the time, I started asking questions. The answers pointed to a creative space left to aesthetic choices and personal expression of the typeface designer. My MA dissertation (Janet 2012) researched the hermeneutic potential of typeface classification and the elusive mathematical possibilities of labelling clusters of typefaces by 'mood' or 'atmosphere value'.

Typeface design practice for commercial projects increased my awareness of a 'typographetic'<sup>1</sup> system, or 'body language', of the shapes I was handling and my frustration with the lack of coherent theory.

Typography is a system like a Calder mobile. When the page layout changes -the justification, the margins, the line spacing, etc.– the rest needs to adjust. Typographic families are typefaces designed to work together and complete each other. They are built to allow different visual appearances, or voices, within the same metric constraints. There is no limit to the diversity of members of a same family. Common, basic ones associate a regular weight with a matching italic and a bold. More complex families include multiple scripts in a dozen weights in several widths, with italic, informal, serif, sans serif, stencil and display styles, with lots of alternates. For example, Positype's 'Air Superfamily' comes as a bundle of 81 different fonts (on www.myfonts.com on 07/05/2016). Like human families that do not always include a father, a little sister or a third cousin twice removed, type families literally come in all shapes and sizes.

The design thinking behind the association of the 'narrow Greek italic ultra-thin' and the 'wide bold Latin' may not be immediately apparent to the reader, but the shapes are nevertheless designed for visual contrast AND compatibility by means of proportions, rhythm, curves, terminals, etc. For

1. The term 'typographetic'a ppears in the title and throughout this thesis. I use it to designate the analysis of the visual properties of typographic shapes.

It is derived from the linguistic term 'graphetic' (the study of the physical properties used in writing) and narrowed to the properties of typographic shapes in particular. It defines, in precise unambiguous terms, a theoretical space distinct from other linguistic fields of study.

This allows the examination of the expressivity of lettershapes as an object of inquiry in its own right. The discussion around the choice of this term is presented in section 4.5.1. an impressive demonstration, open any good quality print dictionary in a language using another script and marvel at the density of diversity in typographic forms. Each entry will display the word, its pronunciation, its translation, an example, sometimes a quote, with only visual clues as to the various natures of each content. Beyond the function of visual differentiation, each typeface of the family gives a distinct voice to its assigned content. Typographic families testify to the presence of a sign-system, a system of expression embedded in the system of notation constituted by the letters. However, teasing apart the semiotic\* system of expression from the alphabetical system of notation is a complex task.

Therefore, my primary focus in this research is on the link between the shapes at the design stage and their contribution to the message at the reading stage. If shapes contribute to meaning in predictable ways, the correlations are not arbitrary and it is reasonable to think that they follow patterns. These patterns are shifting, changing with space and time, yet they emerge from shapes and contribute to the experience of reading the text.



\* semiosis: the process by which a culture produces signs and / or attributes meaning to signs.

Fig. 1: Life-cycle of letter shapes

Computer scientist Nick Szabo (2008) proposes to distinguish between the 'real world' and the 'digital' reality of things by the use of the terms 'wet' and 'dry'. Following Szabo, I propose to consider that letters are formed in the 'wet' space of the designer's mind, then appear on the 'dry' space of paper or screen in front of reader's eyes. This allows to treat both states as versions of the same object. There are many possible angles of inquiry around the life cycle of a letter shape shown in figure 1.

The patterns can be appreciated at the design stage, at the composition stage or at the stage of a reading event. They can be described mathematically, since digital type is now a kind of software code. They can be subjectively described by the reader, indeed, methods could be anything from quantitative to divinatory.

I decided to consider as many points of view as seemed pertinent, assuming like Barrett & Bolt that:

'The interplay of ideas from disparate areas of knowledge in creative arts research creates conditions for the emergence of new analogies, metaphors and models for understanding objects of enquiry. Hence the capacity of artistic research for illuminating subject matter of both the artistic domain as well as that belonging to other domains and disciplines of knowledge.' (Barrett & Bolt 2019:7)

I interrogated different disciplines to see if their approaches proposed any theoretical explanation of the double process of creation and interpretation of shapes that happens in the development of typefaces. My decision to focus on the design stage is rooted in practice. While the interest of the research is purely theoretical, it takes its elements from the typeface designer's workflow and explores their possible interpretations. It implies a questioning of practice 'to produce new knowledge that has operational significance for that practice' (Candy 2006: 1), rather than the production of typeface design. The result is a theoretical pluri-disciplinary journey through the landscape of typographic expressivity.



### 1.2. Aims and relevance of the study

The original questioning of the shapes stems from the practice of design, the experience of the possibilities to modify shapes within the narrow constraints of text typography and the search for good typographic fits. The aim of this research is to contribute to the understanding of **design** intentions of letter shapes by sharing the typeface designer's point of view informed by new perspectives borrowed from other disciplines. It is also to **contribute to** the methodological reflection that directs experimentation by researchers from all horizons on the expressivity of typefaces. Furthermore, to propose a framework of typographic variables that may contribute to expressivity and a hermeneutic model of typographic letter shapes, organised around these variables interpreted as embedding intention, leading to further research towards a grammar of visual design.

The visual appearance of letters works as visible cues (Drucker 2014). Those cues, hidden in plain sight, contribute to subjective perception by adding tone, pitch, rhythm and even credibility to the text. The relative importance of these dimensions grows with the increased fluidity of other visual environmental cues. Together, these cues constitute a visual rhetoric\* of persuasion. Understanding the role of letter shapes in the overall message contributes to accurate expression of intention and constitutes therefore a valuable tool, both for the encoding and the decoding of messages set with prefabricated letters. By providing a typographically sounder methodological basis for experimentation, this research constitutes a step towards better formalisation of intuitive knowledge, opening possibilities of testing correlations.

\* visual rhetoric, as it is employed in the discipline of rhetoric, has two meanings. One refers to visual images themselvesvisual communication that constitutes the object of study. The second meaning references a perspective or approach rhetorical scholars adopt as they study visual rhetoric.



### 1.3. Research question

The investigation stems from a genuine personal question. While developing the Angata typeface (featured in the *Call for Type*, exhibition of contemporary typeface design, at the Gutenberg Museum, Mainz in 2013) for the Master in Typeface Design at the University of Reading, I found the expressive possibilities much wider than expected, considering the constraints of text typography. While the choices were mine, the consequences on the 'mood' of the typeface, for lack of a better word, were both significant and difficult to put into words. The question 'What do letter shapes shape?' was nagging and the answers to be found within the field of typography were elusive, unsatisfactory, sometimes contradictory.

The fundamental question is the nature of the expressivity of shapes, i.e. what happens in the reading process when the same text, i.e. the same string of unicode\* positions, is set, for example, in Times New Roman or in Ubuntu? Despite its apparent cultural stability, type is a cultural event, always performing in different contexts and defying attempts to establish structural relationships with connotations. The question therefore becomes: 'How an amodal meaning emerges from modal phenomena?' (Groupe µ 2015: 10)

The conceptual bridge between the modal shapes and the seemingly amodal connotations is long and needs to rest on many pillars. The first step is to define the location of these pillars and gather material to build them. What are typographic connotations? What defines letter shapes? How do we embed design intentions? What are the smallest units of expressivity? What happens when I read and interpret them? How can we handle shapes and connotations to further typographic knowledge? Rather than a mere catalogue description of shapes, **this research is my typeface designer's attempt to satisfy my own curiosity to think about type in different ways, gathering clues wherever I found them,** 

\* unicode is a character encoding standard that is used to represent written language in digital form. The unicode standard assigns a unique numeric code point to each character. (I.e. this is a small cap letter b; this is a lining figure 8: this is an exclamation point, etc.) which allows it to be represented consistently across different devices and software applications.

mostly outside the typographic field, to sketch a bigger picture of the role of shapes in the communication process.

### 1.4. Scope & limitations

This research project interrogates the relationship between the forms and the functions of letter shapes. However it specifically focuses only on a particular aspect of this relationship, making it difficult to define the field. The semantic part of the relationship, central to legibility studies for example, is outside of the present scope.

The focus is on the expressive potential of static Latin text type. Latin shapes are my cultural and professional environment, providing both easy access and deceptive familiarity. But more importantly for the exploration of the link between forms and expressive function, Latin shapes, unlike those of most other writing systems, have been deeply influenced and informed by centuries of intensive typographic treatment.

The choice to limit the scope to text faces places the research questions in an area of readability that sits within legibility. As Ilene Strizver explains in *Type Rules*, display typefaces trade legibility for a more powerful feeling (Strizver 2010). When the size of letters increases dramatically, the constraints loosen and typography gets closer to lettering. When their size decreases dramatically, the constraints tighten and there is very little room for stylistic variations. While scaling letters makes their expressivity more obvious, opening expressive possibilities makes comparisons absurd and generates unmanageable complexity. At text size – arbitrarily set here under 12 points because continuous text is rarely set bigger letters must fit within tight constraints if they are to combine easily with any of the other glyphs in the typeface's character set. Those constraints provide a firm starting point to observe and compare shape variations.

\* feature: term used in linguistics and phonetics to refer to any typical or noticeable property of spoken or written language. The word 'typeface' generally means a single design or a set of related designs (regular, italic, bold, etc.). In the context of this research, I use it in a narrow meaning of a single set of glyphs sharing common stylistic features\* and producing paragraphs of an even typographic gray when set at sizes around 10 points, regardless of the medium. Typefaces with much personality, such as those belonging to the script classifications, do not set well in 10 points, even in the cases where they remain legible. Like display fonts, they sit at the edge of my preoccupations and are sometimes mentioned or displayed as illustrations. However, handwriting being at the very origin of typography, script-like typographic features are central in the speculations about the embedding of a human dimension in the material shape of words.

This study is concerned only with serif and sans serif typefaces designed for continuous reading even if it takes many detours into other areas. This means that the differences are subtle, the straightjacket of design constraints being tight. The questions revolve around the intention embedded before typesetting without any consideration for the differences that might result of their output on various media, such as paper or screens. The term 'font'\* is used in reference to a single weight of a metal typeface or a single digital software file. The fields use terms with often multiple or complex uses. These terms are followed by a \* when they appear the first time and constitute entries in the glossary of terms in Appendix A.

The focus is on the expressivity of letter shapes themselves, which has different kinds of implications:

- It is about the visual characteristics of typeface design, not the typography, about 'the black' and some of 'the white', and not about all the layout questions concerning 'the white'.
- The point is not to understand how shapes have come to be the way they are, however trans-disciplinary, this research is not historical. Because of the context of this

study and my personal background, the sources considered are very diverse but limited to the French and English languages and some German.

- It is about the shapes, rather than their interaction with their context. While not limited to book typography, the presupposed context is that of a book, a text that is its own independent context rather than a very context dependent text, such as an advertisement. Generally there is no presupposed visual frame, the reader has full control over their access to the text.
- Some connotative associations to typefaces are geographically specific<sup>1</sup>, referring to repeated use in particular contexts. Consequently, these considerations are beyond the scope of the present research, as they would require very different methods of approach. The research centres on aspects of our understanding of letter shapes that bear universal associations and might be considered in a richer multi-script perspective in ulterior research.

Therefore the issues of ornamental or colour fonts, calligraphy and lettering, moving fonts, parametric, variable or interactive fonts may be mentioned when relevant but will not be the object of any specific attention.

1. Gill sans, for example has particular British post WWII connotations in the UK.



### 1.5. Chapter structure

After the present introduction, the second chapter is a contextual review of the studies and typographic works addressing directly the question of the impact of letter shapes. It outlines the difficulty to define variables to test the expressivity of letter shapes in a robust and convincing manner. **This difficulty in defining the variables is the gap in knowledge that orients the research**.

The third chapter gives explanations about the method followed by the present research. Then, using my own points of view as a reader and a designer, the inquiry moves from locating the ontology of typographic expressivity in a wider cultural field of study to interrogating shapes from quantitative statistical angle. It shows the difficulty of untangling the expressive functions of letters from their semantic functions as a notation system. Beyond neurological responses in readers to different typefaces, there is little to no academic bridging with physical sciences.

The fourth chapter groups the approaches and concepts that define the location of letter shape expressivity in knowledge, shedding light on what shapes shape. It explores the concepts of meme, algorithmic clustering, neuroscientific imaging, linguistics and semiotics for their potential usability and to locate a space in knowledge for the study of expressivity. From this exploration, three main functions of typographic shapes emerge as crucial:

- First, the elusive possibility to carry text without any expressive colouring. Extracting from the literature a set of dimensions commonly perceived in the letter shapes, it defines a negative space of visual **typographic neutrality**.
- Second, the use of different letter shapes for **salient sign posting of meaning**, such as italic, bold or capitalisation. It draws from linguistics an understanding of typographic contrast.

• Thirdly, the processes by which letter shapes **carry connotations**, making them the agent of intentional design.

Chapter five examines in detail the processes at work in this third **function of expressivity**. It gathers theories which relate shapes to connotations, from statistical to behavioural psychology, social semiotics, gestalt theory and even graphology. They frame the exploration of the content and limitations of a hypothetic reader's interpretations of shapes by asking 'What do letter shapes shape?'. This enables a description of how letter shapes are used as simplifying heuristics – or rules of thumb – to make sense of written communication.

Chapter six is devoted to the clarification of typeface design issues to guide the elaboration of further studies. Relying on professional understanding of typeface design, the argument of the last part combines perspectives from typeface design practice, theory and tools to answer the question 'Are there smaller relevant units of typographic expression than typefaces?'. The result is a **theoretical framework linking axes of design variations with corresponding connotative affordances**, thus defining 'meaning-making units'. It also proposes a set of hypotheses for further testing, which open a discourse as to whether we can design for a reader's emotional response.



# 2. Contextual review

### 2.1. Experimental research

This chapter outlines the state of formal knowledge about the expressivity of letter shapes. The first part shows that interest and contributions come from very diverse fields of research and considers the obstacles researchers outside of the field of typography face in defining independent variables (typographic elements) and dependent variables (connotative elements) to be tested for correlations. The second part shows that the field of typography develops and transmits the knowledge as know-how based in practice and, for numerous reasons, generates little formal knowledge on the underlying operating principles. This gap has roots in the cultural context of typographic traditions but also in the complexity of a process that happens below most reader's threshold of consciousness.

The expressivity of typographic letter shapes has been a focus of design researcher's attention since Anna Berliner's study of what she called the 'atmosphere value' of printing type (Berliner 1920). The expression is still in use, in German and English, alongside with 'feeling tone' (Ovink 1938), 'congeniality' (Zachrisson 1965), 'emotional meaning' (Kastl & Child 1968), 'connotative dimensions' (Rowe 1982), 'visual \* perlocutionary: term used in the theory of speech acts to refer to an act performed by making an utterance which intrinsically involves an effect on the behaviour, beliefs, feelings, etc., of a listener. rhetoric' (Kinross 1985), 'typographic allusion' (Lewis & Walker 1989), 'quality of grace' (Langen & al. 1994), 'expressivity' (Stöckl 2005), 'perlocutionary'\* effect (Crystal 1997), 'semantic associations' (Childers & Jass 2002), 'stylistics' Nørgaard (2009), 'typeface personality' (Hazlett & al. 2013), 'impression' (Ueda & al. 2021) and 'psychophonotypographics' (Connor 2021), to name a few.

These concepts do not overlap perfectly. Some are more specific while some are broader, but by and large they designate and concern themselves with a shared issue. The diversity in names is representative of the lack of consensus on how to handle this complex object. This section outlines some of the findings but also some of the problems encountered by researchers and the methodological issues they raise.

Previous research shows consistently that:

- Typefaces are interpreted as having persona, or personality (Bartram 1982; Rowe 1982; Brumberger 2003a; Shaikh 2007; Hazlett & al. 2013)
- Personality can be more or less **appropriate** for specific uses (Poffenberger & Franken 1923; Schiller 1935; Haskins 1958; Walker Smith & Livingston 1986; Lewis & Walker, 1989; Brumberger 2003b; Doyle & Bottomley 2004; Shaikh 2006 & 2007)
- Reader's interpretations are **predictable** (Ovink 1938; Osgood 1957; Brinton 1961; Bartram 1982; Rowe 1982; Morrison 1986; Walker Smith & Livingston 1987; Lewis & Walker 1989; Langen 1994; Childers 2002; Brumberger 2003a; Mackiewicz 2004; Shaikh Chaparro & Fox 2006; Shaikh 2007)
- **Design professionals** feel similarly but stronger than the general public about connotations (Brinton 1961; Tannenbaum & al. 1964; Bartram 1982; Morrison 1986)

However, previous studies fail to convincingly address the question of the nature of typographic letter shapes connotations. In an appendix to her thesis on the legibility of onscreen typefaces, Dawn Shaikh (2007: 303-311) reviews the attributes used in typeface personality studies since 1920. She lists over 400 different words. In a later study (Shaikh 2009) she attempts to sort a selection into Semantic Differential scales.

Most of the dimensions used throughout the studies are adjectives (such as 'simple', 'weak' or 'dictatorial'), some nouns (such as 'luxury', 'affection for children' or 'courtesy'). Their diversity testifies to the faith researchers have in the expressivity of shapes but also to their uncertainty as to the nature of what is expressed. Such diversity raises questions about the methodology adopted. The studies reported by Shaikh (2007) and more recent studies (Gutschi 2008; Hazlett & al. 2013) use different systems of evaluation, making their findings non-cumulative and difficult to replicate.

Surprisingly little formal research comes from the field of typography; and other studies or experimentations, originating from the fields of social semiotics (Stöckl 2005; Van Leeuwen 2006; Baldry & Thibault 2006; Serafini & al. 2012; Nørgaard 2009), psychology (Gutschi 2008), graphic design (Silic & al. 2009; Hyndman 2015), mathematics (Loviscach 2011; Kaasila 2017) or marketing (McCarthy & Mothersbaugh 2002; Lieven & al. 2015) contribute to more confusion.

The question of the expressivity of typefaces appears both strong in people's awareness and yet very inconclusive in formal explanations. The choices of independent variables (typefaces) and dependent variables (connotations) also present important issues, blurring the understanding of which design features account for which attributed connotations. Those issues are enmeshed but separated here for the sake of clarity.



### 2.1.1. Independent variables: typefaces

The choice of typographic and connotative variables depends on the approach to unpacking the research problem of linking typefaces to connotations. Psychological studies adopt cognitive-behavioural approaches, focusing on reader's responses to typefaces. It is possible to experiment with typefaces without specifying what differentiates them. Researchers testing appropriateness use a modified Stroop effect to reveal incongruence. It allows researchers to associate shapes and messages while entirely by-passing the question of describing either. At best, it confirms that readability increases when visual rhetoric\* is congruent with verbal rhetoric. Researchers testing connotations can also avoid preliminary work on the variables. For example, Christian Gutschi (1995) tested for 'atmosphere value' ten whole typefaces chosen for the diversity of their features and, only then, attempted to identify the differentiating design features in order to link them to the connotations. Pursuing the investigation into the connotations of typefaces, his PhD dissertation compares connotations of typefaces between German speakers and English speakers. Forgoing breaking typefaces into features and using photographs of facial expressions as dependent variables, Gutschi aims at a global level of correlation where he concludes, besides answering the research questions, that:

> 'The aesthetic form of a typeface, with high plausibility, can be seen as playing a secondary role when it comes to emotional connotations. [...] The way test persons rate their subjective perception of typefaces (emotional vs. rational) is no valid indicator for the appropriate assignment of typefaces to emotions.' (Gutschi 2008, English abstract)

Typefaces may seem like natural discrete objects to some researchers but digital typeface designers who commonly

\* rhetoric: he theory and practice of eloquence, whether spoken or written.

1. This notion of continuum led Underware type foundry to develop the SuperFontTM\*, a font file that 'contains any font that can be designed with the current technology, including not only all the fonts which have been designed already, but also all the fonts that will be designed in the future.' (Underware 2018: central spread.)

design by interpolation and extrapolation tend to think of them as a continuum1, a multi-dimensional landscape of shapes morphing into each other. Treating typefaces as opaque found objects therefore seems a plausible explanation for inconclusive results. It denies their origin as cultural objects, very consciously constructed by multiple design decisions. This origin is an argument to think that smaller units rather than whole typefaces can still be meaningful semiotic elements – before reaching the scale of the individual point that has no different meaning than the next point –hinting at a duality of patterning. Until recently, researchers have not tested individual design features, always whole typefaces. Actual research on the anatomical features of typefaces is often called for (Mackiewicz & Moeller 2004; McCarthy & Mothersbaugh 2002; Shaikh 2007), though not satisfactorily, if at all, carried out.

Serafini and Clausen report 'a recent shift in the domain of graphic design to conceptualize typography as a semiotic resource\* for communication with the potential for conveying meanings, rather than as an abstract' (Serafini & Clausen 2012: 8). But even studies that consider typography as a multimodal resource (Van Leeuwen 2006, Baldry & Thibault 2006; Nørgaard 2009) only pay superficial attention to the actual shapes of letters and do not venture into systematic interpretation.

Some research declares an intention to account for detailed typographic variations but leaves the reader unconvinced. Hartmut Stöckl (2005), in a social semiotics perspective, divides typographic elements in four categories: microtypography, which deals with characters; mesotypography, which concerns spacing; macrotypography, which describes the graphic structure of the document and paratypography which relates to the material, instruments and techniques. However, there is no guidance as to which element accounts for which part of the signification. Typeface design elements can be found in micro- (typeface treated as a whole), meso-(spacing) and macrotypography (italic) and never get identified individually, prefiguring Dawn Shaikh's words:

\* semiotic resources are the actions, materials and artifacts we use for communicative purposes, whether produced physiologically or technologically together with the wavs in which these resources can be organized.
'Previous research does not reveal any consistent patterns in the role of typographic elements on typeface personality. The elements are intricately connected and none of the analyses performed took into account the multivariate nature of typefaces.' (Shaikh 2007: 63)

Along with a semiotic analysis of typography in children's books, Serafini & Clausen (2012) propose a framework for interpreting typefaces as signifiers with their own meaning potential. Adapting Machin's (2007) inventory of typographical meaning potential, they come up with ('weight'/'color'/'size'/ 'slant'/'framing'/'formality'/'flourish') that account for what they see in children's books but leave the typeface designer frustrated with a slicing of real shapes into semiotic modes of relative or little typographic relevance. Weight, size and slant are indeed measurable dimensions but if a variation in font size changes the degree of perception, it doesn't change the shape (unless when using multiple masters<sup>1\*</sup> for different optical sizes). 'Framing' and 'color' have nothing to do with shapes and 'formality' and 'flourish' are very vague concepts, varying each with several typographic features such as 'cursiveness', 'stroke modulation' (contrast), 'terminals', etc.

Another typographically frustrating example comes from marketing research. In an article published in 2002, Michael McCarthy and David Mothersbaugh call typography 'a relatively underinvestigated executional element' (McCarthy & Mothersbaugh 2002: 664) and ask whether it can be used to increase consumer's motivation. They call typeface characteristics 'control features' and identify as features: 'style' (e.g. serifs or tails), 'size', 'x-height'\*, 'weight', 'slant', 'stress', 'colour' and 'movement' (for digital type). The list is presented as an obvious way of breaking down the issue. They call for:

> [...] 'a set of first principles linking specific control features with specific semantic associations so that predictions can be made about the primary and secondary associations that these control features are likely to engender.' (McCarthy & Mothersbaugh 2002: 668)

In the end, their research is limited to the effects of combined factors on legibility. It assumes that Lucida sans and Lucida serif

1. Multiple masters is a technology developed by Adobe to allow optical adjustments of shapes according to display size by means of interpolation between different designs.

\*x-height: the height of the lowercase letter 'x' of a font.It is and important determinant of the apparent size of a font, according to its proportional relationship to the extenders. (Henestrosa & al. 2012: 145)

Design Characteristic	High	Low	Characteristics	Design Factor
Ornate/plain	ABCHabey	ABCYabcy	Universal	Elaborate
Special use/common use	ABCYabcy	ABCYabcy	Specific	Elaborate
Depth/flatness	ABCYabey	ABCYabcy	Universal	Elaborate
Distinctive/not distinctive	36CHapcy	ABCYabcy	Universal	Elaborate
Conveys meaning/does not convey meaning	ABCYOBCY	ABCYabcy	Universal	Elaborate
Readable/not readable	ABCYabcy	ABEV abey	Specific	Elaborate
Balanced/unbalanced	ABCYabcy	AB <yaly< td=""><td>Universal</td><td>Harmony</td></yaly<>	Universal	Harmony
Smooth/rough	HOB C Yabey	ABCYabcy	Universal	Harmony
Symmetrical/asymmetrical	ABCYabcy	ABCYabcy	Universal	Harmony
Uniform/not uniform	ABCYabcy	ABCYADCI	Universal	Harmony
Organic/geometrica	HBCVabcy	ABCYabcy	Universal	Natural
Looks typed/looks handwritten	ABCYabcy	ABCYabcy	Specific	Natural
Active/passive	ABCYabcy	ABCYabcy	Universal	Natural
Slanted/straight	ABCYaboy	ABCYabcy	Universal	Natural
Curved/angular	ABCYabcy	ABCYahoy	Universal	Natural
Heavy/light	ABCYabcy	ABCVabey	Specific	Weight
Short and fat/tall and thin	ABCYabey	ABCYabcy	Specific	Weight
Repeated/no repeated elements	ABCYabcy	ABCYabcy	Specific	Weight
Serif/sans serif	ABCYabcy	ABCYabcy	Specific	Flourish
Ascenders are pronounced/not pronouncedb	ABCVabey	ABCYyabcy	Specific	Flourish
Descenders are pronounced/not pronounced	ABCYaboy	ABCYabcy	Specific	Flourish
Condensed/extended <sup>c</sup>	ABCYabey	ABCYabcy	Specific	Compressed
x-Height: tall/shortd	ABCYabcyx	a BCY abeyx	Specific	Compressed

TABLE 1

<sup>a</sup>Organic fonts are more irregular, unplanned, or natural, whereas geometric fonts resemble objects that are man-made, planned, or measured. <sup>b</sup>Ascenders (descenders) are the parts of the letter that go above (below) the main body, such as the top of a lowercase h (the tail of a lower-case y). Pronounced ascenders (descenders) appear to go significantly above (below) the body of the letter or stand out in their influence on the appearance of the letter.

case y). Pronounced ascenders (descenders) appear to go significantly above (below) the body of the letter or stand out in their influence on the appearance of the letter. "Condensed" refers to only the width of the letter. Condensed letters are narrow, and extended letters have a wider base. "X-Height" refers to the height of the lowercase x in the font. Tall letters are letters for which the height of the x almost equals that of the upper-case letter. Short x-height course when the x is much shorter than the uppercase letter. Notes: A more complete set of examples, including examples for the response variables, is available on request.

Fig. 2: Examples of Design Characteristics tested for connotations by P. Henderson & al. (2004: 63)

are the same typeface with only the serifs as difference -when the removal or addition of serifs affects spacing and design of the upper parts of letters too- and uses the software Fontographer to engineer the x-height variation to be tested, thus changing the proportions of the letters beyond recognition.

As particularly well-illustrated in the table (figure 2), some attempts at defining 'design characteristics' make little typographic sense as, to take one example, the shift from 'heavy' to 'light' is applied to shapes that also diverge in modulation, x-height, skeleton shape, terminals, etc. The same type of problem seems to apply to most design characteristics preventing any conclusion about semantic associations.

Within this context, a step closer to identifying and isolating design features comes from Jo Mackiewicz (2005). In an article titled 'How to use five letterforms to gauge a typeface's personality', she proposes to professionals and students in technical communication a method to interpret

design features and reduce the subjectivity of font selection, with this preliminary statement:

'It should be noted at the outset that typeface anatomy is not the only variable that contributes to typeface personality. People associate typefaces with the contexts in which they are often seen, and these contexts lend their tone to typefaces. [...] In short, typefaces carry the weight of their history-of-use with them, along with their anatomical features.' (Mackiewicz, 2005: 293).

Mackiewicz chose the typefaces to be tested for diversity among both text and display faces. She presented them as alphabetical strings of letters and a pangram and analysed their features after their connotations were evaluated to determine which features were common to typefaces with similar ranking on the 'Friendly' scale and those with similar ranking on the 'Professional' scale. For the feature analysis,

	Friendly	Professional	
Stroke completeness	Broken construction		
Terminals	Rounded	Balanced straight edged	
Baseline	J dipping below the baseline	J sitting on the baseline	
Weight		Moderate	
Thick to thin transition		Moderate	
x-height / cap-height		Moderate	
Crossbar of the e	Oblique	Horizontal	
a & g	Single story ( <b>g</b> & <b>a</b> )	Double story (g & a)	

Fig. 3: Summary of Friendly / Professional attributes (based on Mackiewicz's 2005 findings) she used a five-letter word (Jagen), devised to be particularly 'dense in anatomical information' (Mackiewicz, 2005: 298) She found that Friendly and Professional typefaces displayed the following features (figure 3):

If some of the findings are almost teleologic –informal typefaces are designed with single storey **g** and **a**, simpler forms closer to handwriting– the notion that incompleteness or broken construction and general imperfection of shapes contribute to friendliness, as opposed to professionalism, constitutes an interesting interpretation that points towards semiotic meaning of letters's skeletons. And the notion that moderation in the features of shapes contributes to perceived professionalism corroborates Gutschi's (2008) findings about relative neutrality.

A researcher's desire to test a variety of typefaces leads to odd panels of options submitted to tests. For differences to be obvious, they often select a mixture of text and display faces, even when calling them all 'text faces', treating them as if they were suitable for the same purposes. Lewis & Walker treated Gill ultrabold italic as a text face (1989), McCarthy and Mothersbaugh (2002), refer to the serif vs. sans serif issue as ornament, Rowe (1982) tested a mixture of text and display faces at display size, calling them 'general' (Helvetica, Garamond, Bodoni, Palatino and Times New Roman) and 'novelty' (Cloister Black, Excelsior Script, Broadway, Libra, and Legend), to name but a few. No consideration is given to the typeface's original purpose. Even though that purpose defines a set of constraints that contribute significantly to the perceived personality of the face. Whatever the stimulus chosen to evaluate the type, it can not be fair to such different shapes. The need for rational principles to select independent variables and define their dimensions calls for some methodological investigation.



#### 2.1.2. Dependent variables: connotations

The selection of connotations to choose from also raises issues. As we have seen, appropriateness-studies manage to bypass the description of connotations. Other psychological studies of typefaces often focus on typeface 'persona', 'personality' or 'personality traits'. However, there is often little discussion of how to describe a persona or personality. The adjectives seem chosen intuitively by the researcher and range from the descriptive 'small', 'clear', 'soft' to the anthropomorphic 'playful', 'bad tempered', 'feminine', by way of the connotative 'expensive', 'retro' or 'organic'. Some attributes are used alone, some are paired with an opposite. For example, 'calm' is used opposed to 'not calm' (Henderson & al. 2004), 'agitated' (Tantillo & al. 1995), 'exciting' (Morrison, 1986), 'lively' (Wendt 1968) and bundled with 'serene, soothing, tender, longing, romantic, plaintive, sentimental' (Kastl & Child 1968).

1. Semantic Differential scales are discussed further in the section on cross-modal correspondences. An alternative to simply offering a set of adjectives is to use Semantic Differential scales<sup>1</sup>. Osgood, Suci and Tannenbaum, in *The Measurement of Meaning* (1957), propose the use of Semantic Differential as scales for rating the connotative meaning of objects and concepts. Each scale is a bipolar adjective pair with usually 5 or 7 positions. Factor analysis of large collections of Semantic Differential scales led them to group factors into three main categories (Evaluation, Potency and Activity) because they seem to be cross-culturally relevant to describe attitudes towards words and phrases.

'Evaluation' groups adjectives relating to 'good, pleasant and beautiful'; 'Potency' groups adjectives relating to 'strong, brave, rugged' and 'Activity' groups adjectives relating to 'hot, active, fast'. –Since then (Bentler & La Voie 1972), other semantic categories have been found to be universal (Typicality, Reality, Complexity, Organisation and Stimulation), but do not seem to have appeared in studies on typefaces. The Semantic Differential has been widely used in psychology and marketing studies, with or without grouping attributes into categories. (Bartram 1982; Rowe 1982; Langen & al. 1994; Brumberger 2003a; Henderson 2004; Shaikh 2007; Hazlett & al. 2013). It seems to be accepted as relevant when evaluating shapes without much questioning. Furthermore, the choice of bipolar pairs of adjectives seems entirely intuitive, mixing associations and perceptions. However, there is little convergence in the interpretation of the results or in the nature of the associations.

Some adjectives such as 'bold', 'delicate' or 'elegant' may be assumed to describe the typeface itself; others, such as 'dreamy', 'helpful' or 'sex appeal' could qualify the personality of the typeface and / or the person authoring the message, or perhaps the product associated with the message. And no one offers clarification as to whether the reader's perception is an emotion, a connotation, a mood, a degree of formality, or information on the targeted reader, or on the person who selected the type.

Studies assume that typefaces have fixed relationships to connotations, they do not. Though type seems to be stable, it is not. In fact, as we will see, typographical connotations are cultural events.



### 2.2. The typographic perspective

The expressivity of typographic shapes seems an obviously legitimate inquiry to the rest of the world. Typographers also understand that selecting a typeface is a rhetorical choice. But the explanation of how it works is complicated. This chapter surveys the typographic literature about expressivity (not strictly limited to text type) and examines the elements that may contribute to the scarcity of structured research on the subject.

As a field of research, the semiotic language of letter shapes, lies in a vague region of design called readability, understood here as the potential of forming a rich mental representation of the meaning of a text. Walter Tracy, in *Letters of Credit* (1986), defines typographic legibility as the quality of being decipherable and recognisable. He explains further:

> 'Readability is a different thing. The dictionary may say that it, too, means easy to read\*. In typography we can give the word localised meaning, thus: if the columns of a newspaper or a magazine or the pages of a book can be read for many minutes at a time without strain or difficulty, then we can say that the type has good readability. The term describes the quality of visual comfort – an important requirement in the comprehension of long stretches of text but, paradoxically, not so important in such things as telephone directories or air-line time-tables, where the reader is not reading continuously but searching for a single item of information.' (Tracy 1986: 31)

This definition indicates that a significant part of readability has to do with layout and as far as typography, and typefaces in particular, are concerned, there is a significant overlap between readability and legibility. Indeed, most factors that contribute to letter identification also make the text more comfortable to read. Questions relative to readability are most relevant once legibility is established as a prerequisite, since going to extreme with shapes in the name of expressivity quickly jeopardises legibility. However, readability and legibility overlap only partially. If legibility is a necessary condition of reading, measured by binary dimen-

\* to read: look at and comprehend the meaning of (written or printed matter) by interpreting the characters or symbols of which it is composed.

Old English rædan, of Germanic origin; raten 'advise, guess'. Early usage included 'advise' and 'interpret' (a riddle or dream). sions, readability refers to the 'nice to have', yet 'not strictly necessary' features of the text that facilitate and enhance the experience, making, for instance, long continuous reading more comfortable. There is even a controversy around experiments suggesting that poor readability may be a positive feature, forcing the reader to interact with the text longer with more difficulty and therefore concentration, thus retaining more of its content (Diemand-Yauman & al. 2011; Wetzler & al. 2021). Readability therefore requires qualitative measuring tools.

In terms of research, legibility has, so far, received much more attention, perhaps because it allows quantitative analysis. Readability issues are often brought up in research centred on legibility but rarely addressed. It is far easier to measure whether or not a letter or a word has been identified than to apprehend the subjective interpretation of the factors of readability, i.e. letter shapes, layout, spacing, colour, movement, etc.

One of the reasons why there is little definite knowledge about the readability of letter shapes is that it has had to be built against the paradigm of invisibility: text type is supposed to draw attention to the textual content, not to itself. This relative invisibility is made possible by the process of reading that suppresses the awareness of shapes in favour of the deciphering of letters.

With the increased diversity of text type in the 20<sup>th</sup> century, the growing possibility to 'get it wrong', whether by ignorance or provocation, gave rise to instructions for good taste. Two sources, in particular, had a major influence on graphic design practice and still shape the ethos of the typeface design profession.

The first one is typographer Jan Tschichold, influenced by the Bauhaus. In 1928, he published *Die Neue Typographie*, a modernist manifesto firmly establishing the hierarchical superiority of function over form and advocating the simplest, barest forms to fulfil any typographic function: sans serif shapes. This seminal work laid the foundations of the international typographic style or Swiss style. In 1947, when he developed the Penguin Composition Rules that redefined the visual identity of Penguin books, pared down shapes were already fashionable. Despite his own change of heart later in life, it is still a reference in typographic and typeface design studies.

The second one is typographer Beatrice Warde's crystal goblet analogy (Warde 1955). Giving the same modernist idea a more traditionalist spin, Warde laid the ground rules in a speech addressed to the British Typographer's Guild in 1930 and published later. Comparing typefaces to a drinking vessel or a window, she declared that however beautiful, they were first meant to be looked through rather than looked at. 'Type well used is invisible as type, just as the perfect talking voice is the unnoticed vehicle for the transmission of words, ideas.' (Warde 1955: 33) The unspoken risk is for the typeface to attract attention on itself and therefore detract the reader's attention from the content, or worse, for the typeface to attract the wrong kind of attention and hinder the perception of the verbal written message.

The danger of misusing typographic expression rather than harnessing it to one's purpose runs through all kinds of publishing, from books to advertising. More recently, *Branding with type* (1995) warns:

> 'Even the dot on the i can make a typographical difference. Less is more, so caution must be exercised. Surely the goal is missed if typographic effects push the message into the background.' (Rögener 1995: 42)

The general recommendation is to beware of the power of shapes and stay on the safe side with quiet, unobtrusive type, thus attempting to almost reduce typography to its linguistic dimension. In the section titled 'Choose faces that suit the task as well as the subject' of his book *The elements of typographic style*, Robert Bringhurst notes:

> 'The best type for a book about bicycle racing will be, first of all, an inherently good type. Second, it will be a good

type for books, which means a good type for comfortable long-distance reading. Third, it will be a type sympathetic to the theme. It will probably be lean, strong and swift; perhaps it will also be Italian. But it is unlikely to be carrying excess ornament or freight, and unlikely to be indulging in a masquerade.' (Bringhurst 2004: 95)

Typefaces are believed to trigger an emotional reaction, opening a potential to manipulate the reader to some extent, if only the power of shapes is put to adequate use. If typefaces can be misused, we have to assume that they convey some meaning rather than merely visual static noise. Indeed, the ideological prescription of invisibility relies on the more fundamental hypothesis that there exists such a process as visual language, operating in parallel or in interplay with verbal language, and carrying potentially rich information, whether it gets fully interpreted by the reader or not (McLuhan 1964, Twyman 1982, Bringhurst 1996).

Visual language may operate unconsciously but it is never transparent to the point of invisibility. The basic understanding is that shapes stand for sounds, in a literal phonetic way (Donaldson 2008), but also in a metaphoric way, giving an alternative physical shape to words that have lost their voice, or never had one. The letter shapes provide space and time for reading to occur and visual prosody (rhythm, stress and intonation) that shapes the experience. In a communication to the ATypI The weight of sound, the sound of weight, graphic designer and teacher Tomas Garcia Ferrari (2012), formulated the intuitive impression that typeface weight stood in for the pitch of sound: 'It takes more space to display a heavy sound', it also creates a darker typographic colour<sup>\*</sup> (grey). People intuitively place shapes in a communication paradigm and interpret the vehicle along with the message; what is unclear is how exactly the shapes affect the meaning and vice versa.

Beatrice Warde's injunction to aim for invisibility fits remarkably with the notion that, if decent typography can be taught –mainly by avoiding mistakes– great typography

\* colour: The darkness of the type as set in mass, which is not the same as the weight of the face itself. relies on the designer's intuitive understanding of shapes. The task of matching form to content to reinforce expression becomes a kind of magic trick. Foundries provide multiple examples of use in their type specimen, usually advertising the typefaces's great versatility, i.e. the suitability of the shapes to multiple messages. If some of it gets explained in design manuals such as Gerard Blanchard's *Aide au choix de la typo-graphie* (1996, 2<sup>nd</sup> ed. in 2004), Ellen Lupton's *Thinking with Type* (2010) or Stephen Cole's *The Geometry of Type* (2012), most of the process is considered driven by highly personal experience and sensitivity. The knowledge exists but lies in the practice thus masking the wide gap in the theory. In her Master's dissertation about the use of typefaces as variegated voices in book typography, Katharina Seidl concludes:

> 'As for typefaces, we cannot predict how they will be perceived by individual readers, and even less so can we map expressions directly to typefaces one-to-one. Neither can we be sure how conscious typographers are about the reasons behind their selection - but we can see that typefaces bestow atmosphere, expression and value on text. Emotional reactions are diverse, and not measurable, but they are an important and valuable reason to make responsible design decisions.' (Seidl 2016: 47)

The injunction to match form to content with no other guideline than the safety of tradition is not very helpful. Traditionally, typographers refer to classifications. These serve a practical purpose in grouping typefaces that present common features. Some classification schemes follow historic principles, others group typefaces by serif forms, by structure, purpose or even poetic and fanciful guiding principles. They all eventually break down, fail to provide simplicity of use and become impossibly complex to account for reality, therefore calling for the next classification system that will, at last, make coherent space for everything.

By construction, classifications group shapes along common features, operating what John Hudson calls 'a reductionism of little interest' (Hudson 2019): classifications would be more useful if they could describe how shapes differ. Most classifications describe shapes, either directly or by referring to a period when the shapes were dominant; they are not meant to guide on the use of connotative associations. Even a descriptive system such as Benjamin Bauermeister's PANOSE (1988/1993), designed to preserve the qualities of a typeset text, including its connotations, is not designed to explain how the visual rhetoric can match the verbal rhetoric –no system thus far makes an inventory of the shapes themselves as a language. However, as examined in the last chapter of this research, it could give precious information on how to handle shape variations.

Typographers understand intuitively that a significant part of a typeface's connotations is in constant flux, evolving with its uses in time and space. It makes them cautious in attributing definite properties to a set of shapes. Yet, there are some attempts at formulating the implicit understanding that typographers – and presumably readers – have of shapes.

A notable contribution was made by Gerard Blanchard, a French typographer, in his thesis *Sémiologie de la typographie* (1982). Inspired by Roland Barthes's work on fashion (*Système de la mode* 1967), he proposes semiotic keys to letter shapes based on his own professional experience, among historic and philosophical considerations about every aspect of typographic printing. Blanchard calls typefaces 'types' and considers that they constitute no less than the materialisation of thought. He reports many attempts at describing the ductus\* of the letter in semiotic terms but stops short of a convincing approach, leaving the reader to speculate how data analysis of the digital font curves would have advanced his reflection.

Through an analysis of the different functions of letters (Capitals, Roman and Italic) emerges a correspondence between the visual traces of speed in the letterforms and diverse connotative differentials such as 'fast-slow', 'collect-

\* ductus: movement or path made by a tool when writing. ive-individual', 'cramped-spacious', 'cheap-expensive', 'personal-formal', 'cryptic-loud', 'active-passive'. Blanchard lays the ground for the semiotic interpretation of shapes and their arrangement into some kind of grammar.

More recently, in his article 'The Voices of Type' (2014) Eben Sorkin, typeface designer and instructor, proposes a short congruency test inviting viewers to select one of three typefaces for each of the words 'fancy', 'hard' and 'splash'. He reports a near uniformity of responses, which he explains by our exposure to a common visual culture. He comments:

> 'It's easy to second-guess ourselves when choosing type based on voice. Even those with a formal education in typography are unlikely to have anything other than personal taste, intuition and an awareness of convention to rely on. How can you really justify a choice? How subjective are your reactions? Can you really trust them? [...] When thinking about a typeface's voice, its categorization / classification is not important. Instead, we need to know if the type is cheerful or dour. Is it relaxed or in a hurry? Is the type serious or frivolous? Luxurious or downmarket? Young or old? Fragile or robust?' (Sorkin 2014)

Throughout the article, Sorkin writes eloquently of individual awareness and the feelings triggered, directly or indirectly to our senses. The phenomenon seems to be highly subjective, yet universal, pointing to a field of awareness unequally shared by readers. Most of the connotations he mentions reveal implied, intuitive anthropomorphisation of the typefaces, converging with experimental research revealing that typefaces are perceived to have personality (Bartram 1982; Rowe 1982; Brumberger 2003a; Shaikh 2007; Hazlett & al. 2013). The methodology offered by Sorkin to understand the other language of letter shapes is to slow down enough to pay attention and trust one's intuitive associations, that is to say a kind of auto-ethnographic hermeneutic phenomenology. This approach has the quality of staying close to the semiotic event itself and has inspired the methodology used in the present research.



# 2.2.1. Empirical experimentation

Typographic awareness is sometimes harnessed in playful experimentation. Pierre Di Sciullo, in the eighth issue (1989) of his magazine *Qui ? Résiste*, titled 'manuel de lecture' (reading manual), develops several experimental and humorous typefaces, including the Quantange (WhatdoIhear), here (figure 4) used to typeset a love song ('with you I am like butter with radishes, without you I am like a fisherman without a net'):

قەن<sup>ى</sup> يەن يەز (10 ئەنە Come ا9 bجىمە Boجد اجے radis

**ξαςς Το)** <sub>je δυίδ</sub> Comme un pêcheur δαςς Filei

Fig. 4: Poem set in a font called Quantange, (di Sciullo 1989) Di Sciullo calls the Quantange a 'spello-phonetico-plastic' font. It counts, for each letter, as many alternates as there are ways to pronounce it in French. It indicates pronunciation with graphical correspondences between signs and sounds, while respecting spelling. The result is a playful combination of sensory and conceptual translation of sound, with complete disregard for typographic harmony. Beyond its questionable practicality, it illustrates the strength and intuitive dimension of associations between surface treatment of the text and prosody.

Di Sciullo's experimentations converge with the more recent explorations of typographer Sarah Hyndman. She has been empirically playing with fonts to manipulate people's emotional reactions and opinions and reported her findings in *The type taster* (2015). Hyndman works on the premises that the visual language of fonts can operate at a subconscious level, both in a direct intuitive manner and by learned associations, to reinforce or contradict written messages. She even suggests that:

> 'As designers we can use type to imply things that we would not be able to say in words, or which might be untrue if shown as a photograph. For example if a beef burger is mass produced in a factory, it would be a lie to say 'hand made' on the packaging. It would also be untrue to show an image of somebody making it by hand. However, we can use a typeface that implies the product is hand made and the consumer may assume it is an accurate description of the product.' (Hyndman 2015: 45)

The capacity to lie makes it fit Umberto Eco's definition of a language (Eco 1976), in the sense that it would not be a language if it was not rich enough to lie. And typefaces are an ideal way to lie as their message is perceived without usually becoming conscious. Proposing typographic games to the audience of her type tasting tours, Sarah Hyndman invites people to freely associate the visual stimuli of typefaces with perceptions of their other senses and with the emotions they trigger. Fonts show their personality and are assumed to confer that personality to the person using them, or the things they are used on. They make things sound,

Fig. 5: A quick fire quizz (Hyndman 2015: 102)



smell and even taste different. Hyndman uses a very large range of display and text faces shown in large sizes to make a wide inventory of connotations. She gets people's feedback through various testing means, such as the quiz in figure 5, without linking them specifically to typeface features.

Both di Sciullo and Hyndman exaggerate shapes to bring out the awareness of the body language of letters. Their processes, based on the designer's inner convictions, hint at perceptual categories shared by many because they are equipped with the same senses, not only cultural associations built on repeated exposure.



### 2.3. Gap

All approaches yield a general consensus that typefaces communicate through their forms something more than the mere unicode identity of characters. Typefaces communicate connotations with relative predictability and are generally interpreted as having personality and being appropriate to a particular use or context. However, typography as a body of knowledge is still far from any organisation of typefaces according to their connotative meaning.

Typographers seem to agree on the desirability of enhanced readability. However, they also seem to make do with their educated intuition rather than a formal system of correspondences. They are aware of their ability to implicitly perceive connotations and to either harness them or avoid them. It may explain why the phenomenon has aroused surprisingly little concerted reflection.

Therefore, we do not really know what connotations are, how much they affect readers, or what functions they serve. And we lack a systematic understanding of their place in communication. We have procedural knowledge but we have no established theory.

Perhaps we are still not asking the right questions. Studies using experimental methods in the hope to find correlations often get inconclusive results. The underdetermination of scientific theory, the idea that the evidence available at a given time can be insufficient to prove anything, can have various reasons. Failure to rationally define the dimensions of both independent and dependent variables leads to too many design dimensions being made to vary together and the wide disparity of connotations tested. The review of experimental research gives a sense of circular reporting of data and points of views and on the other hand, the diversity in the selection of dependent variables is confounding. Furthermore, the formal research carried so far on the connotations of typefaces lacks in typographic pertinence. It asks narrow questions and fails to identify the greater operating principles of letter shape expression, sometimes even showing very superficial understanding of typeface design. Typographers and researchers seem to be standing on either side of a knowing-doing gap, leading researchers to look at what can be measured rather than what should be measured. This research constitutes an opportunity to stand in that gap and examine what is meaningful in the semiotic moment and how it could be handled in further research.



# 3. Methodology

'If we knew what it was we were doing, it would not be called research, would it?', this quote, attributed to Albert Einstein, renders well the difficulty of researching outside the well-trodden paths. Over the years, this research defeated several approaches and took many unexpected turns, which merits a level of explanation. The present chapter starts with the relationship between the researcher and the knowledge, then dives deep into the ontology of typographic expressivity, to finally explain what methods were used to gather information and elaborate new knowledge.

As seen in the previous chapter, despite rigorous and sometimes impressive methodology, the correlation between letter shapes and connotations has, thus far, been underdetermined by experimental research. The link between them is a far-reaching, complex construction of elements of knowledge, precluding immediate scientific certainty. Findings are created in the process of interaction between the researcher and their material. In the case of typography, that process does not come with a ready-made methodology. Research in typography usually comes in the form of historical survey and sometimes, when done by socio-psychologists, in the form of practical experiments. It usually focuses narrowly on an aspect of typographic evolution. In the present research, no way of asking the questions was going to lead to satisfactory answers and no measuring instrument was going to provide the necessary objectivity, reliability, validity, sensitivity, comparability, and utility.

At the beginning of the research, the availability of new digital tools promised to answer the question 'How do we measure this correlation?' thanks to comparatively massive calculating power. Following a previous inquiry into classification (Janet 2012) focus was initially oriented towards machine learning. But, as explained in the chapter on algorithmic clustering (4.2), however powerful the tools, results are inconclusive when the questions themselves lack precision or pertinence. The possibility to use magnetic resonance imaging, which was examined later, presented the same limitations. Not only was there a gap in knowledge pertaining to the relationships of shapes and connotations, but there was also an even wider gap at the higher level of defining each of them. There was also no reliable general theory about the way combined design elements affect the tone of a text. The material traces that could be constructed as data would only give answers to the questions they were asked. Since these were unclear, it eventually became obvious that satisfactory experimental results would require much preliminary work to determine what exactly needed measuring in order to avoid measuring only preconceptions.

In short, the initial goal of quantifying, predicting and controlling the phenomenon and its effects was out of reach. Renouncing determinism and the empirical methodological approach was difficult, but turned out to be a very rich part of the exploration, and indeed even triggered an epistemological inquiry. The present chapter explains this journey that ran in parallel of the research about letter shapes themselves. It takes us through the epistemology or the conditions of production of knowledge, the ontology or interrogation about the nature of the questions and then the methods used through the different phases of the research.

The focus needed to be on fundamental research, theoretical speculation and search for general principles, seeking better

explanations rather than anecdotal description or quantitative validation. Rather than seeking the quintessence (5th distillation), the attempt is therefore to put into perspective, contextualise, inscribe in a global dimension by methodological holism, linking the occurrences of connotations to all their constitutive parts. As a researcher, I was equipped to handle typographic matters and, to some extent, sociological questions, however, **I had to equip myself to tackle the epistemological questioning that led to renouncing standard methodological approaches.** The material itself, and more importantly, the level of the questioning to which it was subjected, dictated the use of more intuitive and artistic heuristics. As physicist Richard Feynman points out:

> 'everything we know is some kind of approximation, because we know that we do not know all the laws yet. Therefore, things must be learned only to be unlearned again or, more likely, to be corrected.' (Feynman 2015: 1-1)

In the present case, quantitative or historical methods would not have given approximations at the conceptual level demanded by the questions. Indeed, they would not have provided a better understanding of the general laws either. Science is a powerful tool, in particular when it shows us counter-intuitive facts. Proving that the earth is round in spite of our seeing it flat opens the possibilities to act in new ways, such as to send satellites orbiting around it. With regard to letter shapes, the reasoning is the opposite. There is no fact outside of our interpretation. With their rational connection to languages through unicode, typefaces seem to be interchangeable. Yet our behaviour shows that they are not, that differences matter. However abstract the encoding, when read by a human, the text is apprehended by a complex combination of biological and cultural apparatus that leads some to the design of shapes and all to their interpretation.

Therefore, separating the expressivity from the rest of the typeface can only be done theoretically, as an abstract

How can we know the dancer from the dance?

Zen question

construction. Perhaps it could be illustrated by a seemingly frivolous fashion analogy. In *Aide au choix de la typographie* (1996/2004), Gerard Blanchard compares typefaces to clothes that dress the text to meet the reader. The idea here is the same but with a piece of clothing that holds its shape even without a body: the shoe.

The design of a shoe is driven by the need to dress the foot and protect it while allowing it to walk. The shoe has therefore a foot-compatible inner shape, a sole that protects the foot from the ground and some kind of upper part that keeps the sole close to the foot. They affect comfort, walkability and style. When significant walking is planned for, the design takes into account constraint of height, flexibility, stability. Beyond these constraining elements, the design of outer shape and choice of material are endless.

Whereas, by association, all-white sports shoes often say 'tennis', and Dr. Martens say 'rebellious youth' as much as 'work-shoes', basic categories transcend time and place. Whatever the era, sturdy coarse shoes say 'outdoors and utilitarian' and narrow, pointy shoes say 'indoors and dressed up', as also do high heels. Soft fabric flat shoes say 'slippers' and open-top says 'informal' as much as patent leather says 'formal' and synthetic knits say 'sport'.

Connotations emerge in relation to their form, material, style, and context. Teasing them apart is not technically possible. In the case of letter shapes, it is also impossible to examine the shape outside of a letter. The most that can be done is to remove meaning from the words by way of dummy text such as 'Lorem Ipsum' or strings of letters devised to show off distinctive letters such as 'adhesion', 'hamburgerfontsiv' or even pangrams such as 'The quick brown fox jumps over the lazy dog'. Furthermore, non-linguistic in nature, the phenomenon of connotations, for research purposes, has to be accounted for with words. Just as recounting a dream distorts the original perception, the technical vocabulary of various disciplines reshapes the semiotic event.



## 3.1. Epistemology

The choice of approach was therefore influenced by the object itself and wider philosophical considerations. It became what philosopher Paul Feyerabend calls a strategy of exploration guided by 'loose opportunism'. In his words:

> [...] 'what appears as 'sloppiness', 'chaos', or 'opportunism' has a most important function in the development of those very theories which we today regard as essential parts of our knowledge. These deviations, these errors, are preconditions of progress... Without 'chaos', no knowledge. Without a frequent dismissal of reason, no progress.' (Feyerabend 1988: 164)

Even a champion of rational thinking such as Karl Popper acknowledges the need for a phase of theoretical speculation. He explains in his *Logic of Scientific Discovery*:

> 'It's a mistake to suppose that the experimenter aims to lighten the task of the theoretician or to furnish the theoretician with a basis for inductive generalisation. On the contrary, the theoretician must long before have done his work, or at least an important part of his work: he must have formulated his questions as sharply as possible. Thus it is he who shows the experimenter the way.' (Popper 1972: 107)

In the absence of established suitable theory, this comment opened the possibility to move the questions to a higher level and ensure the pertinence of further experimentation. Conversely, the approach proposed follows the lead of Kenneth Gergen who, in *Qualitative Inquiry and the Challenge of Scientific Status* (2013), defends a constructionist perspective, also invoking Karl Popper. He suggests placing data collection in a context of discovery, as a creative catalyst for theory, rather than a context of justification. If successful, the present research was already going to improve the prediction of the behavioural outcomes that result from designed outputs. However, the approach came with much uncertainty about what would be found and understood or when. It came with a shift from 'obligation of results' to 'obligation of means' and a commitment to stay with it wherever it went. If doubt is the basis of science, the basis of this research is faith. Faith in the value of an artistic endeavour: to feel something and give it a shape that lets others feel it too (Kemeny 2019; 46). An endeavour to make people see typefaces the way a typeface designer does. At its core, this research is an artistic project that has been given an academic shape.

The academic context also played a role in the orientation of the research. The central object of the research pertains to the conditions of production of knowledge about typographic letter shapes, by focusing on their connotations. Developing this at an art college such as Central Saint Martins broadened the perspective, as opposed to more traditionally-angled institutions where quantitative or historic perspectives would have been *de rigueur*. Here, the aims are to find the means to make visible something we take for granted and build a shared perspective. In that sense, the research process is akin to art rather than to science.

Estelle Barrett and Barbara Bolt (2019: 2), in Practice as research, observe that creative arts research, in spite of methodologies and outcomes sometimes difficult to understand and quantify in terms of traditional scholarship, draws its very strength from being personally situated, interdisciplinary and having diverse and emergent approaches. As an artistic endeavour, this project benefits from these characteristics. It is firmly rooted in my designer / researcher's experience of typography. It is deconstruction and reconstruction of a designer's confirmation bias, of a subjective experience. Calling on various disciplines involves a steep learning curve and implies uneven competences in explaining processes. My background in sociology provided a keen awareness of the permanent dialectic between life and forms, along with a certain curiosity of what forms say about life. It also provided some familiarity with phenomenology and its theories, but far from enough to encompass the whole scrutiny of the reading process. Further studies in typeface

design granted me enough practical knowledge to identify the pitfalls of treating typefaces as found objects in experimentation and, hopefully, some basis on which to build better practice. The practice-led design side, extrapolating theory from design practice, was tackled with the utilitarian goal to make sound typographic concepts available for further research. The interpretative side, though much more tentative, answered a real designer's curiosity for the fate of my shapes. Both sides draw heavily on personal experiences as a reader and as a typeface designer. In short, as suggested by typographer and book designer Jost Hochuli in a lecture (Hochuli 1991 cited by typographer Robin Kinross 1994: 21) I made the decision to follow Immanuel Kant's advice to seek enlightenment by using my understanding without guidance (as in the Latin: Sapere aude), daring to trust my own understanding and intuition.

One's understanding and intuition are crucial in a relativist perspective where reality is not 'natural' but understood to exist as a juxtaposition of multiple mental constructions, context specific and dependent on the person examining it. Unlike natural phenomena, typography is an entirely human-made object, it so happens that we WERE consulted at the design stage. In a large sense, this is a study of 'homo scribens', the species that writes, and 'homo legens', the species that reads. We can derive knowledge not from god or authority, but from experience. Furthermore, it is what epistemologist Ian Hacking calls a 'mind-dependent entity', not something that exists regardless of our focus on it. We're the only animals we know of that convert their speech into writing, let alone mechanically reproduce it. Whatever knowledge is to be found about typography, it is a human construct and the material trace of this human construct. The first and main underlying assumption of the research is that typographic writing provides a kind of mirror of human dynamics. It is a personal truth of mine, and one that makes me particularly prone to confirmation bias.

The starting point was a second assumption that researcher, designer and reader probably had the same feeling about semiotic meaning. However, informal conversations with a handful of professional typeface designers showed that personal truths about expressivity of letter shapes varied significantly from one to the next (see Preamble). For example, I am not a very visual person. I conceive of typeface design as shaping the music of the text. I had to assume that everyone would have their own interpretations. Despite a certain consensus around the existence of connotations, the research was unlikely to yield results reliably happening every time, regardless of who looked at type. So, rather than objective truth, the aim shifted to outline a typographer's phenomenological perspective: to extend the understanding of the phenomenon, to reach some kind of 'empirical adequacy' in describing it and define remaining ignorance with better precision. A shift from a logic of truth to one of meaning.



#### 3.2. Ontology

If typefaces seem, at first, like well-defined objects of observation, connotations are obviously more challenging. 'How do mental things fit in nature?' (Sperber 1996: 5) How do we apprehend them? As a research object, the first challenge that the expressivity of letter shapes presents is the definition of its ontological status, so as to situate it within areas of knowledge and identify useful theoretical approaches.

It is a semiotic process, however difficult, it should not be tangled with linguistic issues of language and letters as signs. **To avoid confusion, it should even be called a signsystem rather than a language.** Furthermore, linguistics is of little help since the nature of the object (object / sign / receiver) is unclear and a triadic approach brings no clarification. The perceived expressivity of shapes is not a material object even if it has a traceable physical manifestation, it is a collection of unique, related yet different, events. It is a cultural object and belongs in a general theory of culture. So we need a framework capable of catching a process, of accounting for objects of different nature and their variations.

A third underlying assumption is that letter shapes and connotations constitute two sides of the same phenomenon, or as linguist and anthropologist Dan Sperber puts it, that 'formal properties can be considered as potential psychological properties' (Sperber 1996: 63). By analogy to Nick Szabo's wet and dry code (2008), it requires a theoretical perspective that allows to move circularly (or rather in a spiral) from physical letter shapes, the 'dry space' of what Sperber calls 'public productions', to their connotative affordances, the 'wet space' of what he calls 'mental representations' (Sperber 1996: 24). This theoretical perspective is what Dan Sperber calls a 'modest materialism' in which mental processes are attributed causal powers in virtue of their material properties (Sperber 1996: 14). On the one hand, the object is inert and can be scrutinised with scientific methods, on the other hand, it is evolving, if not really alive, and demands other approaches. Physical description of typefaces or their history, however complete, will never account for the human experience of reading them, of making sense of text and context. The object itself calls for a shift from a modernist perspective to a post-modernist one. Whereas **modernity** is based on epistemological disconnection, we know today, that even in hard sciences, observation modifies the object. Modernity brings forward the cognitive and the notion that it is more important to 'think' the world than to experience it. The shift to **post-modernity** implies to move away from reason and logic to recognise multiple –and sometimes conflicting– perspectives rather than seek objective truth (Maffesoli 1996, 2010).

There is a big gap between the rational way in which intelligence thinks the world and the sensualist way in which people live contemporary values. All faculties contribute to experience, they are worth taking into account, even at the cost of reductionism. Whereas modernity is visual and linear, post-modernity is experienced, haptic, redundant, without direction or purpose. Reality is at the frontier of between the subject experiencing it and the object being experienced. It implies immersion into a subjective somatic\* experience that may still be transferable to collective experience. However fascinating the model of hard sciences, it applies best to objects that no longer move. The characteristic of the social object is that it is neither dead nor inert. Life often turns out to be somewhere other than where one expects it. And its lability makes it impossible to grasp in its entirety.

The denial of subjectivity does not prevent it from affecting the researcher. Subjectivity cannot be dispensed with since it is a constituent part of the social fact. Whether quantitative or qualitative variables are used to construct types, the approach is valid and (possibly) scientific. The regularity of a

\* somatic: the somatic nervous system (SNS) is a division of the peripheral nervous system (PNS). The SNS controls voluntary activities. such as movement of skeletal muscles and includes both sensory and motor nerves. Sensory nerves convey nerve impulses from the sense organs to the central nervous system (CNS), whereas motor nerves convey nerve impulses from the CNS to skeletal muscles.

behaviour certainly reveals a logic, the appropriateness of the means to the end. We find this end in lived experience. Understanding is returning to the meaning one presupposes in order to rediscover the actor's finality. Phenomenologist Edmund Husserl is credited with the insight that objects always appear to human consciousness as endowed with meaning (Maffesoli 1996). The idea is to be aware of a value that is not the main use value of typography. To that end, the ideal is to place oneself in the middle of the experience of the reader / typeface designer; to use sense experience to build a comprehensive sociology to take it all in, including the invisible - a shift from our knowledge of the world to knowledge of our personal interpretation of the world.

The expression 'lived experience' is widely used under different definitions. Lived experience is the foundation of the sciences of the mind (according to philosopher Wilhelm Dilthey's definition in *Introduction to the Sciences of the Mind* 1976) and is the foundation of comprehensive sociology. Social sciences imply a work of consciousness based on what springs from matter. The return of consciousness to itself produces the object of phenomenology. Experience is always specific to a given place, time, context. But consciousness allows us to perceive something lasting, types, forms, typification<sup>\*</sup>. Knowledge of reality is the same process in sociology as in everyday experience. It is a question of controlling the pattern of perception.

Because the experience of typefaces is both cognitive and sensual, feed-back loops are needed here, that can account for the evolution of forms and connotations. In the absence of universal laws, feed-back loops can indicate trends and reveal contradictions. They allow the addition of layer upon layer of reality: material, experiential and symbolic. The affect, the sensual dimension of type being a significant part of the object of inquiry, it demands to be recognised. This is the first step in being able to manipulate it, to put it into perspective, to integrate it into research. We need to pay

\* typification: the process of organizing things in terms of typical features.Social actors and sociologists organize their social world by categorizing events, people or things in terms of typical features.
attention to reality, find a way to account for its vitality to avoid stretching it on a procrustean bed by oversimplification. The sensual experience and the speculation on inner interpretative processes provide the foundation of a provisional description. They stem from my determination to remain as close as possible to what is lived.



#### 3.3. Method

'The blade is so sharp – It cuts things together – not apart.'

Poet David Whyte, On Being 2016

#### 3.3.1. Generative phase

The generative phase consisted of casting a large net to catch objects of various natures. It was more akin to beating about the bush to reveal the birds to other hunters than an attempt at apprehending them all with a measuring stick. The goal being to catch a process, a cultural object that belongs in a general theory of culture and that 'evolves by the differential survival of replicating entities' (Dawkins 1976 /2016: 248), that Richard Dawkins calls 'memes'. The process itself was very organic, involving broadly-scanning attention to first build a general understanding of phenomena before diving deeper and systematically into anything showing hermeneutic potential.

The thread was not linear but rather somewhat helicoidal: covering the same ground many times at different levels of conceptual abstraction. It had to start from the very general, locating the questions. To quote writer / researcher Tim Urban's heuristics 'Where are the walls, where is the furniture?' (Urban 2018), where does the question belong in relation to other questions and what are the concepts that could play a functional role in the analysis? The focus was no longer on truth but on asking questions that would lead to other questions, regardless of academic acceptability, assuming that 'A general feature of practice-based research projects is that personal interest and experience, rather than objective 'disinterestedness' motivates the research project.' (Barrett & Bolt 2029: 5) I gathered information and started building an echo that would define the rough location of important information.

The research question had to be narrowed to several smaller ones 'What happens in the process of reading, when shapes, with a solid dry form on paper or screen, form an impression in the subjective wet mind of the reader?', 'What happens in the process of typeface design, when a designer's wet representations materialise as visible dry shapes?', 'What do we mean by letter shapes variations?', 'What is the nature of connotations?'. Some of these questions seemed so obvious yet they had not been seriously examined in the past. As we will see in the chapter on linguistics (4.5.), beyond apparent evidence it can also be difficult to assign a place to these questions in a theoretical framework. Various disciplines have given partial answers, the research puts them in relation to each other and operates a triangulation to locate complex explanations. The nature and complexity of the object dictated a few requirements. In their dry form, letter shapes are frozen concepts. However, through the processes of design and, later, reading, they become changing, if not exactly living. And in the human mind, they acquire a temporarily sealed form akin to what Lacan (1977) called a point de capiton (upholstery button), an anchoring point where meaning seems fixed. To properly take into account such complexity, it became clear that this exploration would have to be interdisciplinary and even cross-disciplinary viewing a discipline in the perspective of another discipline–, the questions having total disregard for discipline boundaries. Semiotic research is sometimes carried out under other names such as stylistics, rhetorics, communication or marketing, blurring the lines between disciplines and allowing researchers to ignore similar inquiries in other domains.

Shapes providing an irrational dimension of reality, the exploration was therefore driven by **intuition, curiosity, mobilisation of active ignorance and serendipity**, following every lead until exhaustion of the available information or until coherence. Every concept was given a temporary evaluation to determine the next research steps and, much later, a second one to articulate it in relation to the rest of the system. In typeface design, the first step is the shaping of a form. The main practice is **noticing** how every curve interacts with the others. The shape is then placed between all the others in the typeface to make sure it fits and belongs, whatever use is made of it. Due to the time required for the research phase of the thesis, it allowed many permutations of elements to be considered until, as is the case for a robust typeface, the pattern gelled into a coherent explanation.

Inspired by the six blind men describing different parts of an elephant in John Godfrey Saxe's poem (Saxe 1872) the generative phase consisted of gathering different points of view on letter shapes to build a conversation between them, in an attempt to triangulate meaning, in spite of sometimes contradictory discourse. The point was to get into the object to make it talk to collect subjectivities. Each thread of information led to subsequent steps, more material, more questions, more angles under which to examine them, generating more uncertainty and discomfort. And this, both inside and outside of typography, as a discipline. While the directly typographic information was considered as a matter of course - on such a subjective question, all opinions present an interest – information gathered in other disciplines had to show some pertinence to the discussion, both at the level of practice and that of theory.

The exploration started with the identification of potential areas to be examined and the evaluation of their pertinence. Figure 6 shows an early attempt to organise them by kind and along a quantitative / qualitative axis and an empiricism / phenomenology axis. The graph paper in the background testifies of the seriousness of the survey while the diversity of topics and fields shows the complexity of choosing an itinerary through the multiple perspectives. While I explored the potential of all these areas, only those that contributed new understanding were developed further.



Fig. 6: Mapping the objects, concepts, perceptions & methods to examine

\* semiosis: the process by which a culture produces signs and / or attributes meaning to signs.

# 3.3.2. Chaos & order

The criteria for further inquiry were 'Can it refer to the experience of semiosis\*?' and 'Would it be relevant at the level of letter shapes?'. Since the truth of the experience very much depends on the human body we use to perceive the world, some aspects of biology and physics were explored further, despite their relevance not being immediately apparent. I chose to give interpretative approaches special attention to analyse the meaning-making processes of typography through a holistic questioning of the reading and design experiences.

In their theory of chaos, John Briggs and Francis David Peat (1990) explain that everything in the universe alternates between states of order and chaos. When a system reaches its limits, it gets into a chaotic phase before a more evolved level of order is found, thus expanding the possibilities of the system. The initial exploration constituted the chaotic phase of a typographic system of letter shape interpretation. Information and understanding were progressively objectified through language, shaped into concepts and given a place in categories of knowledge. It emerged from this understanding that concepts could be organised along the dual processes of creating and interpreting, the cycle of all the events that co-create cultural meaning in what is considered a typographic system (see figure 7 below).

The first half of this cycle tells of the decoding process, the current knowledge of how readers perceive and interpret letter shapes. The second half accounts for the elements and steps of the encoding process, when typeface designers use their culturally formed understanding of shapes to create new designs. Typefaces perform their semiotic work in culture by countless iterative repetitions of these processes. For the sake of clarity, the research followed a single cycle below, clockwise from the top, calling on elements as needed, regardless of their various natures (concepts, theories or tools).



Fig. 7: Model of the puzzle of information between shapes and connotations, understood as a hermeneutic circle I chose to start from with a survey of the complete cycle of expression / interpretation despite it being perhaps overarching. It might also have made sense to start from the design of the artefact, since it comes before the reading events and is the process I am most qualified to describe. However, the encoding process does not operate inside a vacuum any more than the decoding process. They are both built of myriads of reading experiences. For the typeface designer, learning to read and shaping one's sense of letter shapes comes long before any formal typeface design.

An interdisciplinary bridging of lines of argument was needed to create a cohesive theoretical language describing how we perceive letter shapes. Starting from the fully formed experience of reading, the research proceeded to deconstruct some of its elements, postulate a causal chain between them and examine it in light of current knowledge in other disciplines. These elements could then be re-experienced with heightened awareness and their dimensions could even be manipulated.

\* abduction: a type of nondeductive inference that was different from the already familiar inductive type. The organisation of the material proceeded by progressive summarisation and abduction<sup>\*</sup>. Hypotheses emerged both by elimination of unnecessarily complicated propositions and by selection and meta-triangulation of most likely explanations. This led to a new theoretical perspective on how shapes relate to connotations and a framework for defining what letter shapes shape. **The main difficulty was then to choose a way to cut the material, to curate an itinerary through the research to provide a coherent, understandable section of reality in the form of text.** 

To decide how to formulate the explanations, I chose Peter Knapp, an experienced photographer, fine artist and book designer, as an 'ideal reader' (King 2001:256). That is to say the argument is aimed at a well rounded craftsman of cultural memes, with a good understanding of typography but no particular interest for typeface design. I set out to explain, however not to simplify. I borrowed words from many others to give a linguistic shape to my experience of typographetic expressivity and build an argument to convince my ideal reader.

The description and interpretation resulting from this research give an account of very subjective phenomenological experiences with as much objectivity as possible, building a logical discourse on the meaning of design and designed artefacts using theoretical frameworks borrowed from philosophy, neuroscience, psychology, linguistics, semiotics, sociology and design practice.



# 3.3.3. Elaboration / bricolage

The result is what methodology literature calls 'bricolage' (John Brewer & Albert Hunter 1989, Norman Denzin & Yvonna Lincoln 1994). After anthropologist Claude Levi-Strauss introduced the concept in *The Savage Mind* (1962/1974). 'Bricolage' is the French word for DIY projects using whatever materials are available. In anthropology, it involves combining different research methods and techniques, often drawn from different disciplines, to answer research questions. Qualitative researchers often resort to a multi-method approach, a 'pieced-together' set of practices that provides a solution to a concrete situation.



Fig. 8: Collage representing symbolically the juxtaposition of the disciplines contributing most of the knowledge In a literal spirit of bricolage, the collage above (figure 8) renders visually the layering and cross-fertilisation of disciplines, with size, shape and position metaphorically suggesting the various contributions.

While epistemology and sociology provide the backdrop for the speculations, the other disciplines cross, touch and overlap each other. Understanding emerges from the juxtaposition.

The progressive and cumulative layering of knowledge is also visually symbolised by the large ampersand closing each section, meaning 'and' and thus indicating the addition of another layer of understanding to be explored in the following section.

Bricolage does not make research less rigorous or imply confusion of paradigms but it means finding a way 'between and within competing and overlapping perspectives and paradigms'. (Denzin & Lincoln 1994: 3) Acknowledging the complexity of real practice and adapting tools and strategies to the possibilities and limits of the available context allows the methodology to emerge from the material and the questions. As Lévi-Strauss puts it, it involves a 'dialogue with the materials and means of execution' (Lévi-Strauss 1962/1974: 29), allowing the means of execution to reflect the process they describe. Furthermore, as Carole Gray & Julian Malins remark in *Visualizing Research: A Guide to the Research Process in Art and Design*:

> 'The notion of the bricoleur is an interesting one for researchers in Art and Design. It suggests that methodology is derived from, and responds to, practice and context, and the use of terms such as 'tools', 'collage', 'construction', 'reflection' and 'interpretation' are completely familiar to us as practitioners.' (Gray & Malins 2004: 74)

The main benefit of 'bricolage' is the possibility to combine disparate approaches into an overarching framework allowing the development of a more holistic perspective on the research topic by creatively integrating different viewpoints. It requires a kind of vulgarisation of expert discourses to bring them to pragmatic typographic issues. However the drawback of such methodological flexibility is the significant risk of Barnum effect, finding something for everyone and, in particular, finding what one had set out to find. Indeed, building a case for typographetic expressivity requires to find a critical path through the landscape defined by multiple perspectives and their limitations. Curiosity and skepticism have to ally to structure an argument rather than to discuss findings, leaving discussion for further research.

The thesis structure crystallised midway through the research. Finding information about letter shapes and having to set it aside as not being directly relevant to expressivity eventually called for sorting of the information about letter shapes into the various functions they fulfil. This progressively shifted my understanding and therefore the structure of the text itself toward functional organisation rather than an organisation along the chronology of the processes that presided to the exploration:

- The first function considered is, somewhat paradoxically, the attempt to NOT express anything else than the semantic meaning of the text. It is speculation around the concept of typographic neutrality. (Section 4.4.)
- The second function is salience<sup>\*</sup>, the use of typographic contrast to flag semantic meaning. (Section 4.5.)
- And the third function is the initial core subject of the research, the expressive possibilities of the shapes themselves. (Chapter 5)
- The last chapter (6) completes the bricolage with a typedesigner's perspective on how to handle typefaces as independent variables.

These functions constitute a framework that provides a higher level of understanding. It could be used to eventually explain expressive performance at a clinical level.

\* salience: the perceptual prominence of an object relative to its background.



#### 3.3.4. Form

Writing about the expressivity of letter shapes automatically triggered a reflexive speculation about the role of practice in the research and the typographic form of the thesis itself. Even though the outcome of the research was not a typeface design at all, practical experience was used for the critical evaluation of information in the first instance. The subject being non-linguistic, it would have made sense to account for it with more than language, attempting to weave typographic expression in the conversation to account for the various voices. Unfortunately, the text of a thesis has to obey format rules and is not the ideal sandpit to experiment with form. Beyond the usual function of italic for salience, bold is used for visual orientation and highlight of key concepts. However, the specific typographic examples are limited to illustrations and to the ampersands punctuating the text.

# 4. Everything but expressivity



Fig. 9: Sections developed in chapter 4

The contextual review showed the limits of cognitive-behavioural approaches when applied to unexamined objects. To keep the research as close as possible to its questions about the nature and workings of typographic connotations, a set of general concepts have been chosen to articulate a perspective on the phenomenon, to interpret and, eventually, predict expressivity. They outline the landscape of cultural knowledge in which to examine the expressivity of letter shapes. These preliminary considerations are not directly concerned with connotations. They progressively build bridges to connect concepts and phenomena, in order to eventually approach the expressivity of shapes in the following chapter (5).

The first concern is to locate the question in existing disciplines and also to form an idea about the nature of connotations as objects of inquiry. Rather than limiting the perspective to typography or theories of communication, I propose to place the whole investigation within Dan Sperber's (1996) anthropologic explanation of culture so as to open the exploration to all sorts of ways of thinking and seeing and avoid narrowing the perspective to typographic traditions.

The discoveries along the way showed the pertinence of considering typefaces and connotations as memes. As shown in figure 9, the following part (4.1) is dedicated to the examination of the implications of treating the embedding of intentions into letter shapes and the interpretation of connotations as two avatars of the same meme. The quantitative methodologies enabled by memetics then lead to the consideration of tools of artificial intelligence, their impressive results and their shortcomings.

The second part of the chapter (4.2.) sees the functions of letter shapes emerge from triangulation of perspectives, wondering about the hypothetic possibility of avoiding connotations altogether thanks to the use of algorithms. It then takes a detour through neuroscience (4.3.) before locating the semiotics of letter shapes in relation to other linguistic preoccupations (4.4. & 4.5.).

#### 4.1. Theory of culture and the expression meme

\* Bézier curve: a geometric curve, the overall shape of which is defined by two midpoints called control handles, see ampersand page 298 for example. Placing the study of letter shapes in a wider cultural perspective operates a conceptual distancing. It led me to zoom out from the Bézier curves\* of typeface design, and paraphrasing John Muir (1911/1988: 110), it led me to pick them out and to find how they are hitched to everything else in the cultural universe. Dan Sperber's theory of culture allows the construction of typographic expressivity as a cultural object in its own right. Combined with memetic principles, this opens the possibilities of manipulating it for further research.

#### 4.1.1. Cultural units of transaction

For Sperber, 'from a truly materialist point of view, effects cannot be less material than their cause.' (Sperber 1996: 11) The mental representations are just as real as the physical manifestations.There is no unit of culture, only transactions. Culture is an overlapping set of transactions, an asynchronous network of replications. Transactions are of two kinds:

1. Making a mental representation public: externalisation of ideas (in our case: type design and typography events)

2. Internalising a mental version of a public presentation: internalisation of expressions (in our case: reading events)

As an element of culture, and visual communication in particular, the expressivity of letter shapes can be considered as parameters embedded in the human brain and therefore it can fit both kinds of transaction in a different way. I propose to call the transfer of a mental representation into the encoding of a typeface typoiesis (from typography and poiesis, Greek for creation) and the decoding of letter shapes through reading will be called connotative interpretation. Type selection is also an intermediary interpretative event. To distinguish the intentional conception from the technical realisation, typeface design can therefore be separated into typoiesis and design constraints (figure 10). The word 'typoiesis' is thenceforth used to designate the expressive intentions of the designer. Typoiesis, constraints, type selection and interpretation are all different sorts of transactions that influence both the connotations or stereotypes.



Fig. 10: Schema of influences between typeface expressivity events: Typeface design, Typography and Reading This way of breaking up the cultural object of the connotations of typefaces into processes of encoding and decoding makes every event (in the square boxes), however different, a legitimate unit of the expressivity phenomenon. It allows consideration of the dissociation of typeface design and typesetting that Fernand Baudin called *'l'effet Gutenberg'* (Baudin 1994) and to position the questioning at the stage of typoiesis, rather than other events. Limiting the research to typoiesis directs the choice of methodology towards hermeneutic phenomenology, a valid option since the process of design, unlike the process of interpretation, if not fully conscious and intentional, only happens deliberately.

If making a mental representation public (typeface design, typeface selection) is largely conscious, the internalisation of the representation by the reader (reading) is often below the threshold of consciousness. Yet, the same operations are at work, only processed by different parts of our minds. Daniel Kahneman, in *Thinking fast and slow* (2011), adopts terms originally proposed by the psychologists Keith Stanovich and Richard West, and refers to two systems in the mind, System 1 and System 2.

- System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control.
- System 2 allocates attention to the effortful mental activities that demand it, including complex computations. The operations fo System 2 are often associated with the subjective experience of agency, choice, and concentration.

He describes System 1 as:

'effortlessly originating impressions and feelings that are the main sources of the explicit beliefs and deliberate choices of System 2. The automatic operations of System 1 generate surprisingly complex patterns of ideas, but only the slower System 2 can construct thoughts in an orderly series of steps. I also describe circumstances in which System 2 takes over, overruling the freewheeling impulses and associations of System 1.' (Kahneman 2011: 20-21)

The conscious efforts we made with our System 2 to learn how to read have progressively rendered the process automatic, letting System 1 do the reading with little effort. What makes the type design process much more conscious than reading is that it mobilises System 2. The understanding that design professionals have a heightened awareness of the shapes compared to that of the general public (Brinton 1961; Tannenbaum & al. 1964; Bartram 1982; Morrison 1986), may be linked to the professional habit of consciously looking at shapes with their System 2. Some designers even comment about having lost their taste for reading, always being distracted, whether negatively or positively, by the typefaces involved.

The phenomenological hypothesis (Merleau-Ponty 1945) proposes that the body and its perceptions are at the centre of our formation of meaning and that all consciousness is perceptive. The interpretative phenomenological analysis assumes the validity of the experience as event, and it places 'the designer making decisions' using their System 2 at the centre of the inquiry rather than trying to make them disappear.

The understanding that awareness has a non-local field character (Gurwitsch 1964) makes interpretation possibly both personal and interpersonal, variable with the viewer's design competence. The reality in focus is the interaction of a visual pattern with an awareness, it is the phenomenon in the ancient Greek sense of *phainómenon*, 'thing appearing to view'. To emulate Heidegger's (1971) shift of language from 'things' to 'event of thinging', for the research, I consider that, rather than merely being a fixed presence, typefaces, as we are reading, keep 'seriffing', 'curving', 'slanting', 'spacing', etc., manifesting their properties according to our variously sensitive awareness.

However, the choice of focusing on hermeneutic phenomenology is not obvious. Considering culture as a pattern of transactions leads Sperber and others to understand it as the epidemic spread of ideas. He uses the words 'epidemic' and 'epidemiology' in their etymological sense of 'stay or arrival in a country', without any connotations of disease. He understands epidemiology as the study of the distribution of an interesting property in a population that offers no explanation as to why some transactions are more frequent than others.

Cultural epidemiology opens the possibility to study the distribution of a cultural property with quantitative tools and through an evolutionist lens, as proposed by geneticist and anthropologist Luigi Cavalli-Sforza and biologist and mathematician Marcus Feldman:

'Ideas, languages, values, behaviour, and technologies, when transmitted, undergo 'reproduction', and when there is a difference between the subsequently transmitted version of the original entity, and the original entity itself, 'mutation' has occurred. Whether change is the result of random copying error or has been intentionally made does not determine its subsequent fate, since the altered cultural entity, rather than its progenitor, is now the model for other individuals who will transmit. Reproduction and mutation ensure that evolutionary change will take place. However, if these were the only effective factors, biological evolution would proceed randomly without adaptive meaning. Natural selection is the mechanism that generates biological adaptation. In cultural evolution, however, there is in addition a second mode of selection, which is the result of capacity for decision-making.' (Cavalli-Sforza & Feldman 1981: 10)

Culture is conservative, yet evolutive through gradual change. Akin to living things, as suggested by evolutionary biologist Richard Dawkins, culture 'evolves by the differential survival of replicating entities' (Dawkins 2016: 248). Considering culture through the lens of an evolutionist perspective to emulate natural sciences is therefore tempting. However, there is much controversy about the pertinence of the evolution algorithm in the fields of social sciences. Without making final pronouncements about a hypothetical 'General Theory of Evolution', planting expressivity events on an evolutionary background has a great advantage in the context of Typography: the heuristic power of the analogy yields a rich description of the object under scrutiny and allows to form a complex image of the process, raising interesting questions about duplication, mutation, fitness, drift, etc. rather than providing a definitive framework.

In Typography, the network of events creates long-lived patterns. The multiplicity of typographic transactions speaks of the shift towards the permanence of the written word (Vallejo 2022). The unit of replication is the typeface, a set of design decisions consistently applied to a set of unicode positions and optimised to fit in any possible combination. Its learning is social and implies no particular cognitive activity from the receiver. It is transmitted culturally from one individual to another. Classics are constantly learned and re-expressed. Fads move from marginal to ubiquitous to marginal again quickly. Some move only within a subculture.

Cavalli-Sforza and Feldman point out that transmission by imitation or copying carries the chance of error, which gives cultural transmission the analogs to both reproduction and mutation in biological entities. This leads to also considering the potential of Memetics to build knowledge of cultural phenomena. Within the evolutionist perspectives on culture, Memetics offers a particular angle by suggesting the existence of parallels between culture and biology. In 1975, Richard Dawkins proposed the term 'meme' to designate units of information similar to genes in many ways but of a cultural nature and therefore replicated by non-biological processes. Here is a definition assembled by Ulrich Schmitt (Schmitt 2015) combining elements of definition proposed by Dawkins (1976), Henrik Bjareskans & al. (1999) and Jaron Collis (2002):

> 'Memes are (cognitive) information-structures that evolve over time through a Darwinian process of variation, selection and transmission. They are able to self-replicate utilizing mental storage in human hosts and to influence their hosts' behavior to promote further replication. Memes are virtual, and have no intentions of their own, they are merely pieces of information in a feedback loop that are encoded in vehicles for transmission between human hosts; this loop facilitates their continued replication as mental copies with their longevity being determined by their environment.' (Schmitt 2015: 152)

For Dawkins, a unit of information is a meme if it has longevity, fecundity and copying fidelity:

> 'Examples of memes are tunes, ideas, catchphrases, clothes fashions, ways of making pots or building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or egg, so memes propagate themselves in the meme pool by leaping from brain to

brain via a process which, in the broad sense, can be called imitation. If a scientist hears, or reads about, a good idea, he passes it on to his colleagues and students. He mentions it in his articles and his lectures. If the idea catches on, it can be said to propagate itself, spreading from brain to brain.' (Dawkins 1976: 249)

Typographer Rian Hughes (2010: 332) calls memes 'a headless idea', in the sense that they do not belong to any singular mind, but are a cultural, live construct. This concept applies well to the dry space of typefaces. They are lasting units of information that spread in the population by copy, selection and transmission. And it could be argued that they influence people's behaviour to promote further replication even if they fall short of actually self-replicating. In many cases, new variations fail to get propagated and replicated much and eventually disappear. But some are very successful, providing the texts with an advantage and occupying a lot of minds. They subsequently get duplicated a lot and end up dominating the field. For memes, the definition of success is the numerical representativity. Here, Dawkins could be referring to letter shapes instead of genes and texts instead of bodies:

> 'A gene achieves its numerical success in the population by virtue of its (phenotypic) effects on individual bodies. A successful gene is present in many bodies over a long period of time. It helps those bodies to survive long enough to reproduce in the environment.' (Dawkins 1976: 346).

Memetics is a relatively new approach and does not yet come with a full set of hypotheses or methods. Depending on the working definition given to memes, connotations themselves, that is to say the wet space of subjective interpretations of typefaces, can be treated as memes. For interdisciplinary cognitive scientist Liane Gabora:

> [...] '(we) consider anything that can be the subject of an instant of experience, to be a meme. The category `meme' now includes not only obviously transmittable ideas like `Be good or you will go to Hell', but everything from a particular experience of vibrant `redness', to a realization of a shorter route to work, to a feeling of dread associated with a teacher's posture or facial expression.' (Gabora 1997)

The definition of memes as units of information that replicate by non-biological processes bears a pair of co-dependent implications: it excludes any reductionism to biological explanation and it is discipline agnostic, opening the possibility of pluralist technico-bio-psycho-social approaches to account for both the wet space and the dry space aspects of memes. Memetics as a science has not yet found a consensus around methods to handle the mental part of phenomena. If cultural objects have indeed material manifestations comprehensible by the senses like biological phenotypes, the counterpart of biological DNA still resists mapping and does not even reveal its intimate structure. This constitutes a point raised by Dan Sperber in 'An objection to the memetic approach to culture' (Sperber 2000). The analogy between memes and genes breaks down when the lack of a clear definition of cultural objects results in low fidelity of their replication. He argues that:

> 'Memeticists have to give empirical evidence to support the claim that, in the micro-processes of cultural transmission, elements of culture inherit all or nearly all their relevant properties from other elements of culture that they replicate.' (Sperber 2000: 172)

If writing as a cultural activity seems to have emerged in different parts of the world, recycling mental competences developed over millennia (Dehaene & Cohen 2007, see section 5.2.2. on Metaphors), Typeface design as a cultural practice requires very specific competences and know-how, necessarily acquired by deliberate imitation. Furthermore, since the digitalisation of typography, typefaces have acquired a DNA, so to speak, as they are now distributed in the form of digital fonts which is a sequence of zeros and ones, if not of nucleobases. The codes underlying digital typography mean that typefaces have, like biological objects, the equivalent of a genotype and a phenotype, an isolatable set of encoded possibilities and a set of published manifestations. These two sets of data could theoretically be used to apply quantitative methods to research questions. Common sense indicates that typefaces are not driven by their own

life force but by a human one: typefaces have no foresight, they do not obey a master plan. They just get copied. Typefaces (and cultural information in general) are mindless and substrate-neutral. They can run on various materials. New typefaces often come through variation and combination of old ones. However, digital typography implies so much literal copying of isolatable font files that typefaces could be considered an exception among cultural objects, a domain where memetics bear some pertinence.

The meme's point of view can account for individual differences since expressivity is the product of the collision of physical letter shapes with a person's previous experience, i.e. a full inner system of memes of various sizes. In theory, the meme's point of view can also be supported by quantitative data; not every single text is read by everyone and people can hold multiple expressions of typefaces in their minds. This would call for what Dan Sperber calls an epidemiology of representations, concerned with the repartition of typefaces connotations in a population. However, quantitative research would first need to address the issue of irrelevant quantities such as the presence of fonts in operating systems and the over-representation of system fonts in documents. This fluctuation of the number of replications due to the accumulation of random or structural variations would be the equivalent of drift in biological evolution. As Dan Sperber remarks:

> [...] 'the number of artefactual replicas of a would-be cultural item is only a poor, indirect indicator of its genuine cultural success. Waste-paper baskets and their electronic counterparts are filled with massively replicated but unread junk, while some scientific articles read by only a few specialists have changed our cultural world. The cultural importance of public production is to be measured not by the number of copies in the environment but by their impact on people's minds.' (Sperber, 1996: 103)

Indeed, the amount of typographic code laying dormant on computer hard drives teaches little about readability. The main interest of bringing questions of memetics to typeface design is to adopt the point of view of the meme, of the typeface itself. It places the observer at the level of elementary ideal units, between the level of the individual event and the level of a sociologic system of related norms. The memes obey an autonomous evolutive logic and invite evolutionary questioning: it is dynamic (the count can change enormously and fast, a meme is not necessarily present in every single head of a population), it is quantifiable (in principle, cultural change can be measured), and it accounts for individual differences without further concepts such as sub-culture or degree of socialisation. But as Sperber points out, Memetics does not explain what makes some memes fitter than others, what makes some letter shapes so appealing that they grant an adaptive advantage to the texts they carry and improve their reproductive success. This question led Sperber (1996) and other researchers to the Cultural Attractor Theory (CAT) in which the strict replication is replaced by a concept of cultural replication, people coming up time and again with the same solutions to the same problems without actually copying each other. In this model, the same constraints and affordances render certain solutions more desirable and therefore more frequent than others, which is a plausible explanation for the hundreds of different results one gets when searching for 'Helvetica' on popular online font shops. Connotations themselves could be a major attractor in the field of typography, leading typeface designers to recreate certain shapes and graphic designers to use similar shapes to give readers the experience they like.



# 4.1.2. Typeface as a typographic meme

The term meme has been used in a context of typographic research before. In their article 'A brief introduction to Impact: 'The meme font', Kate Brideau and Charles Berret use the word 'meme' to mean 'image-macros', funny images accompanied by one or two lines of text such as shown in figure 11:



Fig. 11: Example of Image-macro: Willy Wonka Sarcasm Meme from makeameme. org/meme/oh-isee-5b2880 Brideau and Berret's article is about the history of the typeface called Impact and the stylistic features that make it ideal for use on image-macros. Image-macros are a core feature of contemporary social media, and Impact is the overwhelming typeface choice of their creators. Yet, they mention, as in passing, that it constitutes a meme in the original sense:

> 'True, not every image macro uses Impact, but this bold condensed sans serif typeface, white with a black contour, may be the most successful meme among image macros. Put another way: the image macro, with all its meme generators and human input, is in the end merely a means for Impact to copy itself.' (Brideau & Berret 2014: 311-312)

Indeed, once the terminology has been clarified, it is possible to consider typefaces as memes. It is also possible to define expressivity itself as a different kind of meme, even if it can not be materially fully separated from the typeface that carries it. Memetics, by inviting to place the observation at the level of the typeface, implies an 'intentional' point of view, as if the typeface itself was driven by a life force that would foster the spread of its fonts. Whereas the driving force is more like a power of seduction akin to non-violent communication. While it is difficult to credit Impact, as a typeface, with an intention to go forth and multiply, its current ubiquity on social media makes Impact the obvious winner of what could be called the 'internet meme game', much like rice or wheat are the winners of the development of agriculture in the last 10'000 years, at least in terms of the increase of DNA duplication.

The question of the size, or 'What constitutes a meme?' is really a question of focus –or focal distance. As explained by physicist Carlo Rovelli (2015), we can only perceive surfaces from afar. From close up, everything is vague. **Concepts emerge at certain levels because we tend to typify our experience to understand the world. Typefaces lose all meaning when seen so close as to be reduced to a set of numerical coordinates.** Text typefaces only make sense, semantically and semiotically in sizes between 9 and 14 points, and even at that size, they do not have fixed connotations. These only appear as an event when the text is held about 50 cm away from a reader's eyes. As Rovelli puts it, 'we must accept the idea that reality is only interaction'. (Rovelli 2015: 18).

From here, it is possible to conceptualise a typographic meme of which the typeface constitutes the dry space, or genotype, and of which the connotations, resulting from the interaction of a reader with the typeface in a reading event constitute the wet space, or phenotype. It spreads by a dual process: replication of the code and its interpretation by human minds. The first part is fully deliberate design but the other does not require any mental effort or activity beyond the effort of reading. Part of this operation is due to automatic infra-individual processes, rooted in our human biology and happening below our threshold of awareness. Its propagation is powered by printing, both paper and digital. Like a virus piggy-backing on language (the vector), hence its ubiquity, a meme's success can be due to the effectiveness of its host. Transmission does not imply that anything material actually passes from one person to the other, like a gene. It is done by exposure to the text and can be one-to-one, as in a private email, or one-to-many, as in a book, or even many-tomany, as in an online forum. Because it is based on stable code, there is no loss of information, there is either duplication or deliberate redesign on the dry side and personal interpretation of the shapes on the wet side.

Typefaces are the functional units of replication. Typefaces as a collective can be considered a meme pool, where creative cross-fertilisation happens. Their digital nature makes them ideal replicators but even metal type cast from matrices offered a faithful, albeit slower, mean of replication. Replication implies some sort of cultural selection but is still in most cases remarkably passive. However, replication does not imply a new human, only a new text being typeset. Humans are therefore exposed to typefaces in use several times a day and the general evolution is much faster than with genetics. Indeed, replication and transmission only require a new text, not, like genes do, a new living organism –a rarer event in the case of humans, than the production of a text.

Mutation happens through typeface design. Accidental mutations of the code typically make the font unusable by computers. And deliberate mutation requires a significant amount of competence, which limits the loss of information. Mutations bring new variations competing with old ones for adaptive value leading to differential reproduction and constant evolution of the meme pool through the effect of selection. Selection, however intuitively, is done by deliberate typesetting, either at the moment of typesetting or earlier when coding digital interfaces themselves (applications, interactive websites, etc.). Selection is not natural but cultural and intentional. It results in the diffusion of fitter solutions or what typographers call the 'appropriateness' of a typeface to a task.

However, some fluctuations of the number of replications have nothing to do with fitness but are due to the accumulation of random or structural variations. Such as being available in an operating system. Some shapes benefit from strong attractors such as better transmission canals, more popular hardware or the occupation of more powerful minds. In many cases, new typeface variations fail to get propagated and replicated much and eventually disappear. But some are very successful, provide the texts with an advantage and occupy a lot of minds. They subsequently get duplicated more and end up dominating the field.

Memes are not purposeful agents, they are unconscious blind replicators themselves. It is their intentional selection by designers that makes them purposeful. They dominate (a small part of) the attention of a human brain at the expense of rival memes. However, their psychological impact seems to be a factor of their perpetuation as memes. **Intentional cultural selection appears like a force akin to natural selection that leads to a modification of frequencies by differential replications of variations – ideally according to their general fitness, although in practice according to other parameters too.** 

Theoretically, it should be possible to measure frequencies and chart the cultural evolution of digital typography. Yet, in practice, identifying the typefaces of large numbers of documents would be challenging. And still would not explain what makes certain typefaces comparatively fitter so as to explain the progression of their frequency. Despite its alluring simplicity, the memetic approach to typographic expressivity yields more questions than methods or answers. The fact that typefaces, by design, boast isolatable units and faithful replication makes them qualify as memes. And memetics allows the flexibility to consider both objects and transactions but could lead to the measurement of irrelevant dimensions if typeface duplication is the target rather than the reader's interpretations of shapes.

Nonetheless, the idea that the cultural fitness of the letter shapes can afford evolutionary advantages to the text is worth examining closer, even if it has to involve other conceptual tools.



# 4.2. Algorithmic clustering

The idea that sensory interpretation of shapes might be shared is at the root of more theoretical mathematical research on shapes. This section outlines recent developments in the attempt to arrange letterforms by similarities, whether or not they link to connotations. It explores the potential of artificial intelligence to define areas of a conceptual typographic continuum as bearing particular connotations, however opaque the process might be.

### 4.2.1. Manually

Mapping fonts by visual similarities started before algorithms were applied to the task. The best example is the FontFont map, designed by Zara Vasquez-Evens and Jared Benson in 2006. The map was completely generated by human visual evaluation. Vasquez-Evens paired up with Stephen Coles, the resident expert on the FontFont library at the time. They manually placed the type families together based on their visual relationships. The scale of each sample was even calibrated to represent the size of the type family. A first rough draft was produced in Illustrator by eyeballing the relative placement of typefaces. It was then printed to scale, marked up with red pens, cut and pasted by pieces as needed, then the digital version was updated. The process was repeated as many times as necessary. Coles comments on the result on Flickr:

> 'Breaking from the tradition of alphabetical or categorical order, the poster presents the library in an organic, intuitive way. It is a cloud map of typographic forms in which fonts are organized by their visual relationship. The word 'Slang' represents the main components of the Latin alphabet – uppercase, lowercase, ascender, descender, rounds, and straights. The size of each font sample is relative to the family size. A count of styles and weights is shown in the box next to the font name.' (Coles 2008)



Fig. 12: FontFont map 2006 Breaking away from the alphabetical order of font menus, Vasquez-Evens, Benson and Coles suggest a multi-dimensional space of shape variations. Their use of the word 'slang', beyond its claimed representativity of shapes, also suggests an intuitive link between verbal characteristics and shapes, the possibilities for shapes to give material form to a sub-culture.

# 4.2.2. Font Universe

Algorithmic clustering of letter shapes is the process of grouping similar shapes together using mathematical algorithms. This is typically done by first identifying the unique characteristics of each shape, such as its weight, xheight, slant, etc. The algorithm then uses these characteristics to determine which shapes are most similar and groups them into clusters that can then be used for visualisation, allowing the identification of patterns. The tools to automate such visualisation were beyond the means of typographers until recently. However, some academic research
on fonts stems from unexpected fields. Previous research conducted for the Master Typeface Design at the University of Reading (Janet 2012) explored various statistical approaches to the identification and visualisation of shapes as a tool for attributing meaning to shapes. Jörn Loviscach, for example, came from Mathematics and Physics with a curiosity for computerised image recognition. He used typefaces outlines because, in his own words, 'they're simple images, usually two-dimensional, and pixels are either black or white.' In a work presented at TypoBerlin in 2011 called 'Das Navi fürs Typo-Universum', Loviscach proposed a two-dimensional representation of a typeface landscape organised by clustering shapes by their physical similarities. By running various algorithms on the outlines of typefaces, their slant, curvature, weight, height, width and roundness Loviscach positioned them in a multi-dimensional universe reduced to a Self-Organising Feature Map, such as conceived by computer scientist Teuvo Kohonen in the 1980s. By mapping the data, the system creates a landscape of zones of similar atmosphere value, that can be visualised from many

Fig. 13: Algorithmic clustering (Loviscach 2011)

abc ABC abc abc abc abc abc ABC ABC ab abcabc aba abbo abc abc ab abc abe abc abcabc abc al abc abc abc als abc abgabasc alabe abc abc abc abc abcbc abb abc abc Gabo abc abc abcabc abcabo ababc abc ababo abc abcabc abc abc 860

angles. This approach shifts the representation of typefaces from a series of disconnected discrete items to a continuous field of infinite possibilities. Such a representation is consistent with the potential of digital typography to interpolate between shapes and even extrapolate along axes, making individual type faces mere points in a theoretical multi-dimensional field of design variations (see SuperfontTM in glossary). Clustering shapes by similarities allows the creation of visual zones of potential connotative meaning. While not providing actual interpretation, it makes discovery more intuitive than through a drop-down menu of fonts. However, it raises more than ever the question of what to measure. If some dimensions are obvious and easy to measure, it does not make them necessarily typographically relevant. The deceptive black-and-white simplicity of typography hides many subtle variations still difficult to account for with algorithms. For example, the algorithm can confirm that all glyphs of an italic display a similar slant or that a bold typeface has, by construction vertical strokes twice as thick as a regular. However, less obvious dimensions such as stroke modulation might give more interesting results.

#### 4.2.3. Interactive Font Map

Fig. 14: A view of the IDEO interactive font map (Ho 2017)



Kevin Ho's interactive font map (2017) went a step further towards intuitive browsing. Software design lead at IDEO, a design company, Ho picked up a typographic challenge because, unlike colour, there was no clear way how fonts relate to each other. Ho submitted the image of the word 'Handgloves' (a set of letters representative of a design, commonly used to display a typeface's features) in each of the 750 fonts of the Google fonts collection to a convolutional neural network (a technology conceived to recognise real-life objects or animals) and let machine learning organise them into a map. He then linked the letter A representing each font to the font's name and a string of letters (figure 14). The resulting typeface selection tool allowed fonts to be situated among others and explore similar alternatives. Despite the tool's limitations, displaying a single letter and offering a static repartition of typefaces, the font map experiment showed the possibilities of algorithmic image recognition and organisation applied to the field of typography.

### 4.2.4. A manifold

Fig. 15: The manifold of fonts (Campbell & Kautz 2014)

'Learning a manifold of fonts', is an experiment by Neill Campbell and Jan Kautz (2014) that aims at generating new fonts rather than offering new visualisation. They used 46 fonts to teach a machine to populate a two-dimensional





Locations of existing fonts

Fonts are continuously generated at any location on the manifold providing a smooth transition between existing fonts and novel synthesized typefaces

The font in this text is continually evolving. Each character, generated from a different point on the manifold, is unique and the font transitions are smooth. The words highlighted in color match to the circle of the same color on the manifold to the left. They chart the trajectory of this paragraph as it moves across the manifold. The change from sans fonts at the start to serif fonts at the end can be observed.

Figure 1: The manifold of fonts. On the left, we show a 2D manifold learnt from 46 fonts. Every point in the manifold corresponds to a complete font; as you move across the manifold the corresponding font smoothly changes by interpolating and extrapolating the the original training fonts. We demonstrate this effect with the text on the right; each character is created from a different 2D location in the manifold that is obtained by moving along the straight line shown on the left. The colored dots match up with the colored words. The heatmap of the manifold is indicative of the likelihood of a location containing a good font. In addition to the results presented in this paper, we provide a standalone Javascript based viewer that allows users to explore both the joint manifold of fonts and manifolds for individual characters.

representation of the multi-dimensional font space and generate new instances by interpolation and extrapolation. The experiment claims no connection with connotations but demonstrates the feasibility of building a continuous typographic design space.

## 4.2.5. Deep learning

Fig. 16: List of the most friendly typefaces in the system (Kaasila 2017) New developments in mathematics let computer systems learn by accumulating examples of human judgements. Deep learning algorithms can be taught to interpret outlines and automatically chart differences and similarities. As presented by computer scientist Sampo Kaasila (Monotype) at TypoLab 2017, the technology already exists that would

FRIENDLY ×

FINEPRINT™ W02 REGULAR AaBbCcDdEe1234567890 ONE STROKE™ SCRIPT W01 REGULAR AaBbCcDdEe1234567890 CATHOLIC GIRLS W01 REGULAR AaB6CcDdEe1234567890 BEAUTIFUL EVERY TIME REGULAR AaBbCcDdEe1234567890 SAUSSA™ W01 REGULAR GaBbCcDdEe1234567890 BUBBLEGUM SANS REGULAR AaBbCcDdEe1234567890 COMIC SANS® W01 REGULAR AaBbCcDdEe1234567890 KASPER™ W01 REGULAR AaBbCcDdEe1234567890 FORD'S FOLLY W01 REGULAR AaBbCcDdEe1234567890 AGENT WOI REGULAR AaBbCcDdEe1234567890

teach a machine to associate shapes to connotations if there was reliable data to build the knowledge. To build relevant mapping data, Kaasila used a method designed to bypass entirely the description of shapes. The same word is presented to the viewer set in three different typefaces. The viewer decides which two look most similar to them and points at the odd one out. By multiplying the examples with a great diversity of typefaces, the system learns the relative 'distances' between typefaces in a multi-dimensional universe.

The encoding of connotations is done similarly by presenting the same word in two typefaces and asking which is the most 'friendly'. Or 'attractive', or 'elegant', etc. One dimension at a time. Here, as in psychology tests, the dimensions tested are of radically different natures: 'artistic', 'assertive', 'attention-grabbing', 'attractive', 'calm', 'casual', 'comic book', 'compassionate', 'confident', 'cool', 'decorative', 'dramatic', 'elegant', 'exciting', 'feminine', 'friendly', 'graceful', 'happy', 'industrial', 'legible', 'modest', 'playful', 'poster', 'retro', 'romantic', 'sad', 'smooth', 'soft', 'techno', 'trustworthy', 'youthful'.

Fig. 17: Least friendly typefaces of the Monotype model (Kaasila 2017)



Most are human qualities which seem to be transferable to the text, some are possible uses, some refer to material environments, some seem to point to the surface treatment of the text, 'retro' refers to historical connotations, 'trustworthy' would be a quality attributed to the text or the scriptor\* by someone else...

\* scriptor: from the latin scribo. Writer, author, or scribe.

If 'friendliness' seems to be a question of roundness and irregularity of curves and strokes (figure 16), 'unfriendliness' seems to be correlated with 'difficult to read' as shown by figure 17.

Kaasila built a discriminative model that can predict a connotation score for any typeface, known or unknown to the system. If the method seems elegant, the results are somewhat underwhelming and confusing. The machine interprets the data without explaining how it ponders design elements. For the Monotype system, the 'happiest' of the 28'000 typefaces evaluated is Curly Q, the 'saddest' is ITC Johann Sparkling (figure 18) but the interesting question would be to see which physical properties shift when we move along the happy-sad axis. And the question is too complex to be easily reverse-engineered this way.

**Curly Q** 

Happiest font?

ITC Johann Sparkling Regular

Jaddest font ever ?

Fig. 18: Curly Q and Johann Sparkling fonts from myfonts.com



### 4.2.6. Generative models

As technology progresses and computer scientists explore new ways of handling data, exciting possibilities emerge. It is now realistic to imagine a digital tool that would map the typeface space to the connotation space. The typeface space would be defined by vectors, each representing a different typeface. And the connotation space could be constituted by vectors compiling the scores of each typeface against a list of adjectives. Like in Kaasila's model, the system can learn the function which, to any point of interest in the typeface space, associates the correct point in the connotation space by analysing the dataset of people having rated connotations.

But reverse mapping could also allow the system to also generate typefaces from connotations. A connotation score could be selected by the user with sliding cursors for each adjective. And the system could generate varied typeface propositions for a given connotation score.

#### The difficulty resides in the quality of the datasets.

First, a lot of diversity is required, including typefaces that score similarly for some connotations and very differently on others. Second, robust connotations are needed. If people rating the typefaces in order to train the machine give very different connotations for the same typeface, there is too much variance and the connotations give little information on the letter shapes. The algorithmic approach will provide results consistent with the data available. Even with machine learning, it cannot bypass the pertinent identification of connotations.

Algorithmic clustering involves the analysis of shapes by a machine, whether supervised (Loviscach 2011) or by independent machine learning (Ho 2017; Kaasila 2017). The computation results in relative measurements of distances between shapes. These measurements can be used to create visualisations of the type universe, using techniques such as Teuvo Kohonen's Self-organising Feature Maps or the manifold of fonts devised by Campbell and Kautz (2014) to reduce many dimensions to a two-dimensional image. Even when such experiments do not specifically give information on interpretations, they provide visualisation tools that help shift our understanding of the typographic space from a collection of discrete designs to a continuous landscape of possibilities such as the spaced described by Underware type foundry for their SuperFontTM<sup>\*</sup>.

AI is progressing fast. Deep learning allows the execution of complex tasks without an explicit step-by-step description of the assignment. AI's output is only as good as the data available and the questions asked. And to complicate matters, the semiotic data is only representative of its time and its geographic context.

However, algorithms are a valuable tool because of the complexity they can handle and the versatility of their applications. It seems realistic that generative models could, in the near future, allow the browsing and production of typefaces at any precise location of connotative meaning. In the meantime, ChatGPT has launched a free public version and curiosity demanded a chat about the expressivity of letter shapes (Appendix B). The conversation was fairly short, probably as much because of the difficulty of finding the right triggers as because of the impossibility for machines to feel anything or to describe anything happening beyond the linguistic realm.

The result is an assertive discourse based on poor, and sometimes contradictory, arguments. It raises the question of whether parroting comments on the basis of a language model and in the absence of a body really qualifies as "intelligence". However, the intriguing properties of artificial intelligence imply that there is no single entry into the system. Once fully trained, a model could potentially identify connotations but also, swapping independent and dependent variable, design for particular connotations. This reversal of perspective offers potential for further research. In the end ChatGPT still came up with a useful takeaway: 'There are no hard and fast rules when it comes to designing a typeface for remorse, so don't be afraid to experiment with different design elements.'

Artificial Intelligence promises to bypass laws and principles and possibly, eventually, let data show us how the mapping of shapes to connotations can be done and, perhaps more interestingly, how their correlations shift over time. Results are already impressive even if quantophrenia\* sometimes threatens to lead researchers in teleologic circles, measuring things because they can, regardless of meaning. The path to conclusive results will revolve around clean data, robust concepts and hypotheses to test. Meanwhile, the point of this research is to attempt to do what AI does not: build hypotheses of semiotic laws from the confrontation of letter shapes with other disciplines.

\* quantophrenia: excessive reliance on quantitative data.



### 4.3 Neuroscience

What is missing from the machine perspective is the way we create our reality. The silo thinking of academic disciplines makes it difficult to have a panoramic view of phenomena. Attempting to build a web of explanations across disciplines leads quickly to ultracrepidarianism\* and never as much as when pushing a typeface designer's curiosity into the realm of neuroscience.

Reality does not exist as such without our engagement. Inspired by quantum physics, cognitive scientist Donald Hoffman argues in a conversation with science writer Amanda Gefter (2016) that our direct observation of the world is not accurate, but instead, what we perceive is an attempt by our brain to simulate an external reality, enabling us to form a cohesive perception of the world and, more importantly, to operate within it.

In *Visual Intelligence* (Hoffman 2000), Hoffman argues that we construct our own perceptions with arbitrary relation to reality. He takes the example of the trash icon on computers which does not look like the piece of erasing software that it triggers. Yet, we associate it with the intention of erasing data, consistently and successfully. He calls it the icon metaphor and uses it to explain how we construct our reality from our perceptions. He posits that evolution gave us an efficient user interface in a space / time format, not a true perception of reality. Our visual intelligence is intimately connected to our emotional intelligence and our rational intelligence. It constructs the elaborate visual realities in which we live, move and interact. (Hoffman 2000: 202).

Neuroscientists seek to understand how certain brain processes enable the creation of our inner experience. Hoffman is postulating conscious experiences as ontological primitives, thus validating one's experience as legitimate foundation for knowledge. However, validation does not make it easier to apprehend. The process of perception of

\* ultracrepidarianism: judging, commenting or giving advice outside one's area of expertise. letter shapes is only partially and tentatively understood by neurosciences. Cognitive neuroscientists, Dehaene and Cohen (2007, 2011), propose what they call the Neuronal Recycling Hypothesis. Functional magnetic resonance imaging (fMRI) reveals a specific anatomical site dedicated to visual word recognition in the brain of expert readers of all cultures. It is often called 'visual word form area' or VWFA and its mere existence is paradoxical since reading is too recent to have influenced the genetic evolution of the cortex.

For Dehaene and Cohen, reading acquisition recycles cortical brain areas originally unrelated to reading but evolved by primates over millennia for general recognition. It is the region that has evolved to recognise faces and processes everything symmetrical. It is good at figuring out things with even a partial perception. Furthermore, our VWFA specialises during development and education (Denervaud & Franchini 2017). Cognitive neuroscientist Solange Denervaud explains:

> 'Learning is about making connections and mentally linking things that are separate in reality. The letter A is a shape, the sound A is something else and the concept A something else again. To learn to read, we had to create routes between a visual region, an auditory region, a region that makes sense of what we do and a region linked to memory. Our lived experiences shape all these routes. And define the quality of, for example, our emotional reaction when we see something. Emotional reaction to certain typefaces will also depend on one's history with these typefaces, it is very individual.' (Denervaud 2023)

Denervaud scans brains to capture a trace of the ideas circulating. She explains that neuroscientists can track the progression of ideas in the brain through medical imagery. They first scan the whole brain for anatomical purposes. A high-resolution image is reconstructed from very thin slices to model it accurately. Over two hundred images are created, one every millimetre. They allow the evaluation of the gyratory matter, the white matter and the corpus spongiosum. To capture the traces of activity generated by ideas circulating, the process is faster, with a lesser resolution. The scanner takes an image every five seconds and places it within the previously established model of the brain (Denervaud 2023). The brain works on a supply and demand logic and brings oxygenated blood where there is activity. The point is therefore to observe the flow of oxygen to locate the areas activated by the reading task.

I was offered the opportunity to go through the brain fMRI process and was curious to find out if typographic changes showed on the images. With little time to design a study, I decided, with the help of a neuroscientist, to read the same familiar text in four different but related typefaces from the Questa Project typeface family as designed by Jos Buivenga and Martin Majoor for Fontspring (fontspring.com/foundry/ the-questa-project). I was speculating that I would not get particularly triggered by the content of the text but might register the change in typeface. Figure 19 shows the four different screens that appeared in front of my eyes for five consecutive minutes each.

Fig. 19: 11<sup>th</sup> verse of the Tao Te Ching, typeset in the Questa family

11th verse of th	e Tao Te Ching								
Thirty spokes su	urround one nave,								
the usefulne You fashion the usefulne									
You cut out their usefulr Therefore pu	the usefulr You fashio	fulr 11th verse of the Tao Te Ching hio							
but usefulne	You cut ou their usefu	the usefulr You fashio	11th verse of the Tao Te Ching						
	Therefore but usefulr	the usefulr You cut ou their usefu	Thirty spokes surround one nave, the usefulness of the wheel is always in that empty innermost. You fashion clay to make a bowl,						
		Therefore 1 but usefulr	the usefulness of the bowl is always in that empty innermost. You cut out doors and windows to make a house, their usefulness to a house is always in their empty space.						
			Therefore profit comes from external form, but usefulness comes from the empty innermost.						

I was first exposed (from left to right on figure 19) to the text typeset in Questa italic, then in Questa sans, Questa slab and Questa (regular), with a few moments of the first text in Questa italic between the other three, in this particular order but for no particular reason.

Fig. 20: fMRI of my brain exposed in sequence to the images shown in figure 19

The result of the scan, in figure 20, shows, for each typeface, the areas of my brain that undergo an increase in activity, with the yellow zones indicating more blood flow.



#### Effect of Questa (with stroke modulation)



Cuneus – Clacarine L



Precuneus L



Temporal Inf. and Sup.



Middle frontal L



Angular L



Cerebellum R

Obviously, it is a single experience on a deeply biased subject. Yet, the imagery is surprisingly eloquent, showing the increased activation of the Cuneus and the Clacarine L with Questa slab and even more with Questa regular. And also the activation of the Temporal area with Questa slab and more with Questa regular and the activation of the Angular, Precuneus and Middle frontal lobes and the Cerebellum with Questa regular. While not conducive to conclusion, it constitutes an encouraging sign that typographetic differences might be picked up by brain imagery.

Denervaud (2023) explains this results by a kind of habituation through the accumulation of experience in specific areas. The experience becomes embedded in the synapses and becomes finer and more automatic. We perceive much more information than we realise. Competence allows one to be aware of information that others perceive below their threshold of awareness. The properties of this VWFA both allow and constrain the processes of shapes interpretation, which would explain the relatively limited cross-cultural variations in writing systems. Deheane and Cohen suggest that,

> [...] 'while the occipito-temporal cortex could not evolve for reading, the shapes used by our writing systems were submitted to a cultural evolution for faster learnability by matching the elementary intersections already used in any primate visual system for object and scene recognition.' (Dehaene & Cohen 2007: 389)

Cultural neuronal recycling may have allowed the evolution of a cultural invention by repurposing existing cortical circuits (Dehaene 2011). The Neuronal Recycling Hypothesis, in turn, explains our visual biases. Rather than seeing things exactly as they are, we tend to see patterns and interpret their relative positions, as will be clear in section 5.2 on meaning-making. As Johanna Drucker puts it:

'We now know that the affordances of our senses and the capacities of cognition together construct the impression of a visual world. The world we see is a world made by our cognitive ability.' (Drucker 2014: 19)

Lettershapes in their dry form have no definite meaning but rather a probability of being interpreted in certain ways. They offer affordances and only mean something as long as we pay attention. All paths lead back to the observer, implying that everything we perceive is an elaborate illusion created by our sensory apparatus. Evidence of increased brain activity constitutes therefore an invitation to understand the semiotic event itself and the possibility of the absence of such an event.



# 4.4. Text function: the neutrality myth

Many are the scholars having touched upon the semiotics of letter shapes, suggesting names, concepts and explanation. As my exploration progressed, I was struck with the realisation that experts are beating about the bush: making mentions without actually addressing the points. However frustrating, the juxtaposition of their points of view shaped my understanding, leaving a hollow central space for the expressivity. The elements most and best discussed about letter shapes seemed to fall into the categories of neutrality and salience, which I understand respectively as the function of carrying the text and that of attracting attention on certain aspects of it. For the sake of clarity, they are presented here in this order, as preliminary considerations before the arguments of chapter five, pertaining to expressivity per se. Proposing to discuss the 'text' function of letter shapes is somewhat misleading here. The way written shapes carry linguistic meaning is beyond the scope of this study. The focus of this section is rather the aim of designers to *limit* the function of letter shapes to their linguistic mission; striving for a transparent window onto a linguistic message, a crystal goblet, an elusive neutral\* form that would strictly follow function.

\* neutral: describing an inactive or indefinite state, especially an intermediate state in a frame of reference that has two active or definite states.

What does it take for shapes to be neutral? Is it a positive definition, a zone between or around well established shapes? Or is it a negative one, defined only as a distance to extremes along all axes of shape variation? Why would one aim for neutrality? And how? Is there such a thing as neutrality in the first place?

Neutrality is an ambiguous concept when applied to letter shapes. It is another name for typographic invisibility. Its etymology means 'neither this nor that'. The word is used in the wider world to describe the posture of entities that do not take sides, such as Switzerland, that also gave its name to the typeface Helvetica, thus contributing to its reputation as a neutral typeface. Incidentally, this raises the question of how much the names of typefaces contribute to context and therefore to the semiotic interpretation of their shapes. In any case, the idea that type could carry text and strictly nothing else, is a controversial one. The issue has ramifications that reach all aspects of letter shapes expressivity. The concept of 'neutrality' is used here as a tool to demonstrate that the link between shapes and connotations is not as permanent as it appears at any given time. As we will see, some designers aim for neutrality as if it was a place, while others contest its very existence. A shift in perspective allows the location of neutrality in the eyes and mind of the reader, as a sweet spot of super normality. And semiotic analysis reveals striking similarities between typographic neutrality and the properties of the Barthesian concept of myth\* (Barthes 1957).

\* myth: fictitious (primitive) tale, usually involving supernatural characters embodying some popular idea concerning natural or historical phenomena, and often symbolizing virtues or other timeless qualities.



### 4.4.1. Visual sound volume

What does it mean to aim for neutrality? Intuitively, typeface neutrality is understood as discretion or even invisibility. Shapes that attract so little attention to themselves that their perception sinks below our level of consciousness are considered neutral. So much so that it is tempting to forget entirely that they exist. For example, of Minion, designed by Robert Slimbach, Stephen Coles says with respect: 'Good for when you really don't want anyone to notice the type.' (Coles 2012: 37). A good analogy came from a comment made by John Kannenberg (2020) about his research on sounds in museums: 'Silence is sound at a different volume. There is no such thing as absolute silence.' Along the same reasoning, letter shapes can be more or less expressive. A so-called neutral typeface may have a dial of expressivity turned right down but there might be no such thing as an invisible typeface. Typographers and commentators often refer to typefaces as the voice of text. Gerard Unger in While you're reading refers to 'noisy' typography (Unger 2007: 49), as if conjuring the voice of a self-important person. In a chapter called 'Disappearing Type', Unger gives more layers to this notion of silence:

> 'Reading creates its own silence. [...] Simultaneously with the creation of silence, another miracle takes place: not only do your surroundings seem to disappear, so too does the object at which your gaze is initially directed –black types dissolve in your mind like a soluble aspirin in a glass of water. All those black characters just vanish from the stage, do a quick change and return as ideas, images, voices and sounds. In other words, first your surroundings vanish and then the book itself becomes invisible, both being parked on a subconscious level. If and when this trick succeeds, the contents of the text flow straight into the mind of the reader.' (Unger 2007: 47-48)

In Unger's mind, typographic silence seems a desirable element in the reading process, holding the space for the reader's assimilation of the written message. However, neutrality and its relative silence present both advantages and disadvantages.



### 4.4.2. The case against neutrality

As will be shown more extensively in the next section, the concept of neutrality has been pondered by French philosophers in the late 20<sup>th</sup> century. In theory, neutrality can be a way out of dialectic. Consequently, paraphrasing Roland Barthes in Vers le neutre (1991), a typeface would be neutral inasmuch as its features evade or thwart the paradigmatic, oppositional structure of meaning, and consequently aim at the suspension of the conflicting decisions of the design. This could prove valuable enough to justify the tendency for typeface designer and for graphic designers to aim for blandness and monotony. However, even if using a versatile font saves time and money, it can be read as lacking warmth and care and it fails to harness the full potential of an appropriate typeface in the service of the message. The argument was well laid out by web designer Jason Parmental, in his TypoLabs 2018 rant in favour of the use of variable fonts online. He argued that type is never neutral because 'type is how we hear what we read' (Parmental 2018), adding that neutral merely means bland and designing for flexible content implies giving text a bland enough form to suit any content. Indeed, as typeface designer José Scaglione remarks in How to create typefaces:

'The characters of a typeface need to correspond with the content that it transmits. It would be inadequate to print a headline about an environmental catastrophe in Comic Sans, or to use an elaborate chancery script for the signage system of a hospital. These extreme examples reflect the problem presented by the most subjective part of typo-graphy, but it is important to understand that the appearance of letters transfers properties to graphic design, properties that are inherent in the visual culture of each individual and of a whole society. It is always possible to opt for a sufficiently neutral alphabet, but this is an easy way of escaping, because despite avoiding spectacular failures, it very rarely results in great pieces of graphic design.' (Henestrosa & al. 2017: 24)

The loss of expressivity is well summarised by designer Stephen Skaggs. Referring to twentieth-century salesman Elmer Wheeler's epigram 'Don't sell the steak, sell the sizzle!', Skaggs explains that the emotional dimension of the message is carried by its visual presentation:

'If one takes personal expression out of the equation entirely, presenting a text in a completely neutral, normal (and therefore mundane) fashion, a reader will focus solely on the text's verbal content in a complete dominance of the denotative word, but the sizzle, visually at least, has left the steak.' (Skaggs 2017: 192)

While probably meant about display type, Skaggs comment remains relevant at text size. Aiming for neutrality comes at the cost of enhancing the message itself by typesetting it appropriately. On the other hand, it allows the designer to grant a look of homogeneity to very diverse material, giving the appearance of consensus. Once that intention is formulated, comes the question of which shapes belong in the neutral category. At ATypI 2014, Alessia Nicotra (2014), neurophysiologist, and Bruno Maag, typeface designer and type founder, lectured about the emotions conveyed by typefaces. One of their slides (figure 21) suggested the connection between the typeface Helvetica (far left) and the notion of neutrality



Fig. 21: Alessia Nicotra & Bruno Maag (2014) on Type and Emotion at ATypI Barcelona 2014 Detail of a photo by Albert-Jan Pool published on Flickr The point of the presentation was to raise awareness about the emotions discretely conveyed by letter shapes, not to explain why or how. However, the slide raises the question of the impermanence of the connection between dry type and wet type: the shapes labelled as 'old' were once modern and those labelled as 'modern' may not remain so forever. The Fraktur 'a', labelled as 'aggressive', 'scary' and 'hard', was once the most common shape of 'a', across vast germanic territories whose readers found it perfectly normal, perhaps even bland. So how can we define what shapes should be considered neutral?



### 4.4.3. Designing for neutrality

This is one of the questions Kai Bernau attempted to answer in his 2005 graduation project for the Graphic and Typographic Design Course at the Royal Academy of Fine Arts in The Hague. The project is called Neutral. The report is set in a neutral typeface designed by the author. (figure 22) (Bernau 2005: 7)

What is neutrality? I am not sure when exactly I started to think about this. Maybe the thoughts were there all along, and I just didn't listen. Maybe the design school in Schwäbisch Gmünd has instilled me with the necessary prerequisites and the academy in The Hague made me allow myself to ask this question.

Fig. 22:

journey

Neutrality, a meditative

> Suddenly, in a vivid discussion about the stylistic durability of Akzidenz Grotesk, I realized that we are using this term (neutrality) so freely, generously, regularly, without even knowing what it means. I decided to find out, and to create neutrality.

The 16th century Japanese tea master Sen-No-Rikyu tried to neutralise any influences from his tea ceremonies by banning everything from the room that was not essential for the ceremony. Conceptual artist Lawrence Weiner stated in his (Declaration of Intent) of 1968 that his artworks exist as pure, unadulterated ideas, for which any materialisation was dispensable. Both had an idea to eliminate the unnecessary to show the essential.

The essence of typography is not in the style but in the content,, told me Helmut Schmid, and this is where I wanted to go. My idea was that a typeface could be neutral, showing no style and only content.

Four months later, this book shows the way I went, my journey towards neutrality, and presents one possible answer to my question.

Kai Bernau May 31, 2005

It describes the research and processes towards the design of this neutral typeface. Bernau (2005: 17) answers the question of what exactly typographic neutrality is by identifying a set of attributes of a neutral typeface:

- It is elusive, being a very context dependent social convention
- It is versatile, acceptable in all sorts of typographic contexts, in a wide diversity of media
- It makes the strong statement that one does not want to be expressive beyond the semantics of the message, trying not to add any atmosphere to it
- It is self-referential and resembles a commonly accepted archetype

What makes a typeface neutral is the lack of self-expression (that Bernau calls stylistic restrictedness), ubiquity (which he thinks can only be achieved through quality) and possibly, the sense of being a default choice. Methodically analysing and comparing letter shapes by categories, sub-categories and individually, Bernau selected shapes for their reference to archetypes, acceptability, tool agnosticism, legibility, readability and simplicity. Then, he used them to design Neutral, the typeface displayed in the specimen (figure 22).

Bernau's shapes stand, by deliberate construct, at the crossroads of Grotesques, American Gothics, Constructed Sans Serifs, Humanist Sans and Neo-Humanist Sans. They occupy a space between various familiar sans serifs. And indeed, in the early 21st century, when westerners associate stylistic restrictedness with ubiquity, they look banal, forming a multi-purpose, unobtrusive vehicle for written communication.

It should be noted that stylistic restrictedness and ubiquity do not always go together. Typefaces perceived as default choices, such as a typical typewriter typeface in the middle of the 20th century or Times New Roman on computers at the turn of the 21st century do not necessary follow stylistic restrictedness. Their quality was definitely good enough to allow extensive use, which in turn made them ubiquitous in a context where typographic choice was limited.

If ubiquity is to be used as an indicator of neutrality, many classical typefaces had their time and place of being considered neutral, in spite of their Fraktur, asymmetric serifs or high contrast features.

> 'Contrary to the possibility of designing an expressive typeface is the wish to make a neutral design for the widest attainable application. Several sans-serifs come close to this ideal, such as Source Sans Pro (2012) designed by Paul D. Hunt (1977-) for Adobe. Often type designs endowed with a particular connotation will lose their original meaning over time and can acquire a new identity, or end up being neutral. This happened to Helvetica and Univers (both 1957), once models of modernity signifying progress, and now modern classics without a precisely determinable atmosphere value.' (Gerard Unger *Theory of type design* 2018: 154)

'Precisely determinable' does not mean entirely devoid of connotations. Typographic neutrality may be the intention of the type designer or the typesetter. And they may well deploy strategies to achieve it. Nevertheless, design does not happen in a vacuum. Gerard Unger explains:

> 'The first thing the designer brings in is personality, influenced by background, education and the society in which he lives. A type design inevitably reflects the character of its maker, and it is often difficult to detect what comes from within and what comes from without.' (Unger 2007: 103)

#### and

'Place and time of origin are important. Where and when you [the typeface designer] work leaves traces in your products.' (Unger 2007: 204)

If the design itself fails to be neutral, it could still be seen as neutral, depending on the context. As we will see, adapting the design to the context could make the design statement that one should not read too much into the shapes themselves.



### 4.4.4. Super normal

The concept of Super Normal design was developed by furniture designer Jasper Morrison and product designer Naoto Fukasawa (Super Normal: Sensation of the Ordinary 2012) to qualify pared-down design turned invisible by use, a process of habituation granting timelessness and sustainability to design artefacts. Super Normal, according to Fukasawa (2007), defines timeless products that serve their purpose without drawing attention to themselves. Against the trends and renouncing the pomp of innovation, Super Normal aims at sustainability through timelessness. Yewen Fan in her Masters thesis in Visual Communication Design (2017) brings the concept of Super Normal to typeface design and introduces the idea of conscious variations around a norm that remains below the consciousness of the reader. The necessary component Fan identifies are a core of absence, a core of familiarity (what Bernau calls respectively stylistic restrictedness and ubiquity), along with a durability that enhances familiarity and, finally, beauty that can elicit positive emotion. (figure 23)

After analysing the design features of ten Super Normal typeface designs (Garamond, Bodoni, Futura, Times New Roman, Courier, Helvetica, Frutiger, Georgia, Tahoma and Verdana) along criteria of legibility, readability, aesthetics and adaptability, Fan created Super Normal, a humanist sans, designed for sustainability.

Substituting easy use for neutrality, Super Normal redefines typographic invisibility by considering connotative affordances of typefaces as undesirable divergences from a perceived average. Both Bernau and Fan use rigorous methods to limit such divergences. However unobtrusive the resulting typefaces, the differences between Bernau and Fan's interpretations of timeless design reveal their personal touch as designers. Bernau creates almost monolinear shapes while Fan, who does not design for neutrality but rather for normality, introduces some stroke modulation and even explains that the subtle swelling at the terminals suggests the warmth and friendliness of handwriting.

Super Normal, in Fukasawa and Morrison's opinion, is a manifesto that illustrates what good design ought to be. The concept extends to every aspect of design, starting with the purpose and the objectives of a design. That is, good design comes from good intentions. Proceed from the thinking of Super Normal, the origin of the Normal Sans project is to create a humanist sans-serif typeface that aims at reaching the goal of sustainability by withstanding the test of time. Though classified as a sans-serif type, the typeface is inspired by Roman type, adopting subtle swelling at the terminals to suggest a warmth and friendliness of handwriting. Designed based on the conceptual comprehensions and practical data from the previous chapters, to attain longevity, it tends to enhance its flexibility and versatility by high legibility, readability and restricted aesthetic characteristics within the context of the current digital environments. As a reflection of the advanced technology, the typeface also indicates the increasing dimensions of social issues, such as humanistic concerns and environmental crisis, advocating a rediscovery of unobtrusiveness in daily life and offering a potential alternative to good type design.

Year: 2017 Design: Yewen Fan

Fig. 23: Super Normal Overview (Fan 2017: 134)



## 4.4.5. The eye of the beholder

Admitting that neutrality is not purely embedded in the shapes led me to shift the research about expressivity to contexts in general and the eye of the reader in particular. It means that shapes as signs may lead to interpretation; and also that this interpretation may not happen at all.

In an interview from 1990 and often cited since, graphic designer and typeface designer Zuzanna Licko turns around the concept of legibility, asserting that it is an acquired competence of the readers, along with a preference for certain shapes:

> 'I agree with the fact that if you are setting books and other things that just need to be read and understood easily, you need to use something other than Oakland Six. In those cases you need to use something that is not necessarily intrinsically more legible, but that people are used to seeing. This is what makes certain typestyles more legible or comfortable. *You read best what you read most.* However, those preferences for typefaces such as Times Roman exist by habit, because those typefaces have been around longest. When those typefaces first came out, they were not what people were used to either. But because they got used, they have become extremely legible.' (interview by Rudy VanderLans in *Emigré* magazine 1990, my emphasis)

This increased legibility, like an auto-catalytic process, may be the first step towards the ubiquity identified by Bernau, eventually leading to the neutralisation of shapes as semiotic signifiers. Licko's assertion is substantiated by psychologist Christian Gutschi's thesis *Schriftwirkung und Sprachraum* (2008) and his previous research (see also section 2.1.1.). Gutschi finds that some typefaces elicit strong connotations while others are perceived as neutral and that connotations depend on the customary use of a typeface in a defined language area. Writing in German, he compares the appearance of typefaces in English and German, noting that some designs mark more the difference of languages. (The German language's use of capitals for all nouns makes certain typefaces, not designed with this use in mind, look unfamiliar.)

\* The Goldilocks In virtue of the Goldilocks\* principle, readers will deem principle is neutral letter shapes that feel "just right", "neither too this named by analogy to the nor too that". As a result, neutral shapes can differ significchildren's story antly from person to person and, a fortiori, from culture to The Three Bears, in which a young culture. What makes the shapes feel "just right" could girl named simply be familiarity. Intuitively, relying on calculations Goldilocks tastes three different could limit the scope of personal interpretation. Computer bowls of scientists Tugba Kulahcioglu & Gerard de Melo (2018), using a porridge and finds that she combination of experiment and algorithms to associate prefers porridge words to typefaces by way of the emotions associated to that is neither both, defined different typefaces as neutral for each partictoo hot nor too cold. but has ular word. Here, neutral is defined as the middle option on just the right temperature. the scale of appropriateness through a user study via Mechanical Turk. Two hundred typefaces were ranked according to their appropriateness to typeset emotion attributes. The Fig. 24: Appropriateness document below shows, in the first tier, emotions typeset in of fonts for suitable typefaces, in the middle tier, emotions attributes emotion attributes typeset in neutral typefaces and in the bottom tier, emotion (Kulahcioglu & attributes typeset in unsuitable typefaces. de Melo 2018: 66)

anger	anticipation	disgust	ғear	joy	NEGATIVE	positive	sadness	surprise	trust
ANGER	anticipation	disgust	FEAR	joy	NEGATIVE	positive	sadness	surprise	trust
anger	anticipation	disgust	FEAR	јоч	negati∨e	positive	sadness	surprise	trust

Figure 1: Emotion attributes rendered using the three most congruent fonts as predicted by our method. The renderings on the first line uses the fonts ranked 1st, the second line uses fonts ranked 2nd, and the third line uses fonts ranked 3rd.

anger	anticipation	disgust	fear	јоү	negative positive sadness surprise	trust
anger	anticipation	disgust	fear	JOY	negative positive sadness surprise	trust
anger	anticipation	disgust	fear	JOY	negative positive sadness surprise	trust

Figure 2: Emotion attributes rendered using the neutral fonts as predicted by our method. The renderings on the first line use the fonts ranked 99th, the second line uses fonts ranked 100th, and the third line uses fonts ranked 101st.

anger	ANTICIPATION	disgust	fear	јоу	negative	positive	sadness	surprise	trust
anger	anticipation	disgust	fear	joy	negative	positive	sadness	surprise	TRUST
anger	anticipation	disgust	fear	joy	negative	POSITIVE	sadness	surprise	trust

Figure 3: Emotion attributes using the three most incongruent fonts as predicted by our method. The renderings on the first line use the fonts ranked 198th, the second line uses fonts ranked 199th, and the third line uses fonts ranked 200th.
Figure 24 shows intriguing regularities: typefaces suitable to express 'Trust' are unsuitable to express 'Fear' and those suitable for expressing Joy are very similar to those unsuitable to express Negative. However, it also reveals a puzzling diversity of shapes in the neutral tier. How could three very different design be almost equally neutral to typeset the word 'Joy'? Or 'Negative'? The Mechanical Turk survey, asking a vast number of people to define neutrality, shows even more design diversity than the personal interpretations of designers.

Beyond the typefaces themselves and the eye of the reader, could the context be the defining component of neutrality? **Can typefaces be contextually neutral? Or, at least, contextually non-salient?** Perhaps what we call appropriateness is a context-defined degree of neutrality. A context in which the paradigmatic oppositions are unmarked rather than marked, where, in Barthes's words, 'the unmarked is what is frequent or commonplace.' (Barthes 1965: 151)



# 4.4.6. Modernism\* and postmodernism

\* modernism: Lyotard proposes that the most prominent feature of modernism is in fact the primacy of a universal or master narrative that embodies and encompasses all other subnarratives. dependent upon a transcendental signifier that imbues the entire system with a univocal meaning and assumes that all other ideological modes fall within its boundaries. Postmodern discourses exposes many of the central ideas of modernism as false – primarily the fact that systems of meaning are neither transcendent nor self-evident but are the product of sociohistorical and ideological forces, and that innovation is in fact merely a reappropriation of older values.

If semiotics is concerned with signs and symbols in visual communication and how they contribute to meaningmaking, visual rhetoric is more concerned with the persuasive aspects of visuals and how they are used to influence an audience. In the classic example of The Rhetoric of Neutrality', typographer and publisher Robin Kinross asks 'If nothing can be free of rhetoric, what can be done to seem free of rhetoric?' (Kinross 1989: 29). Kinross shows that a trivial piece of information such as a railway timetable, typeset in a seemingly utilitarian typeface, also conveys cultural identity, persuasion and influence. The choice of typeface and typographic details modify the sense of efficiency perceived by the user. The notion of neutrality turns out to be the uniform dressing that gives communication an aura of industrial efficiency, devoid of human affects and potential errors. Kinross calls purity of information the abstract existence of information devoid of a material form that could leak additional meaning. This notion is worth examining; it is central to the concept of neutrality. "Pure' information exists for the designer only in arid abstraction' writes Kinross (1989: 18). Strings of unicode character descriptions would be an example of such arid abstraction. He calls information without rhetoric 'a pipe-dream'. And explains that as soon as the move from concept to manifestation is made, and especially to a manifestation as highly organised as a time-table, the means used become rhetorical.

> 'Here, another definition of rhetoric can be tried, the art of directed communication – directed, that is, both internally to organize the material communication and externally to persuade an audience.' (Kinross 1989: 21)

If, however tight and dry the context, there is rhetoric content, are we currently aiming at tight and dry to pretend there is no rhetoric? Sociologist Malcolm Barnard, in *Graphic design as communication* (2005) explains the shift from a modernist to a post-modernist perspective on typefaces. In the 20<sup>th</sup> century, the modernists had a structuralist view of semiotics that included the possibility of bi-directional mapping of shapes to connotations.

'The crisis of representation here is that for the modernist there was something (a politics) outside of the play of differences that generated or guaranteed the meaning of the type: for the postmodernist, there is nothing outside of the play of coded contextual differences to fix the meaning of the font.' (Barnard 2005: 140)

When meaning is produced by its differential relation to all other meanings, expressive typefaces refer to all their contexts of use and not necessarily to their original purpose.

> [...] 'for a modernist Bauhaus typographer, Fraktur was a politically unacceptable, exclusive and nationalistic font, but for a postmodern typographer it is just another font. It is different from all the other fonts and its meaning is a product of those coded differences, not the result of a relation to something understood to be beyond those differences. Postmodern designers might use it to signify or connote 'antique shop' or 'old marmalade recipe' or a German language website about printing' (Barnard 2005: 140)

Tight and dry stylistic restrictedness may only be our contemporary but transient way to express professionalism and efficiency and still pretend to typographic invisibility.

From a postmodern perspective, typefaces mean something different to everyone. To the point of nonsense. Deploring its application to typography, Robin Kinross summarises poststructuralist thinking with irony:

> 'We know the world only through the medium of language. Meaning is arbitrary. Meaning is unstable and has to be made by the reader. Each reader will read differently. To impose a single text on the readers is authoritarian and oppressive. Designers should make text visually ambiguous and difficult to fathom, as a way to respect the rights of the readers.' (Kinross 1994: 5)

And adds 'All this fire-breathing polemic seems to lead merely to a plea for graphic designers to be allowed to make their presence known.' (Kinross 1994: 31) Whether the trends have moved towards more expressive type in average since 1994 would show if the changing perspective affected typeface design and typesetting.

Beatrice Warde put words to the concept of typographic invisibility in 1930 without any reference to specific shapes. When Times New Roman was introduced in 1932, it was meant to look classic, yet condensed AND legible. It is conceivable that Stanley Morison, who commissioned the redesign, was hoping it would be more distinctive rather than neutral. These considerations about the contextual dependance of neutrality point to neutrality being rather a lack of perceived design intention, often -but not always- expressed by stylistic restrictedness. Indeed, when material constraints are such that a design becomes a default setting rather than a choice, it is associated with so many contexts that those associations get diluted in the reader's mind to the point of meaninglessness. Semiotician Frank Serafini (Serafini & al. 2008) in Typography as a semiotic resource, dates the main transition of 'fonts from a neutral medium used to communicate written narrative to a graphic resource capable of realizing its own meaning potential' back to the lithography, phototypesetting and digital eras. Beforehand, he considers that there was not enough variety available for choices to be obviously meaningful.

So-called functional shapes are remarkable for the diversity of connotations they have conveyed over time. When Jan Tschichold published *Die Neue Typographie* in 1928, advocating stylistic restrictedness, it was nothing less than revolutionary and certainly not neutral. At the time, Akzidenz Grotesk, a precursor of Helvetica, was still a modern, utilitarian design. These kinds of forms which we currently find rather neutral carried connotations of progress and efficiency. It could be argued that it is the popularity and ubiquity of Helvetica that firmly associated stylistic restrictedness with neutrality in the mind of the western reader by the end of the 20th century. This may have been reinforced by its change of name from Neue Haas Grotesk to Helvetica in the early 1960's, thus adding semantic connotations of peaceful political neutrality to the already pared down design. Barnard lists Helvetica's attributes: 'functional' in Basel in the 1950s, 'classy' on the Knoll logo in the 1970s or 'trendy' in London in the 1980s. He explains:

> 'The meaning changes because the cultures it is found in change. In the culture of 1950s Basel, it is coded as 'functional', because that is what that culture thinks important and what the font connotes to that culture. In the 'designer culture' of 1980s Britain, the font is said to be 'trendy', because being 'trendy' was a central value of that culture. In these ways, the meaning of Helvetica is produced by its culturally coded relations to other different fonts. However, meaning is also destroyed by, or dissipated in, those differential relations in the sense that there is nothing outside of those relations to stop that endless referral to other fonts and other connotations. The meaning 'in itself' of the font is nowhere to be found, as it exists only as a product of a series of references to other different fonts.' (Barnard 2005: 142)

Helvetica's sprit of utility, its lack of ornamentation, seem to have shifted from a functional to a popular style as the cultural focus shifted from the ends to the means, from modernity to postmodernity. Since then, the western taste for restrictedness gave space to countless variations of neutral typefaces. Today, readers have become so accustomed to these pared down letters, often installed as default settings in softwares, that designers use them in the hope that they will convey nothing more than the semantic content of the words. Some may genuinely believe it is the case. Most, however, are conscious of bringing connotations of competence and a minimalist look that will, at least, not interfere with the text if it does nothing else to support its meaning. They make a safe bet albeit a rather lazy one since, however neutral. connotations are transient: in Gerard Unger's words, 'Timelessness does not exist.' (Unger 2018: 161)



\* syntagm: an orderly combination of interacting signifiers which forms a meaningful whole (sometimes called a 'chain'). In language, a sentence, for instance, is a syntagm of words.

# 4.4.7. Syntagms\*, paradigms

To understand how neutrality works at a semiotic level, Roland Barthes's *Eléments de sémiologie* (1965) provide specific vocabulary and a helpful framework. Influenced by Saussure's course and structuralist thought, the approach taken by Barthes has been influential and is still relevant and foundational. For Barthes, the basic principles of semiology stem from the study of verbal language and aim at extending to other kinds of languages or rather sign-systems, such as fashion, food, and many other types of signifiers. Semiosis, or signification, is an event, in which someone makes sense of a sign by associating a signified with a signifier. The signified is not obvious, it is hidden behind the signifier, it is deep, almost invisible and can only be reached through it. Semiotician Daniel Chandler explains that:

> 'The 'grammar' of a language involves both syntagmatic (structural) regularities and paradigmatic (systemic) contrasts. The description of any semiotic system involves specifying both the relevant paradigms and also the possible combinations of one with another in syntagms.' (Chandler 2017: 101)

Transposing these principles into typography, the paradigmatic units of the system are the design decisions that define the features of a typeface: its proportions, its slant, serifs, stroke modulation, etc. The crucial property of a paradigmatic unit is that the choice of one excludes the choice of another. And design features tend to be consistently applied throughout a typeface. Of course, the rule is there to be broken but typefaces with inconsistent design features are rare within the limits of text typography: an italic typeface has a constant slant, a serif typeface has similarly shaped serifs on most glyphs, a monospace typeface generates predictable text length, etc. Particular features shape the meaning of the typeface as a sign. However, not all choices contribute equally to signification. As Chandler summarises in a general sense: 'The use of one sign rather than another from the same paradigm is based on factors such as technical \* genre: in multimodality, genre is used as a way of exploring the nature of multimodal texts where the term mixed genres seems to more accurately indicate the functions of the different modes in any text. constraints, code (e.g. genre\*), convention, connotation, style, rhetorical purpose, and the limitations of the individual's own repertoire.' (Chandler 2017: 103) This means that defining features could be signs of the influence of elements other than intentional style. For example, monospace fonts have a particular atmosphere value that can be the byproduct of constraints such as the production of text by means of a typewriter or with the aim of typesetting code. However, even monospaced fonts leave room for expressivity as demonstrated by Toshi Omagari in figure 25:

 Comic Code by Toshi Omagari / 2019 / 30 styles from Things do not change;
Dossier by Toshi Omagari, William Addison Dwiggi
It was a bright coll
✓ Équivoque by Toshi Omagari / 2021 / 9 styles from
It was a bright cold of
Tabulamore Script by Toshi Omagari / 2019 / 10 st
Shall 2 compare the to

Fig. 25: Tabular type foundry by Toshi Omagary on ilovetypography. com

1. For example Beowulf, designed by Erik van Blokland and Just van Rossum in 1989. Distinguishing signifying units from constraint-dependent ones could be delicate. In typography, the syntagm is made up of an assemblage of paradigms, a combination that defines the typeface. The Design chapter (6), at the end of the argument, will examine the breadth of paradigmatic options, what the possible syntagms are and what are the usual ones. In a single message (paragraph, website, book, etc.), the typographic syntagm is stable, the combinations are limited in number and are repeated as necessary. Apart from a few exceptions, such as parametric or random fonts<sup>1</sup>, the shapes of the typeface's character set are not evolving throughout the document. The text unfolds to reveal more meaning but the typeface keeps giving the text a stable shape.

# 4.4.8. Degree zero of opposition

Barthes (1965: 149-153) explains that paradigms draw signifying power from opposition. He distinguishes different types of opposition relevant to linguistic meaning making, such as 'oppositions classified according to their relationship with the whole system', 'oppositions classified according to the relation of the terms of opposition' or 'oppositions classified according to the extent of their differentiative value'. He gives no indication that these categories could be relevant for non-linguistic meaning making.

Barthes (1965: 157-8) also comments about neutralisation. In linguistics, this term refers to the phenomenon by which an opposition loses its relevance and ceases to be significant. Generally speaking, the neutralisation of a systematic opposition occurs under the effect of the context: it is therefore, in a way, the syntagm that cancels the system. He thus introduces the possibility for any shape to lose its semiotic significance. More importantly, Barthes defines what he calls the degree zero of opposition. Coming from phonology, the concept of degree zero is not strictly speaking a nothingness, it points to an absence that signifies. The degree zero testifies to the power of any system of signs to make sense 'with nothing'. In rhetoric, where brought to the level of the plane of connotation, the emptiness of rhetorical signifiers constitutes in its turn a stylistic signifier. By analogy, typographic neutrality can be understood as a degree zero of expressivity, a deliberate intention to not communicate more than semiotic content.

In *Le Neutre*, Barthes (2002: 54) comments on silence as a sign. Silence may not be a sound but in music it is as important as sound: it is a sign. Expressions produced expressly so as not to be signs, are quickly repurposed as signs. It happens to silence too: one wants to respond to dogmatism (a system heavy with signs) with something that thwarts signs: silence. But silence itself takes the form of an

image, a more or less stoic, wise, heroic or sibylline posture. First, silence is used to avoid the pitfalls of discourse, then it solidifies into a paradigm and becomes a sign. Withholding or understating expression is, in turn, perceived as being elusive, ungrateful, hushed, flabby, indifferent. Neutral, as a kind of typographic silence, at best is a temporary, shifting posture.

Marshall McLuhan (1964) was thinking in much broader terms when he wrote that 'the medium is the message'. But it also applies in a narrow semiotic perspective: the medium, however silent, far from neutral, cannot not signify. Like the pause in the speech, it reveals the affect, the non-discursive element. It cannot be separated from the content, like speech can not be disconnected from intonation. There is always a tone, however formal or neutral. The effect on the reader may evolve with the period and the context, yet it is as old as typography itself. Typographer and professor Roger Chatelain notes that:

> 'The fact that certain hip graphic designers deny any cultural difference does not mean there is none. The identity component of typography dates far back. See the *Chronique de Nuremberg*, printed in 1493! This beautiful incunabula was printed in two versions. The font used to typeset the texts is different depending whether it is aimed at scholars (with a Rotunda) or in vernacular German (Schwabacher). In their great wisdom, early typographers took into consideration the cultural background of the readers. It leads to the logical deduction that the typographic form given to the printed text is not neutral.' (Chatelain 2019: 15, my translation)

The cultural background of readers is a key element in the interpretation of the text, confirming the elusive nature of neutrality. If there is no such thing as neutrality, why and how has it become an ubiquitous preoccupation in design? In the next section, the semiotic reflections of Roland Barthes (1915-1980) shed a political light on the workings of metalanguages.



# 4.4.9. Barthes and the neutrality myth

According to Barthes 'myth in fact belongs to the province of a general science, coextensive with linguistics, which is semiology.' (Barthes 1957: 109) He adds that all meaning has a linguistic dimension ('*Il n'y a du sens que nommé*.'). If this was strictly true, effects of colour, texture and stroke length in paintings could never be deemed meaningful. And neither would typographic shapes. The various disciplines interested with semiology (psychoanalysis, structuralism, eidetic psychology, literary criticism...) do not limit research to facts: they define and explore them as tokens for something else and attempt to name it. 'Semiology is a science of forms, since it studies significations apart from their content.' (Barthes 1957: 110) It studies 'ideas-in form'. Barthes's use of the word 'myth' belongs in this type of research.

The *Dictionary of media and communication studies* (Watson & Hill 2015) offers this explanation of myth:

'The generally accepted meaning of myth is of a fictitious (primitive) tale, usually involving supernatural characters embodying some popular idea concerning natural or historical phenomena, and often symbolizing virtues or other timeless qualities. In everyday parlance, a myth is something invented, not true. For analysts of the communication process, myth has more specific connotations. Myth is an interpretation of the way things are; a justification. For the social scientist Claude Levi-Strauss, myth was a force generated to overcome contradictions. Either way, at the heart of myth is ideology, chiefly the value-system of those at the top of society.' [...] (Watson & Hill 2015)

Barry Deck, cited in *Typography now: the next wave* (Poynor 1991: 9) calls transparency of typographical form a 'myth' and suggests that a more realistic attitude toward form would be to acknowledge that form carries meaning. But Barthes goes further in the understanding and use of the word myth and his meaning might be well suited to the description of typographic neutrality. He started *Mythologies* (Barthes 1957) as a social commentary, pulling apart collective representations to deconstruct them into systems of signs, systems of connotations aiming at distorting the truth in a particular direction. Employing a structuralist perspective, he showed how reality is presented as 'always already there' rather than the product of history, thus serving the purpose of the ruling class.

Barthes calls 'myth' a further layer of meaning informing the perception we have of the linguistic sign. 'Myth is a type of speech.' (Barthes 1957: 107) Myth provides further information, delivered in parallel to the semantic message. In this sense, the expressivity of letter shapes in general, and their possible neutrality in particular, could be analysed as a kind of mythical speech too. Like myth, typography is a mode of signification, a form, a system of communication, a message: a metalanguage that speaks about the linguistic text. Barthes devised the following considerations with other cultural objects in mind, however, they provide useful and rich understanding about the workings of typography.

In typography, we find the Saussurean tri-dimensional pattern described by Barthes: signifier, signified, and signification (to distinguish from the signs of the language). The relationship signifier-signified is one of equivalence, not equality because they belong in different categories. A signified can have several signifiers, it has at its disposal an unlimited mass of signifiers. Quantitatively, the concept is much poorer than the signifier. Hence repetition of the concept through different forms. Barthes explains:

[...] 'There is no regular ratio between the volume of the signified and that of the signifier. In language, this ratio is proportionate, it hardly exceeds the word or at least the concrete unit. In myth [or in typographic expressivity], on the contrary, the concept can spread over a very large expanse of signifier. For instance, a whole book can be the signifier of a single concept; and conversely, a minute form (a word, a gesture, even incidental, so long as it is noticed) can serve a signifier to a concept filled with a very rich history.' (Barthes 1957: 119)

Every typographic element contributes to the sub-textual meaning and gets repeated throughout the text. The insistence, the pattern of behaviour reveals the intention. Both the text and the sub-text are manifest at the same time. Typography distorts, it does not make things disappear. The text has a literal, immediate presence. There is no escaping the linguistic nature of the typographic signifier. The typography gives the text its form, its spatial presence. The sense of typographic expressivity, on the contrary

> 'appears in a global fashion, it is a kind of nebula, the condensation, more or less hazy, of a certain knowledge. Its elements are linked by associative relations: it is supported not by an extension but by a depth (although this metaphor is perhaps still too spatial): its mode of presence is memorial.' (Barthes 1957: 120-1)

To explain the coexistence of two levels of meaning, one semantic and one semiotic, emerging from the material form, Barthes uses the metaphor of a car window:

> 'The meaning is always there to present the form, the form is always there to outdistance the meaning. And there never is any contradiction, conflict or split between the meaning and the form: they are never at the same place. In the same way, if I am in a car and I look at the scenery through the window, I can at will focus on the scenery or on the window-pane. At one moment I grasp the presence of the glass and the distance of the landscape; at another, on the contrary, the transparence of the glass and the depth of the landscape; but the result of this alternation is constant: the glass is at once present and empty to me, and the landscape unreal and full. [...] To wonder at this contradiction I must voluntarily interrupt this turnstile of form and meaning, I must focus on each separately, and apply to myth a static method of deciphering, in short, I must go against its own dynamics: to sum up, I must pass from the state of reader to that of mythologists.' (Barthes 1957: 122)

Interrupting the turnstile of form and meaning by focusing deliberately on both aspects in turn is precisely the approach of the present exploration. The form, the presented element, has a material presence that can be pulled apart (in chapter 6 on Design). The presence of the form is immediate and literal. It is also extensive because of the linguistic nature of the typographic signifier. It is given through a material. The typographic form has an arbitrary correlation to language;

\* graphology: the study of such units in a language is called graphemics or graphology. (In popular usage graphology also refers confusingly to the study of handwriting as a means of character analysis.

the link between the word 'tree' and the concept of a tree is unmotivated. However, the expressivity, the suggested element or 'mythical signification, on the other hand, is never arbitrary; it is always in part motivated, and unavoidably contains some analogy.' (Barthes 1957: 124) The sections of the Expressivity chapter about Metaphors (5.2.2), Crossmodal correspondences (5.2.3), Kinetic feeling (5.3.1) and Graphology\* (5.3.2) all aim at tracing the contextual motivations of the analogies suggested by the shapes. The context provides all at once a set comprising information that seem to naturally be part of the narrative, a kind of naturalisation of certain elements. For Barthes, the knowledge contained in the mythical concept is a confused knowledge, formed of limp, ill-defined associations. It is necessary to insist on this open character of the concept, it is by no means an abstract, purified essence, it is shapeless, unstable, and its unity and coherence are due above all to its function. The connotation is nebulous, it is the more or less blurred condensation of a knowledge. The elements are tied together by an associative relationship, a memorial mode of presence. There is no fixity in typographic concepts; they can disappear. 'It is precisely because they are historical that history can very easily suppress them.' (Barthes 1957: 119) And even when the presented elements are in disorder, they give to read a concept of 'disorder' itself.

Typographic expressivity, like myth, can be constructed as an inflexion, a type of speech defined by its intention much more than its literal sense. The intention is somehow frozen, purified, eternalized, made absent or invisible by the literal sense. It is not read as a motive but as a reason. Even more so when the intention is neutrality, the erasure of its human origin. The fact that this inflexion is captured mechanically, by machines such as a press or a computer, reinforces the myth of its objectivity. Where there is only equivalence, the reader sees a kind of causal process. The reader does not see it as a semiological system but as an inductive one. For Barthes, the word to qualify what the myth does to the semantic meaning is 'alienate'. Can typographic shapes deform without abolishing the text, and thus alienate textual meaning? It seems to be the aim of typographic neutrality, the search for a 'Goldilock's zone' in the design, 'neither too this nor too that', where shapes give the reader the impression that the text exists in a depersonalised historic vacuum.

Barthes identifies myth as a tool for the assertion and reproduction of bourgeois power over culture and society. The question of whether mythical typographic neutrality works in that way is open and difficult to answer. But it naggingly calls to mind an attempt to achieve neutrality in a different medium and a particular context. The depersonalisation of language to form a bureaucratic language (Amtssprache) in Nazi Germany aimed at giving unbearably inhuman processes the reassuring appearance of commonplace administrative formalities. Admitted by 'desk-murderer' Adolph Eichmann, explained by sociologist Hanna Arendt (1963), the combination of connotations, euphemisms, trendy words, scholarly words, institutional language and neologisms created a smoke screen between the orders and their execution, thus preventing emotional responses to interfere with efficiency. Neutrality is not always harnessed to hide exactions in plain sight. In typography, it is usually used to present text with the least possible amount of affects. However, a healthy questioning of typographic intention might occasionally uncover shady motives and, more often, might lead to the adoption of more efficient visual strategies than merely aiming for neutrality.

According to Barthes (1957: 131), myth is a stolen language, a language robbery, a way to naturalise values. In the case of typography, it would mean using an elaborate cursive to naturalise elegance on a wedding invitation, Helvetica on a train station sign to naturalise utility or Comic Sans on a gift shop to naturalise a personal touch. (figures 26, 27, 28)

et Madame Marcel Gle Christine Glig ve et Mart El mens t l' Eglise Saint Michel Tenlouse 5, avenue Charles de Gaulle • \$1300 Grav





From left to right

Fig. 26: atelier-camus.com /fr/faire-parttradition

Fig. 27: Castlebar, Co Mayo Ireland August 2013

Fig. 28: Train station sign Switzerland October 2018 To paraphrase Barthes, the combination of semantic meaning and letter shapes seems to trigger a kind of sublation of meaning that leads to human understanding. Perhaps, as suggested by Steven Connor (2021) there is no such thing as uninflected form, a purely executive typeface or zero-degree of expressivity, just as there is no such thing as a completely toneless voice. What Beatrice Warde (1955) dismisses as distracting noise may be contributing to the saying of what is said. Connor explains:

> 'Gill Sans and its derivatives like Futura have become the aspect of a particular kind of mid-century popular modernism, in its use for railway and road signs, as well as the signage in institutions such as schools and hospitals, the covers of Penguin paperbacks and, most influentially, the BBC. It is the visible accent of a temporary and now somewhat antiquated and even exotic dream of an egalitarian, welfare-state democracy. It is a sort of received pronunciation of the eye, its very neutrality a companionable kind of visual idiom.' (Connor 2021: 14)

If the ideal form of unemotive and disembodied text is to be renounced, it becomes valuable to understand what exactly happens when text takes shape. Beyond their function of carrying the text, since the introduction of capitalisation by Alde Manuce in Venice at the turn of the 16th century, typefaces have long been used as a meta language to draw attention to certain aspects of the message, such as its internal hierarchical structure. Salience can therefore be considered the second function of letter shapes.



### 4.5. Linguistics & salience function



Fig. 29: Hic sunt dracones Hunt-Lenox Globe circa 1510 New York Public Library (digitalcollection s.nypl.org/ collections/huntlenox-globe#)

\* graphetics is a branch of linguistics concerned with the analysis of the physical properties of shapes used in writing. Where does the semiotics of letter shapes belong? It occupies a very ambiguous place in knowledge, comparable to the known yet unchartered territories on medieval maps suspected to harbour dragons (figure 29). Their linguistic function distracts both reader and researcher from their less obvious potential as a non-verbal expressive system, thus blurring the lines between disciplines that could handle their analysis. Unlike other semiotic modes of expression, such as clothes that can be removed from bodies to be examined on hangers, 'dismounted' letter shapes are fiddly to handle. While it is possible to imagine some meaningless letter-like shapes dressed in the same style as a typeface (figure 30), it would be almost impossible to organise them in a convincingly complex text-like manner. Hence the difficulty to consider their graphetic\* dimension separately from their semantic meaning.

This explains that, being utterly non-verbal, the process at stake may be challenging to put into words, and perhaps even more for researchers without any particularly typographic focus.

The study of letter shapes is obviously the object of typeface design and typography. Assuming that the shapes themselves convey an extra layer of meaning beyond the text, one would



Fig. 30: 'meaningless' displayed in Queezoid Sans and Queezoid Hand, designed by Jeremy Tankard (typography.net)

\* multimodality: the textual combination of different modes and their integration in terms of structure, discourse semantics and rhetorical function within contexts of social (inter-) action. also expect to see them examined in social semiotics, the discipline concerned with meaning-making as a social practice. Developed by linguist Michael Alexander Kirkwood (M.A.K.) Halliday, who, in the 1970s, conceived of language as a systemic resource for meaning. He was soon followed by Paul Thibault (1991) and Gunther Kress and Theodoor Van Leeuwen (2001) who developed the concept of multimodality<sup>\*</sup>, the potential of conveying meaning through visual, verbal or aural means, thus opening the field to the study of non-linguistic objects. As will be discussed in the next chapter (5.1), however, to the typeface designer eager to understand the implications of shape variations in their own practice, social semiotics fails to provide convincing interpretation.

Beyond the obvious, a significant contribution to the desired knowledge still sits at the fringe of other disciplines such as linguistics, semiotics and stylistic studies. Indeed, some of the literature in these fields directly applies to letter shapes and some more literature, though intended to comment on other objects, can be fruitfully applied to typography. This section and the next aim to first clarify some of the vocabulary used by linguists and semioticians interested in letter shapes, then to examine the obstacles to the serious consideration of the meaning-making potential of letter shapes and, finally, to outline the linguistic and semiotic concepts and findings that could be brought into typographic reflexion to contribute to better understanding. Given the idiosyncrasies of linguistic jargon especially in academic contexts and the uncommon use of common terms, my borrowing of key concepts should be considered as tentative and will almost certainly prove controversial with their originators, yet are set out here as a starting point from which others are invited to challenge, clarify and find further ways forward.



#### 4.5.1. Go figure: semiosis, semiology and semiotics

The human inclination to see signs, divine or not, in everything from stars to the *Yi Jīng*'s (Javary 2012) hexagrams is as ancient as civilisation itself. Concerted attention to semiosis, processes involving signs, can be traced back to Aristotle. In *De Interpretatione* he states:

> Spoken sounds are symbols of affections in the soul and written marks symbols of spoken sounds. And just as written marks are not the same for all men, neither are spoken sounds. But what these are in the first place signs of- affections of the soul- are the same for all; and what these affections are likenesses of- actual things- are also the same. (Cited by Ackrill 1963: 43)

Following Aristotle's hypothesis that signs stand for stable objects, the word 'semeiotic' was used in medicine for the interpretation of signs towards a diagnosis. This led John Locke, in the late 17th century, to call 'semeiotike' the concept of a doctrine of signs. At the turn of the 20th century, the parallel theoretical developments of semiotics by Charles Sanders Peirce and of semiology by Ferdinand de Saussure brought the study of semiosis to the forefront of academic studies. They devised their systems simultaneously on two separate continents and proposed significantly different visions of the functioning of signs. As far as the study of letter shapes is concerned, the most important difference between their two approaches is that Saussure saw the dichotomy 'signifier-signified' as a fixed arbitrary link whereas Peirce included the interpretant in a 'sign vehicleobject-interpretant' trichotomy, thus introducing the possibility of contextual interpretation, rather than merely fixed relationships. Both approaches have greatly influenced social sciences. Saussure's concepts opened the way towards structuralism and the synchronic\* notions of inventory and grammar. Peirce opened the way towards modern semiotics and, eventually, to the diachronic\* analysis of ever shifting semiotic processes. Applied to letter shapes, some of their concepts can bring elements of understanding. Literature

\*synchronic: one of the two main temporal dimensions of linguistics investigation introduced by Ferdinand de Saussure, the other being diachronic. In synchronic linguistics, languages are studied at a theoretical point in time: one describes a 'state' of the language, disregarding whatever changes might be taking place.

\* in diachronic linguistics (sometimes called linguistic diachrony), languages are studied from the point of view of their historical development. about the graphetic dimension of letter shapes ranges from the call for a complete structuralist inventory of shapes (Hamp 1959; Crystal 1997) to the call for an integrationist, multimodal, fully contextualised analysis of discreet signmaking events (Harris 1994; Van Leeuwen 2006; Montoro 2012). The various perspectives form an incomplete but informative landscape of research.

Linguistic terminology is not self-explanatory. The term graphology is commonly considered as the analysis of handwriting (spelt henceforth with a lowercase g). It also has a specific meaning in the context of linguistics where it is a level of analysis of language through its graphic aspects (Graphology with an uppercase G). The two meanings are distinct, yet related. Here, we examine the location of the research question in the field of Linguistics, and therefore within Graphology.

Even within Graphology, linguists find vast amounts of matter for discussion in the way that the text's material form affects the semantic meaning. Few words refer purely to shapes. Geoffrey Sampson (1985) distinguishes between 'glottographic'\* systems that use visible marks to represent spoken language and 'semasiographic'\* systems in which visible marks relate to meaning without reference to spoken languages (e.g. musical notations, emojis, Blissymbols, Andean quipus or mathematical notations; the concept of pasigraphy, or universal language, applies to some of these, such as Blissymbols but not all semasiographic systems pretend to be universal). The status of letter shapes as an autonomous semasiographic system is debatable but this question is precisely the condition for the possibility of studying letter shapes independently of semantic meaning. In any case, as Marshall Unger and John de Francis remark:

> The boundary between semasiographic and glottographic systems may be not as sharp, as it is commonly believed – it can also shift depending on the particular use of a system. Many texts, based on glottographic systems, are spatially arranged, context-dependent and multimodal. Non-linguistic context is necessary to choose the suitable

\* glottography: using visible marks to represent forms of a spoken language.

\* semasiography: relating visible marks to meaning directly without reference to any specific spoken language. meaning of a word in the process of semantic integration. (Unger & de Francis 1995: 46)

Indeed, re-imagining the autonomy of letter shapes as a system of expression cancels the possibility of a purely glottographic system. Unless, that is, we were prepared to consider a string of unicode references in binary form a suitable glottographic system of notation. And, by construction, letter shapes conveying words, glottographic and semasiographic aspects co-occur, even if they are considered separately. In spite of the epistemological difficulty in considering the expressivity of letter shapes separately from their glottographic, alphabetic dimension, treating letter shapes as a complex, open, expressive semasiographic system carves some theoretical space for its analysis.

As linguist Roy Harris writes:

'What we call writing is not to be mistaken for mere linguistic interpretation of shapes. Reading starts at a prelinguistic stage where the graphic space is organised according to an object/background contrast. This pre-linguistic interpretation allows to distinguish a number of graphic units and a number of graphic clusters.' (Harris 1994: 287)

The distinction between the two aspects allows the making of a useful theoretical outline of the letter shape object. One could therefore refer to the semasiographic aspect of letter shapes but this dimension is called various other names such as 'typographic' (Van Leeuwen 2006), 'stylistic' (Burke 2017), 'paragraphemic' or 'pregraphemic' (Hamp 1959) or 'graphetic' (Crystal 1997). The choice of the word 'graphetic'- or 'typographetic', to distinguish from handwriting- presents some advantages. It is simple, sounds reasonably close to its meaning, it is a counterpart to the 'graphemic' used in linguistics (relating to a letter or group of letters transcribing a phoneme, see glossary of terms for the distinction -emic / -etic) and it is not widely used to point at something else. Linguists, who keep a narrow focus on the impact of style on language, make little use of the word *graphetics* (For example, the word 'graphetics' does not appear in The Routledge

*Handbook of Stylistics* 2017.) Therefore, among other possible choices, 'graphetics' is awaiting its adoption by typographers.

In A dictionary of stylistics, Katie Wales defines it so:

[...] 'In theory, just as phonology is a branch of the wider and more theoretical discipline of phonetics, concerned with universals of sound-making, so *graphetics* is the term needed to describe the study of graphic universals, general features of the written medium influential on all (or many) systems (e.g. shape; size; spacing; material; etc.)'. [...] (Wales 1989: 213, my emphasis)

And Robert Waller explains further:

'We could clarify the graphetic / graphological distinction in the following way: taken individually, visual techniques such as the design of letterforms, symbols, rules, tints and boxes might be seen as graphetic; but when they are used together to structure a whole text, we see a graphological system at work. The origin of the serif, the design of more legible type, the choice between the open and closed bowl 'g' are examples of graphetic issues, interesting in themselves but not contributing to our understanding of how graphic factors are used in the display of textual arguments.' (Robert Waller 1987: 48)

The examples Waller gives here as deserving graphetic analysis are also considered as not serving textual presentation. Even if it could be argued that the atmosphere value of type can weaken or reinforce a specific message, it shows a location of letter shapes as graphetic dimensions of the text at the very edge of linguistic preoccupation, if not outside of linguistics, along with the semiotic interpretation of images. Which might explain why, a decade later, Waller (1999) makes a disappointed observation:

> 'Although many linguistics textbooks tantalisingly introduced the terms 'graphology' and 'graphetics', they turned out to be virtually empty categories – perhaps introduced as a counterpart in written language to phonetics and phonology.' (Waller 1999: 2)

I have therefore adopted the term **typographetics** to designate the properties of typographic letter shapes.

Other concepts such as 'syntagm' and 'integration' are also carried over from a linguistic origin to a wider context of semiotics. Daniel Chandler (2017) defines a syntagm as 'an orderly combination of interacting signifiers which forms a meaningful whole (sometimes called a 'chain'). In language, a sentence, for example, is a syntagm of words.' If design decisions make distinctive features, these are, in turn, combined into syntagmatic combinations called typefaces, according to rules and conventions, both explicit and implicit, of typeface design. The concept of 'syntagm' allows to handle a group of distinctive features as a whole.



# 4.5.2. Double articulation

Double articulation, or duality of patterning is the linguistic name for a property of language to combine a lower structural level (second articulation) of meaningless elements (phonemes or graphemes\*) into meaningful combinations (words, sentences, paragraphs, etc.) at the higher structural level (first articulation). The double articulation seems to be specific to human language. Chandler reports that:

> 'A key semiotic debate used to be whether or not semiotic systems such as photography, film, or painting have double articulation. The philosopher Susanne Langer (1957: 93) argues that while visual media such as photography, painting, and drawing have lines, colours, shadings, shapes, proportions and so on, which are 'abstractable and combinatory', and 'just as capable of articulation, i.e. of complex combination as words', they have no vocabulary of units with independent meanings.' (Chandler 2017: 182)

If typography can claim the articulation of a limited number of units into a vast number of meaningful combinations, it does not really qualify for double articulation for three main reasons. First, the meaninglessness of the basic units is debatable (and debated in chapter 6 on Design) but secondly, and more importantly, typefaces, and typography, present the particularity of being combinations of ALL basic units, not combinations of a variable number of units. A typeface has to have a x-height, a slant, a thickness, even if it is a variable one. A text must have margins, line spacing, etc. Designers cannot opt out of dimensions at will. At most they can select neutral values that make the dimensions inconspicuous. Typeface design (and typography in general) is a closed system with a theoretically fixed number of variously meaningful elements. The number of elements evolves with technology (new behaviours available on screens) but remains finite.

Thirdly, typographic features combinations do not produce sentence-like structures. One typeface –sometimes two or three, rarely more– is enough to typeset a document, often a

\* grapheme: the smallest distinctive unit in the writing system of a language: popularly known as 'letter' or symbol. whole book. If it conveys a meaning, it is repeated throughout the text, usually without any variation. There is no complexity of discourse. According to Langer (1957: 95-97) visual media resist linguistic reductionism and should be considered for the complexity and subtlety they bring to the expression of non-linguistic ideas. And this applies very well to typefaces. Typography does not attempt to rival words in creating meaning, it carries the words and merely adds atmosphere, making speculations about its double articulation fruitless.

In *La sémiologie de l'écriture* (The semiology of writing), published as the proceedings of a year of research in Paris, linguist Roy Harris (1994) carves a theoretical space for the study of written material. Among the propositions for a theorisation of the sign-making process of contextualisation that he calls integrational linguistics, Harris offers in depth considerations about the nature of the graphetic dimension of printed material.

Fig. 31: Book cover (Harris 1994)



Harris draws the line at what seems to him to go beyond the mission of Linguistics: 'If there are forms of writing fully independent (from language) –which isn't certain– in any case, by definition, it has nothing to do with linguistics.' (Harris 1994: 358, this book having been published in French, all the quotes are given in my translation).

In spite of a book cover (figure 31) as promising as the title – featuring the letter H in various display typefaces– Harris shows very little interest in letter shapes themselves. However, he makes a good case for studying written communication independently from verbal communication, which provides some clarity about the theoretical context of the possible study of letter shapes.



## 4.5.3. Non-linearity and cultural autonomy

Harris explains that Ferdinand de Saussure's assumption that the only purpose of writing (*écriture*) is to transcribe spoken language (*parole*) contributed to mistaking writing for a mere notation system and led to the lasting neglect of the particularities of written matter as a system of expression in its own right. As we will see, limiting the semiotics of writing to the linearity of speech excludes the added dimension of space from the inquiry. Harris points out that 'the first task of an adequate semiology will be to provide a theoretical frame in which the status of writing is not under-valued in advance'. (Harris 1994: 33).

Saussure also believed that arbitrary signs were ideal vehicles for the semiologic process and it seems to be largely the case for the sounds of language. He therefore considered that the means of production of signs, in general, were not relevant to meaning:

'Whether I write letters in white or black, engraved or embossed, with a quill or a chisel, it is without importance for their meaning.' (Saussure, *Cours de linguistique générale* 1916: 166, my translation). If this comment makes sense from a logocentric perspective, it must have deterred wider inquiry about extralinguistic\* aspects of form. An unfortunate bias because, in the case of forms, the link between form and 'movement of the soul', as Aristotle called the effects of signs, relies on the human capacity to pick up semiologic pertinence in a given context, even, sometimes, without any pre-established conventions. Written signs may well be much less arbitrary than aural ones and deserve to be also examined for their meaning-making potential.

Unlike spoken language – at least until Saussure's time that saw the advent of audio recording – writing has a material form that lasts through time, creating the possibility, in a way, to replace a person by a text. Its interpretation is based on visual bio-mechanic factors that are irrelevant to the

\* extralinguistic features is used both generally, to refer to any properties of such situations, and also specifically, to refer to properties of communication which are not clearly analysable in linguistic terms, e.g. gestures, tones of voice.

interpretation of sounds. This particularity gives it a cultural autonomy beyond the immediate requirements of communication and multiple opportunities to be interpreted in different contexts. Not following spoken language, it has other syntagmatic resources and, in particular, being two-dimensional, and therefore having a surface, it does not have to be linear as speech does. Indeed, many elements can be presented visually simultaneously. As a consequence, systems of notations have two levels of structuration: the elements relative to the notation and other written elements it can convey. The first level may have a limited number of graphic units (letters and punctuation) but the second can very well be an open network of similarities, visual analogies and associations. A written tradition requires processes of learning, conservation and transmission that are significantly more complex than the processes involved in oral communication. Whereas oral communication is limited to a linear organisation, written matter not only offers linear continuity but also a whole range of non-linear contrasts. It is even a particularity of visual signs to provide all relevant data at once. Like a drawing that shows everything at a glance, the co-temporality of typographic matters on a page affords further semiotic potential unavailable to speech. In theory, writing allows the elaboration of an infinite number of non-linear communication systems. As Harris puts it:

> 'In any written document, a first binary contrast is used to identify the written matter's outline as positive element and also usually indicates the limits of the relevant graphic field. Any exception indicates immediately a semiologic or aesthetic value.' (Harris 1994: 285).

Each artistic tradition develops its own visual codes that the public learns to recognise. As a result, printed material has a social and cultural life different to that of sound. However, this cultural autonomy of written matter does not automatically extend to the recognition of the autonomy of its semiologic dimension. As we have seen, linguistics are chiefly interested in graphic systems inasmuch as they are related to spoken languages. It makes them a deceptive ally in the analysis of letter shapes, concerned with aspects just besides the point. Not only are semiotics of letter shapes beyond linguistics, in a location difficult to define but they can only be apprehended in the presence of text and formulated in language. It is to be expected, as Daniel Chandler (2017: 7) remarks in Semiotics, the basics, that '[...] even if we theoretically locate linguistics within semiotics it is difficult to avoid adopting the linguistic model in exploring other sign systems.' It is particularly true for typographetics, a parallel sign system also carried by letters. Therefore, before adopting any analytic model, it matters to distinguish letter shapes as a linguistic sign system from letter shapes as a semiotic sign system.



In the article 'The graphic presentation of language' (Twyman 1982), an attempt to clarify the scope of typographic studies, professor Michael Twyman considers the configurations and modes of graphic language and distinguishes the perspective of graphic designers from the perspective of linguistic scientists (figure 32). He seems to assume that they have the same concern with 'Language', when it could be argued that linguistic scientists are only concerned with the 'verbal' dimension of 'written' language, whereas designers consider a 'pictorial' sign-system beyond linguistic preoccupations.

He proceeds to divide visual graphic language in verbal / pictorial / schematic (figure 33):

Fig. 32: Basic

linguistic

approaches to language, of

scientists (left) and graphic

designers (right)

(Twyman 1982: 7)


Fig. 33: An attempt to accommodate the different approaches shown in figure 32. The words 'Language', 'Graphic' and 'Verbal' are picked out in bold to explain the derivation of the term 'Verbal Graphic Language'. (Twyman 1982: 7)

Twyman attempts to map the articulation of the various forms of language to define a field of studies for graphic design issues. By construction, placing everything under the umbrella of language makes it difficult to carve a space for non-linguistic graphetic issues. He then proceeds to separate Visual Graphic Language into Intrinsic and Extrinsic features. This distinction is also problematic. Twyman defines as 'intrinsic' features residing in the characters themselves and in the system that produces them. 'Extrinsic' is what can be done to them (figure 34). Typeface designers will argue that absolute size (the point size at which the typeface is set in the text) is extrinsic –even if relative sizes in a character set are fixed– and that micro spacing is a non-negotiable part of typeface design, to the extent that letterspacing lower case is, in some circles, humorously deemed a crime as vile as stealing sheep, or worse. (Spiekermann & Ginger, Stop stealing sheep and find out how type works 1993)

Writing at a time of digital transition during which digital typesetting still offered only a fraction of the possibilities of metal typesetting or photocomposition, Twyman deplores, Fig. 34: Intrinsic and Extrinsic features of verbal graphic language (VGL) (Twyman 1982: 11) without getting into details, the 'loss of nuances of meaning' allowed by high level systems of composition. He does not linger on the particularities of typeface design, and one can only guess that the loss of nuances of meaning is attributable in equal parts to limited Intrinsic and Extrinsic options.



Styles of letterforms being, by default, considered under the heading of 'Verbal Graphic Language', the typology invites the study of letterforms inasmuch as they contribute to verbal language. Assuming that the 'Non-graphic, paralinguistic' channel refers to non-typographic visual elements such as paper size and quality, layout, etc., any attempt to analyse the purely graphetic dimension of printing –or the graphological analysis of handwriting, for that matter– would belong in a hitherto non-existing sub-category of 'Graphic Language', that would be graphetic (textual) but semasiographic (semiotic) rather than semantic (salience). To create some distance from the logocentric perspective, I propose the following diagram (figure 35):

Here, the visual communication is removed from a general 'Language' classification and the diagram, adapted from Twyman, could point to a place for the expressivity of letter



Fig. 35: Revised typology of the different kinds of visual communication, inspired by Twyman (1982) shapes to be considered beyond their linguistic contrasting function. Note that only the very left category really belongs to linguistics, all others would belong in wider social semiotics. Also, typography and handwriting, as textual graphic devices, can contribute meaning through Salience and Semasiographic ways.

This new modelisation presents the advantage and the disadvantage of holding two places for the expressivity of letter shapes. Notions such as appropriateness would straddle between the two. Van Leeuwen (2006: 144) insists that 'The graphetic dimension of typography should not be isolated from the other communicative modes with which it co-occurs', it could be added that, on the other hand, researchers should aim to distinguish it from the semantic content of the words that that inevitably co-occurs too. At the very least, letter shapes could be considered semasiographically, as transcending the particulars of any idiomatic language. Roy Harris goes further: 'Once admitted the distinction between a notation system and the system of written signs it can carry, one has to recognise that any writing system has two levels of structure that should not be mixed up. Some traits make sense only in reference to the structure of notation, others only in reference to the structure of expressions; others still, make sense in reference to both.' (Harris 1994: 44)

In the above articulation, the text contributes meaning, cocontributes to salience and combines with semasiographic meaning to realise appropriateness, whereas atmosphere value could be considered purely semasiographic.

Some of the unease in naming the function of letter shapes in written communication lies in their absence of counterpart in verbal communication. Are they part of language and therefore a concern of linguistics? Are they cultural and therefore part of a larger understanding of Semiotics or not cultural at all? To borrow another analogy from the custom of dressing bodies in clothes, we can imagine that the counterpart of letter shapes in verbal communication would not even be body language, it would be the speaker's outfit (figure 36 & 37), influencing their status and credibility. Like in the classic example of *The Little Prince*'s asteroid:

Fig. 36: Saint Exupéry (1943/2023; 6)



'I have serious reason to believe that the planet from which the little prince came is the asteroid known as B-612.

This asteroid has only once been seen through the telescope. That was by a Turkish astronomer, in 1909.

On making his discovery, the astronomer had presented it to the International Astronomical Congress, in a great demonstration. But he was in Turkish costume, and so nobody would believe what he said.

Grown-ups are like that ...



Fortunately, however, for the reputation of Asteroid B-612, a Turkish dictator made a law that his subjects, under pain of death, should change to European costume. So in 1920 the astronomer gave his demonstration all over again, dressed with impressive style and elegance. And this time everybody accepted his report.' (Saint Exupéry 1943/2023; 6)

Fig. 37: Saint Exupéry (1943/2023; 6)

Fig. 38: fontsinuse.com/ uses/11764/higgsboson-discoveryannouncement Letter shapes do not necessarily alter the meaning of the words. Like the outfit of a speaker, they can add a visual emotional layer of meaning to the interpretation readers form of a message. A similar, but this time, real life example happened in 2012 when CERN scientists announced the discovery of a new particle consistent with Higgs Boson using a powerpoint presentation set in Comic Sans (figure 38), triggering viral disbelief and outrage on Twitter.



Does typesetting serious science in an informal font increase its accessibility or does it threaten its credibility? Behavioural economist Daniel Kahneman (2011: 63) reports that a statement set in a bolder and more condensed type is likely to be believed significantly more often than an equally false one set in a lighter and wider typeface. He attributes the belief to the relative cognitive ease provided by more contrast. Even without altering the content of the message, typography seems to contribute to some reader's notions about the author and their credibility in particular.

Yet, linguists tend to dismiss the question. In his keynote address *Toward a typographical linguistics* to the Association Typographique Internationale in Reading in 1997, linguist David Crystal, examined primarily how graphetics can affect the meaning of individual words, mostly by contrast with the properties of surrounding words.

'Obviously, switching from serif to sans-serif will not cause a semantic change. Equally obviously, a change from roman to italics or boldface can do so.' (Crystal 1997: 13) What seems obvious to Crystal is not obvious to all typographers. One could imagine that Ladislas Mandel (who also attended ATypI 1997) might have disagreed and instead pointed out that if serifs did not cause semantic change, they could cause semiotic change. In *Ecritures, miroir des hommes et des sociétés* (1998) Mandel develops at length the argument that letter shapes reflect the local culture.

Fig. 39: Verlaine typeset in Helvetica (Mandel 1998: 177)

> Écoutez la chanson bien douce Qui ne pleure que pour vous plaire Elle est discrète, elle est légère : Un frisson d'eau sur la mousse.

> > Verlaine

Verlaine, en Helvetica.

Figure 39 shows how Mandel typeset classical French poetry in Helvetica to showcase the absurdity of one-size-fits-all solutions (contrasting it with the caption immediately below, and the text of the book, which are set in his own Messidor):

Crystal has a point, the choice of typeface does not affect the meaning of the words. Is it reason enough to ignore that it affects Mandel's experience of the words? On the one hand, Crystal recognises that typographic features can cause a change in linguistic meaning and he calls for professional grapheticians to develop an International Graphetic Alphabet (by analogy with the International Phonetic Alphabet), 'a universal framework for describing typographic contrast with structural relevance'. He recognises the pertinence of the concept of appropriateness and plays with the possibility to bestow a connotation of sainthood to his words by setting them in 'some kind of black-letter font'. On the other hand, he considers irrelevant the features 'that only professional typographers would perceive'. Crystal's positions show that while relevant to linguistics, letterforms demand to be also examined in a broader understanding of visual meaning making.

However, interest in the specifically graphetic dimension of texts is infrequent in the linguistic literature. Linguist Jacques Anis, in an article titled 'Pour une graphématique autonome' (1983) outlines both the possibilities and the difficulties. He explains that considering graphic systems as secondary to language, as mere notation systems that can be substituted for languages, limits our understanding of their potential. He calls first for an autonomous graphemic analysis, the possibility to consider graphemes independently from their corresponding phonemes. However, he goes further and, in the detail of their expressive function, recognises that capitalisation, italic and bold are not the only means of giving force to a segment of the graphic chain and that other graphetic, non discreet, idio-textual, often mimetic factors can also contribute. He points out that their study is rendered difficult by their heterogeneity and that phonologic method would probably be revealed as inadequate. He calls for modern linguistics, revived by pragmatics, open to semiotics, enriched by the confrontation with other disciplines interested in writing systems and admits that the main difficulty would lie in building the necessary concepts at pertinent levels of analysis without 'drowning in an interdisciplinary swamp'. (Anis 1983: 43)

According to Anis, the issues faced by graphetic inquiry are first the Saussurean assumption that shapes are the material form of something that can be spoken, but also the lack of method, the complexity of physiological processes involved in reading and the complexity of cultural processes involved in the contextualisation of letter shapes as signs.



## 4.5.4. Salience: meaning as process of differentiation

If it seems established that written language is not only a representation of oral language but constitutes an independent system with its own structures (Vachek 1973, cited by Gòmez-Jimenez 2015: 75), most of the research focuses on visual transposition of language. When typefaces are mentioned in a proposed list of elements contributing to meaning, as in both Levenston (1992) and Lennard (2005) it is pointing to the change of typeface as a contrasting<sup>1</sup> device to facilitate contrasts of meaning, not as an expressive feature in itself. Nina Nørgaard explains:

> [...] 'typography also creates compositional (or textual) meaning. This is done by means of linking and salience. A particular typeface or a particular typographic feature such as sloping or blue can be used to signify links between different parts of a given text. These parts, in turn, will then stand out as different and salient from the parts of the text that are set by means of different typographic choice.' (Nøorgard 2018: 86)

Several possibilities are available to visualise salience, in particular the use of italic, bold and capitals.

In The stuff of literature: physical aspects of texts and their relation to literary meaning, Edward Levenston (1993) devotes a chapter to typography. He states that, by the 17<sup>th</sup> century, italics were commonly used for clarification, as a contrasting device for:

- Parts of the text in another language
- Phonological stress
- Quotations from other sources
- Words necessary to the English translation of the Bible for which there is no textual equivalent in the Hebrew version
- Semantic foregrounding of a particular word
- Stage directions and names of characters in theatre plays

1. For being and nonbeing arise together;

hard and easy complete each other;

long and short shape each other;

high and low depend on each other;

note and voice make the music together;

before and after follow each other.

From the second verse of the Tao Te Ching,

Lao Tzu translated by Ursula K. Le Guin (1998) • Commentary, reverie or inner monologue to be distinguished from the main narrative

Capitals also were used as a means to contrast with lower case, even more so when they were the only contrasting device on a typewriter. With little or no attempt to express anything through the shapes themselves, typographic alternatives have been used as a contrasting device to achieve semantic foreground or phonological stress. It can be argued that such a use is not really a change of typeface as capital letters are part of the same typeface and an italic is usually designed as a companion to a roman design, belonging to the same typeface.

**Bold is used to make important elements stand out of the page**, sometimes to create a meta discourse, as done throughout this thesis, The case of bold can also be illustrated through an insightful project by Swiss typographer Renato Casutt:

Salience also has a recent use to facilitate reading. Bionic Reading, by setting the first few letters of important words in bold, directs the eye of the reader to fixation points, thus creating the saccades in place of the reader, sparing them some of the reading effort. Competent readers report faster intake of text and dyslexic readers enhanced ease of understanding. Developed by Casutt since 2009, it is theoretically compatible with many if not all styles and forms of typesetting. More testing is needed to measure the extent of readers' perception of improvement however, this deceptively simple device makes intuitive sense. (bionic-reading.com 2022)

According to the Saussurian premise, meaning is a process of differentiation usually affected by context. Features are not salient by default, they become contextually salient.

However, the differences can be contextually non salient too. As Malcom Barnard explains, using Ernst Hans Gombrich's example of the expressivity of the words 'ping' and 'pong':

> [...] 'if typefaces were naturally expressive, then it would be 'obvious' that 'ping' should be printed in a light typeface while 'pong' should be printed in **bold**. However, the effects generated by a bold '**ping**' or by a light 'pong' are not so 'obvious', they are not so easy to explain in terms of expression. Only if one know the structure (**bold** or light) and thus the choices that had been made, can one understand the subtle and unusual boldness of the bold 'ping' or the peculiar delicacy of the light 'pong'. Similarly, an italic face is naturally expressive of nothing in particular: this entire book could have been printed in italic and while it might look odd, it would not mean that I wanted to emphasise the entire book. In a book printed entirely in italics, emphasis would have to be indicated by a non-italic, or plain, type. It is the difference between the plain type and the italic type, not the natural expressiveness of the italic, that generates the meaning that this particular word is to be stressed, and the difference between the two types forms a simple structure. Only the understanding of the structure (italic or not-italic), the choice of one face rather than another and conventionalisation of that choice would communicate the meaning that this word rather than that one is to be emphasised.' (Barnard 2005: 169)

The structure makes contrast obvious. It makes differences look intentional and therefore more meaningful. This explains why the function best identified by linguists is contrast, the assumption that an expressive opposition is only pertinent if it corresponds to an opposition of content. In a detailed outline of Graphology as a linguistic level of analysis, Eva Gòmez-Jiménez (2015) shows how, from its introduction in the field of Linguistics in 1961 by Angus McIntosh, the notion of Graphology has evolved 'from once being simply analogous to phonology, to later becoming a complete, independent system comprising many different elements' (Gòmez-Jiménez 2015: 72). She chooses the following as a working definition, from a newer edition of Katie Wales A Dictionary of Stylistics, because it broadens the spectrum of the elements to be analysed within the category of Graphology:

The study of such units [graphemes] in a language is called graphemics, or graphology. [...] 'Graphemics also embraces other features associated with the written or graphic medium: punctuation; paragraphing; spacing, etc. Different registers make particular use of such graphological features as: size of print and capitalization in newspaper and advertising lay-outs; different typefaces and sizes in dictionaries such as this one; special lines in poetry, etc. [...] Graphology can also refer to the writing system of a language, as manifested in handwriting and typography; and to the other related features [...] e.g. capitalization and punctuation.' (Wales 2001: 182-183).

According to this definition, letter shapes may very well be of interest to linguists focused on Graphology, yet in all the research reviewed by Gòmez-Jiménez few publications (Levenston 1992 and Lennard 2005) even consider typographic shapes specifically and only ever for contrastive / salience purposes.

Edward Levenston (1992) reports that, in a groundbreaking article in 1959, linguist Eric Hamp, coined the neologism 'paragraphemics', to account for visual clues such as typography and layout in the same way that 'paralinguistics' account for speed of utterance, voice quality and other noises that are not part of the phonemic inventory. Levenston points out that nothing came of Hamp's ideas and the neologism was never heard again. On closer inspection, Hamp seemed ambivalent about the importance of paragraphemics or of what exactly the concept could cover. Graphemes may occur in a variety of 'styles'. But these 'styles' do not have the same status, the minute differences between them is hardly perceptible by the layperson:

> 'A book may announce proudly that it has been set in somany-points Modern Lisible, but all I notice even after this fact has been called to my attention is a certain enhanced clarity. In such cases I frequently cannot even discern the greater readability of one readable type-face over another. The status of such type-faces may be compared to the acoustics of room, or the detailed physiology of the speaker, so far as language is affected. Such features are not only pregraphemic they are scarcely even cultural.

Above this level, we have certain type faces that give one a distinct aesthetic feeling. There are certain styles which, as an amateur, I cannot name, but which, within limits, I can identify; one can, for instance, attach colloquial everyday adjectives to these styles. Each of these bears a component which might be called an 'idiolect personality marker'. Such features are also pregraphemic, but they are most certainly cultural. One might liken them to voice set in paralanguage.' (Hamp 1959: 2)

Further in the text Hamp considers the possibility that 'certain features of simple clean-lined modernism [...] may perhaps also be part of systems other than decorative design and the like.' (Hamp 1959: 3) However, he spends most of his attention on the contrasting power of italics and capitalisation and nothing is said about the 'other systems'.

By construction, linguists seem to reach an unspoken consensus to explore what Twyman calls Verbal Graphic Language and to develop little practical interest for the uncharted territory of semasiographic meaning-making. Linguistics and semiotics make mention of the expressivity of letter shapes and pay lip-service to its importance. It has not found its rightful place in knowledge, rather some place holders in the form of vocabulary. It could nonetheless, claim its autonomy as a field of research and move beyond mere acknowledgement of typographic salience. This would require specific concepts to apprehend its unfolding. The next chapter (5) reports a closer examination of expressivity, its process, the information it provides and its possible interpretations.



# 5. Expressive function



Fig. 40: Sections developed in chapter 5

After consideration of almost everything that clutters the visibility of the expressivity of letter shapes, this is where the argument gathers momentum about actual typographetic meaning making and its unfolding process. The expressive function of letter shapes, their figurative language, emerges from the reading event through a process called integration or contextualisation, depending on the author giving the explanation. The context itself plays an important role, leaving precious little space to the shapes themselves to make an impression. This chapter takes us through the contribution of semiotics and social semiotics, before venturing further into the process of meaning-making and the speculation about the true nature of connotations. It builds from first principles a complete perspective on connotations as dependent variables for further research.



#### 5.1. Semiotics

This section gathers the concepts and contributions that semiotics and social semiotics, as fields distinct from linguistics, propose to guide the exploration of typographetics. It is diverse and rich, yet not entirely convincing. The limits of these explanations constitute useful reference points to build hypotheses.

#### 5.1.1. Beyond salience: emergence of the figure

In Discourse, figure (2002), originally published in 1971, philosopher Jean-François Lyotard speculates about the line and the letter. His reflections provide a good entry point into expressivity beyond salience and expressive language\*. He distinguishes two separate orders of meaning that communicate in a text: the textual space (or graphic space) and the figural space (or plastic space). In the textual space, the text is a linguistic sign, referring arbitrarily to a verbal signified. In the figural space, the text visually imitates elements of the wider world, presenting analogies that the viewer can recognise: the trace on paper draws its value from its capacity to resonate with the viewer's body. The reader's body is the reference to establish the verticality and horizontality of the signs in the text. Left and right are relative to the verticality of the body as a tool of localisation, the referential space is not merely the space of the text but the space of the world.

The text itself acts as a face in regard of the face of the reader. Between these two faces operates a symmetry around a point where meaning is exchanged. In the textual space, the physical body is disengaged, the elements are identified as parts of a linguistic system with speed and a great economy of means. Certain typographic differentiations (such as stroke modulation or counter shapes) are more

\* figurative language is more connotative than denotative. expressive than directly significant. When codified, they constitute a second level of writing, akin to rhetoric or style. Lyotard touches on the difficulty of processing both levels simultaneously:

> 'The way meaning is presented in the line is opaque to the part of the mind that handles language. [...] The line needs to be endlessly reconquered over the writing that folds it into a sign. [...] Once connotated, the figure becomes a language (and a lesser one than linguistic language).' (Lyotard 2002: 218)

Good typographic form sits at the crossroads of contradictory requirements, those of articulated signification, that demand utmost legibility and those of plastic meaning, that aim to do justice to the potential energy accumulated in the graphic form. According to Lyotard, optimisation of legibility implies a loss of expressivity. Engaging with the energy of the plastic line requires time and attention, slow processing of the perceptual experience. This means that quick deciphering the textual space is more economical in time and attention than interpreting the figural space. Therefore, the principle of economy leads to highly legible bland shapes. The reader is not really seeing shapes but rather trying to 'hear' the meaning of the absent locutor. The tensions in the lines do not only speak, they affect the reader's perception by conveying energy. According to Lyotard, they 'reveal' a presence where there is nothing:

> 'The line does not record the signifiers of a discourse, nor the contours of a silhouette, it is the trace of an energy that condenses, displaces, figures, elaborates, without regard to the recognizable.' (Lyotard 2002: 238)

The extra time required to really see the figural line may be the patience to take in what has not been seen before, what is not yet recognisable, what does not refer to a system of connotations where the line has a definite, invariable signification.



#### 5.1.2. Contextualisation

The extra time Lyotard refers to allows a process of contextualisation, of interpretation. 'Contextualisation' is a concept that also bears different names, depending on the the author. Gilles Fauconnier and Mark Turner (2003) speak of 'conceptual blending model', Roy Harris (2015) speaks of 'integrational linguistics' (opposed to structural linguistics), Steven Skaggs (2017) speaks of 'semiotic moment', Nina Nørgaard (2009) of 'discursive import' but the concept remains that of the process of sign-making: the occurrence of a sign in a specific context, perceived by a specific person who contextualises the sign, thus identifying it as a sign and interpreting its meaning. Contextualisation is the process by which a sign acquires meaning in context. The object bears no permanent meaning in itself, only affordances, potential meaning, realised through contextualisation. Combining different ways of describing the sign making process creates a rich image of this non-linguistic process. Cognitive scientists Fauconnier and Turner explain that conceptual blending can compose elements from the input spaces to provide relations that do not exist in the separate inputs:

> 'In its most basic form, a conceptual integration network consists of four connected mental spaces: two partially matched input spaces, a generic space constituted by structure common to the inputs, and the blended space. The blended space is constructed through selective projection from the inputs, pattern completion, and dynamic elaboration. The blend has emergent dynamics. It can be 'run', while its connections to the other spaces remain in place. Neurobiologically, it has been suggested that elements in mental spaces correspond to activated neural assemblies and that linking between elements corresponds to neurobiological binding (e.g. co-activation). On this view, mental spaces are built up, interconnected, and blended in working memory by activating structures available from longterm memory. Mental spaces can be modified dynamically as thought and discourse unfold.' (Fauconnier & Turner 2003: 60)

\* semiosphere: the highly complex and dynamic but at the same time unified semiotic universe of a culture. The mental work of creating a blended space is the event of contextualisation, something that can happen or not, depending on circumstances. Psychology professor Stephen Palmer (1975) found that people recognised objects more efficiently when they could link them to a context. And psychiatry professor Jacques Besson explains that:

> 'Cerebral immaturity and neuronal plasticity place the human subject in a 'brain-spirit-culture' feed-back loop where the mind integrates psychic life in the relational and cultural world. This new vision of the psychic apparatus is part of a bio-psycho-social model where everything is interdependent and impermanent.' (Besson 2017: 108)

Cognitive sciences converge towards a model in which neuronal plasticity allows the constant recreation of our perceived reality. For Roy Harris (1994), integration combines a wide range of elements, past and present: biomechanic factors (physiology and psychology of the reader), macro-social factors and circumstantial factors. Communication is never a purely synchronic event, either without any past or in which the past is simply irrelevant. It is always a matter of integrating something happening now with what has come before and what can be anticipated of the future. Language being only one of the means we have to create meaning, the process of integration relies on other signs without which the linguistic sign would be an impossibility. Verbal communication depends on non-verbal everything else. It is always the product of the integration of many interconnected activities, various fragmented aspects of life, what Yuri Lotman (1990) calls a semiosphere\*.

To give a concrete example, according to Harris, the organisation of the graphic space is also negotiated between producer and consumer because they have economic implications. The harder it is to identify a product on a shelf, the longer it takes a client to find it, the lower the odds of the product being sold. Hence an integrational convergence of interests between producer and consumer. In written matters, this convergence shows in the adoption of typographic choices dictated by the reader's priorities. Legibility and readability are nothing more than the product of this convergence of interests:

'Integrational approach leads us automatically to treat these questions of typography as semiologically pertinent factors, since these factors are consciously controlled in the redaction of the text, in view of their communication value.' (Harris 1994: 236).

The integrational perspective consists of showing how the graphic space is organised around all the signs it contains, whether or not they have an identifiable counterpart in speech.

In an ideal communication paradigm, we might be capable of telementation (creating thought in someone else's mind) by means of a fixed code. In real communication there are always more elements at play. The concept of integration introduces an element of uncertainty. 'There is no sign without context.' (Harris 1994: 137) The signs are created in the process of integration of a situation by the viewer. The sign-making process is haphazard, context-contingent, unreliable. Harris insists that a sign is an entity distinct from its material support. He gives as proof that the support can be moved to another location but the sign, with a different context, either changes meaning or loses it altogether. For example, a street name plate can be moved to a gutter and lose most meaning or to a museum and acquire a new and different meaning. With regard to typography, the context of personal computers provides a default environment that can even bestow more meaning than the typefaces themselves. Figure 41 is extracted from a humorous viral video about Power Point presentations.

Fig. 41: Font analysis (McMillan 2012)

#### **FONT Analysis**

<u>Courier New</u> Organized & Structured

> MATISSE ARTISTIC

<u>Times New Roman</u> Lazy, Apathetic, Unimaginative (Always uses the default) Its presenter Don McMillan comments:

'I've also come up with this. It's a kind of a little science I've invented called font analysis. Basically, the font you choose says something about who you are as a person. There's a huge list of fonts, and you choose one. And that says something about you, so, be careful the font you choose. For example, if you choose Courier New, which happens to be my favorite, you're probably organized and structured. If you choose Matisse, it means you're artistic. And if you choose Times New Roman, it means you're lazy, apathetic, and unimaginative, and you always use the default.' (McMillan 2012)

For a whole generation, some typefaces are loaded with the semiotic baggage that went with being one of the very few choices available on the first personal computers. Impact, Comic Sans and Times New Roman in particular, often bring more than their shapes to the semiotic moment.

The result is the theoretical impossibility of isolating signs from their context to establish a finite list of meanings. Despite that, one way to partially resolve this issue is the adoption of a somewhat limited context such as book typography to start building interpretation. Harris proposes an intriguing perspective on books as a context:

> 'From the point of view adopted here, writing is first and foremost a symbiotic means of expression which contextual integration relies first on a visual framing and visual analogies. If it does not sound very sensational, it might be because we are nowadays trapped in a conformist perspective on writing: that of the printed book containing a continuous text of several hundred pages, printed in thousands of copies, and which reading is entirely a function of the reader's will. The book is a device allowing the reader to access the text on their own terms. They can open it or not; start reading when and where they want, with whomever they wish.' (Harris 1994: 138)

Harris acknowledges that books are decontextualised, autonomous and rigorously organised but also exceptional,

[...]' in the sense that it does not come with a presupposed visual framing, except in the case of any 'illustrated' text, and the only visual analogies that count are internal ones; those that link visual forms to each other within the text

itself. The reader is not required to consider other visual contexts, since the book is complete on its own: it is a text meant to be read anywhere. One could even argue that the printed book constitutes the borderline case in which, as much as possible, the text provides its own context.' (Harris 1994: 139)

Obviously, book type is only a sub-category of text type and the idea of it providing its own context should only be generalised with caution. However, the recent development of digital typography, available on people's own devices, have generalised the situation where the printed text provides its own context. At the same time, the notion that shapes themselves, organised into a consistent typographic system, could constitute a sign for the discerning reader has interesting implications. And because the reader and their context are variable, it is important to note that the radical impermanence of the sign is compatible with the relative permanence of the text itself. However, the radical impermanence of the sign is not compatible with a Saussurean, structuralist perspective. Yet, for Harris, impermanence does not seem to prevent classifying marks by kind.

He suggests distinguishing:

- 1. Placement in the graphic space (top, bottom, center, etc.)
- 2. Grouping
- 3. Alignment (horizontal, vertical or other)
- 4. Orientation
- 5. Different fonts
- 6. Different points (Let us assume he refers to size)
- 7. Use of upper case and lower case
- 8. Framing or lack of framing

He notes that some distinctions are more obvious than others and the list is far from exhaustive. And that an immediate conclusion jumps to attention: 'There is no definite (biunivocal) correspondence between graphic traits and semiologic values.' (Harris 1994: 287)



#### 5.1.3. Form as a Peircian index or tone

Professor and type designer Steven Skaggs, for example, provides a detailed description of conceptual typographic integration, using a Peircian perspective. At first sight, Peircian semiotics seem to owe less to linguistics than structuralist perspectives inspired by Saussure. It uses concepts that could apply to any kind of sign, including letter shapes. The classic Icon / Index / Symbol distinguishes between an Icon that bears a resemblance with its signified object, an Index that is a direct consequence of the existence of its signified object and a Symbol that has an arbitrary, culturally learned connection with its signified object. On a linguistic level, letter shapes have obviously a Symbol status as they each represent a sound. It can also be argued that abstract letter representation derived from more iconic shapes, back when Phoenicians devised an 'A' looking like an ox head to represent the letter Aleph. And letters, particularly handwritten ones, can certainly be seen as Indexes of a writing event that gave them shapes. Yet, beyond categorisation, these distinctions provide little help in understanding the meaning-making potential of the letter shapes.

Peirce's classification system has many other layers of complexity and could be applied in different ways. As typeface designer and professor of semiotics Steven Skaggs demonstrates in a blog article titled 'Typology and typography: Bridging the type / token / tone distinction' (2013) and further in a book titled *Fire Signs, a semiotic theory of graphic design* (2017), such categories rely heavily on the interpretation the reader has of the context. Skaggs starts by showing that many (largely unconscious) decisions and discriminations contribute to the formation of one's perception of text or any graphic design object: reading the forefront rather than the background, considering shapes at a certain scale, considering shapes in relation to each other rather than each individually, etc. He then defines, in a Peircian perspective, the term 'type' as referring to any 'definitely significant form', such as the word 'the' in the English language. He defines the term 'token' as a 'single object or thing which is in some single place at any one instant of time' or, citing Linda Wetzel, a 'concrete particular having a unique spatio / temporal location' (Wetzel 2011, cited by Skaggs 2013). Finally, he defines the term 'tone' as pointing to characters of the object that are simply irrelevant to the primary semiotic exchange that is otherwise occurring – that is, those characters are contextually non-sa-



Fig. 42: Token / Type / Tone Skaggs 2013

lient or non-pertinent.

Figure 42 shows that a particular token of the word 'the' could be interpreted as being a token of a number of types. Interpreting this token to be a particular occurrence of a type makes the other types contextually non-salient, turning each of these particular characters of the token into tones.

> 'The token / type pairings in the 'wheel of types' figure [42] demonstrate that even in token and type, there is indeterminancy-except-within-the-consideration-at-hand. So what is the reader's intent? If you are reading strictly for

the verbal information carried by the English language, then the typeface can be any legible typeface and carry the same type-token pairing, its expressive aspects functioning as tone. However, if you are attuned to the emotional sensation of the reading-as-viewing experience, then each font will foster a different expressive experience, and this expression cannot be considered only a Peircean tone (which as we have seen demands irrelevance to the communicative flow) but must involve also a type and token.' (Skaggs 2013)

To take into consideration the reader's intent, Skaggs introduces the concept of semiotic moment in which each element of the semiotic triad Token/Type/Tone is qualified by its own context, thus placing the production and analysis of signs in an integrational perspective, and joining other theoretical perspectives such as social semiotics, stylistics or integrational linguistics. Formal descriptions of the process, however, are rare. *In Writing degree zero; Elements of Semiology* (1965/2010), Barthes attempts to formalise the description of the connotative process:

> 'We recall that every system of meaning has a plane of expression (E) and a plane of content (C), and that the meaning coincides with the relation (R) of the two planes: ERC. We will now suppose that such an ERC system becomes in its turn the simple element of a second system, which will thus be extensive; we will thus be dealing with two systems of meaning imprinted in each other, but also unstuck from each other.

> [...] In connotative semiotics] the first system is then the plane of denotation and the second system (which extends the first) the plane of connotation. A connotative system is therefore a system whose plane of expression is itself constituted by a system of signification; the common cases of connotation are obviously complex systems in which articulated language forms the first system (this is the case, for example, with literature).' (Barthes 1965: 163-164)

In the semiotic analysis of letter shapes connotations, the plane of expression is constituted by the alphabetic system of signification. However, whereas linguistics is concerned with abstract associations, semiotics is based on imitation, motivation, some kind of iconicity. In that sense, it is closer to visual rhetorics than to linguistics. Rhetorical scholar Sonia Foss explains in *Theory of visual rhetoric* (2005) how the concept can assume two meanings:

> 'In the first sense, visual rhetoric is a product individuals create as they use visual symbols for the purpose of communicating. In the second, it is a perspective scholars apply that focuses on the symbolic processes by which images perform communication. [...] Visual rhetoric as an artifact is conceptualized broadly to include both two- and three-dimensional images such as paintings, sculpture, furniture, architecture, and interior design. The images included under the rubric of visual rhetoric are equally broad in terms of their functions. Both aesthetic and utilitarian images constitute visual rhetoric, works of art as well as advertisements, for example.' (Foss 2005: 143-4)

Foss explains that three markers must be evident for a visual image to qualify as visual rhetoric: 'The image must be symbolic, involve human intervention, and be presented to an audience for the purpose of communicating with that audience.' (Foss 2005: 144) The expressivity of letter shapes fits this definition of visual rhetoric and can be harnessed for persuasion. Human intervention and presentation to an audience for communication purposes are granted. What still requires explanation is how the shapes themselves act as signs and what exactly they are a sign of.



#### 5.1.4. Forms as textualisation of an object

Roy Harris's argument, in favour of linguistic integrationism, moving beyond Saussurean rule-based model and Pierciean semiotics, bases the understanding of signs in a multi-trace model that also fits the experience of letter shapes. Converging with memetic theory, the central assumption of the multi-trace model is that the traces of personal past encounters build up a memory that shapes new experiences. It is worth repeating here that Harris is concerned with the study of written matter in general, even the study of drawing to some extent. Though not devised with this precise object in mind, when considered with an eye for the role of letter shapes, his comments appear insightful and coherent.

For Harris, the basic unit is not an abstract classified sign but a sign 'at work', in the process of being contextualised for interpretation. There is no rule, no grammar, only multimodal contextual interpretation, dependant on available evidence. He proposes to symbolise this sign-making process by the mathematical sign for infinity:  $\infty$ . Therefore, sign-making = text  $\infty$  context. The role of the reader is neither to receive nor to produce but to contextualise, to do the work of semiotic integration.

This continuous creative process of sign-making constitutes the real, evolving, social life of signs. However, what Harris does not say is that multiple traces of culturally shared previous experiences make interpretation a probable sociological event rather than a mere individual one. Difficult to predict for sure, yet sometimes successfully manufactured by inspired graphic designers. Indeed, their understanding of the immanent visual grammar comes from training in a design practice. Because, even though the sign has, in theory, no autonomous existence, the 'metaphor' dimension has a relative permanence: perceptions and interpretations shared among a large proportion of the readers based on biomechanic, physiological perceptions made possible by the human apparatus: most of us have two eyes on the front of our faces, walk on two legs, lie down to sleep, etc.

Harris's goal is to build a subjective semiology resulting from psychological AND physiological factors. The need is twofold: a semiology of typographic graphetic styles and an examination of the integrative meanings resulting from the psychological and physiological factors implied. A totally contextual experience, by construct, defies scientific description. It also implies that, depending on previous experience or the lack of them, a reader might fail to know how to integrate the occurrence of a shape in their reading experience. However, some parameters of context can have a relative stability. For text type, the relevant context for analysis is the integration of the reader's own learning experience of reading and writing, experience, which, to some extent is comparable among people of the same age, schooled at a similar time in the same culture. As discussed in the chapter (5.3.2.) about graphology, learning to write is based on calligraphic models that differ from place to place. Accordingly, the deviation from the model is significant but the differences between models are cultural. A probable overlap in readers's interpretation of shapes, can thus be related to a similar integrational relation 'text ∞ context'. Nøorgard illustrates this point with a comment about typewriter's distinctive monospaced typeface:

> 'Based on their own personal experience, one age group may associate Courier with typewriters, another age group may think of computers and digital text, while those who are children today may end up not associating Courier with anything in particular, if they have no real-life experience with the typeface that can be imported along with it into contexts such as the novel.' (Nøorgard 2018: 108-9)

By insisting on the importance of the context Harris opens the field to the inquiry of more sign-making aspects of texts:

> 'In the end, we have to choose between a semiology where writing is considered to be the expression of a message and a semiology where writing is considered the textualisation of an object. In both cases it is a semiology of communication. The first will find its values in the observation of the

relationship between graphic forms and message. Whereas the second, which is an integrational semiology will discover its values by examining the role of the textual object in the life of the people who use it.' (Harris 1994: 370)

The real difference between these two approaches, as Harris argues, is whether or not the object supporting the text is accepted as a source of semiologic value.

> 'From an integrational point of view, the second option is the obvious choice, because it is impossible to analyse the integration of an abstract message in social life. As a matter of fact, the bare message, the pure message, the 'message only' without a material base, without author and without a recipient, does not exist, unless as a product of a mental construct where one willingly ignores everything that is relevant to human communication.' (Harris 1994: 370)

The message does not exist in a pure form except in theory. Reality is messy, material, multimodal and human. Semiologic pertinence is proportional to communicational value, whatever modality of the message is not interpreted is lost. Harris's perspective, while invalidating abstract cataloguing of hypothetical semiologic relations, opens the field to contextualised practical research. Including non-linguistic social practices. In effect, the expressive qualities of strokes constitutive of a drawing may be very comparable to those of letter shapes.



### 5.1.5. Writing vs. drawing

The distinction between writing and drawing calls for a few comments. The usual observation is that writing requires a limited inventory of signs whereas drawing can make use of endless possibilities. Harris notes that there might be such a thing as inventory of primary pictorial signs, such as geometric shapes and he comments on the diversity of typefaces:

> 'In what sense is the writing system supposed to be closed? Modern typography, for example, keeps inventing new fonts. One would argue that these fonts always rely on the same closed system of graphic oppositions (alphabetical or not) and that it is in this sense that the system is closed. That is to say that the typeface designer of a new font destined for printing French or English books has to provide a character 'a' that can be recognised and not mistaken for a 'b', a 'b' that can not be mistaken for a 'c' and so on. Innovation lies in the forms of the glyphs, not on graphic oppositions; these do not change. However, if this is the case, it is difficult to see a fundamental difference between writing and drawing. There are for example, hundreds of ways to draw a horse but the artist who wants their drawing to be recognisable as picturing a horse must produce an image that is not mistaken for one of a dog. In that sense, the opposition 'horse-dog' is as fixed as the opposition 'a-b', whatever the artist does.' (Harris 1994: 298-9)

If innovation lies in the forms rather than in graphic oppositions, there is no reason to treat typographic marks and drawing marks any differently. He concludes that, in a dualist perspective, the distinction between writing and drawing is the linguistic or non-linguistic status of the signified. This distinction leaves the graphetic potential of letter shapes in a gap between writing and drawing: a non-linguistic signified, carried by letters.

Rather than a deterministic structuralist system of definite relations, a sound integrative theory of signs would therefore be based on continuous iconicity, where every unit can be sub-divided into smaller units. Harris gives the example of a
clock face where time moves continuously and so do the hands. Any position of the hands is signifying. It would be similar with many of the distinctive features of typefaces such as width, slant, modulation, x-height, etc.: within certain legibility parameters, any combination of values would be possible. This notion of continuous iconicity makes more sense for typefaces than any notion of inventory. Furthermore, the notion of global iconicity accounts for the fact that, in this precise context, some features have no particular meaning and some combination of features are meaningful. In drawing too, global iconicity allows representation. Representation, if it exists, is a function of the integration by the viewer of a whole series of analogies but an integrational perspective even takes into account semiologic values that elude all representational explanation. It is not always possible to isolate the various semiologic components of a sign. And, in the case of writing, 'Even if we can recognise certain forms as belonging to such writing system or other, the semiologic functions they fulfil go much beyond their role as members of that system.' (Harris 1994: 338) The point is therefore not to oppose writing to drawing but rather to understand how writing makes use of common visual communication resources in the service of rhetoric.

The question of whether it is possible to classify typographic features from a structural perspective is debatable. For Harris, it is as much a nonsense to attempt to limit graphetic possibilities to a set number of graphic units as it is to assign them fixed significations. Referring to Michel Foucault (1973), he advocates for a network of similarities rather than resemblances: no predetermined value but endless propagation of little differences. Along with other authors, he distinguishes between an immediate, instinctive interpretation and a complex, cultural one: nature and nurture. The semiologic pertinence of shapes is based on 'partial similarities' or 'catenary (chain) relations'. Or, what in Geoffrey Sampson's words (*Writing Systems: A Linguistic Introduction* 1985), becomes 'natural relations' and 'logical relations', in

Theo Van Leeuwen's words, 'metaphor' and 'connotation', in Platon's words 'imitation' and 'convention', and to some extent, in Charles S. Peirce's words, 'index' and 'legisign'. While it is hazardous to distinguish the limit between the intuitive interpretations of perceptions and the more complex combination of perceptions and associations, both are understood to influence the possibility to interpret anything as a sign.



# 5.1.6. Social semiotics

Semiotics are not limited to linguistic expressions. Quite the contrary, for semiotician John Deely:

[...]' far from being identifiable with the use of language, let alone with some specific use of language as in literature, semiosis is already at work prior to language and makes the emergence of language as a specific type or modality of sign activity possible in the first place.' (Deely 1990: 41)

Hence the need for approaches that account for phenomena other than verbal. The argument closest to describing the way we perceive this intonation of shapes in its own right comes from Multimodality in the context of social semiotics, the subfield of semiotics that focuses on how signs and symbols are used within social and cultural contexts. Multimodal stylistics attempts, using the Linguistics of M.A.K. Halliday (An introduction to functional grammar 1985) to explain experiential, interpersonal and textual meaningmaking through the framework of Systemic Functional Linguistics (SFL). Some of the functions refer to linguistic processes but some of them can be fulfilled by visual processes. In providing tools for the analysis of visual aspects of language such as fonts (Kress 1996: 59; Van Leeuwen and Jewitt 2001: 167-171) the SFL's approach implicitly acknowledges the graphetic potential of shapes in spite of not detailing what distinguishes a typeface from another. Gunther Kress (1996, 2006), Theo Van Leeuwen (2005, 2006), Nina Nørgaard (2009) consider specifically graphic aspects of communication such as layout, spelling, font, colour, among other modalities. Eva Gomez-Jimenez (2015) considers that it has contributed to identify writing as a particular mode of communication.

Multimodality requires an understanding of modalities first, on their own and in combination. Nina Nørgaard in '*Multimodality and stylistics*', (in Routledge Handbook of Stylistics 2017) explains that typography is considered one of the many stylistic modes available for meaning making, along which, like the typewriter, provides socially standardized, mass-produced letterforms, but, unlike the typewriter, gives users a wide choice of letterforms to allow them to personalize their written communications, regardless of whether these are private or public. An article in Dutch *Cosmopolitan* (October 2001: 75) shows that font choice has already become a new territory for the popular graphologist's expertise in interpreting writing as betraying individual characteristics:

According to psychologist Aric Sigman the font you choose on your computer for writing letters reveals a great deal about your personality Courier New = a little old-fashioned **GEORGIA** = you have flair Helvetica = modern Times New Roman = creates confidence Universal = anonymous Comic Sans = attracting attention Verdana = professional

Fig. 43: Upper half of page 147 of Introducing Social Semiotics (Van Leeuwen 2005a: 147) with images, colour, layout, etc. The various modes combine to generate complex meaning. Nørgaard extends the study of the semiotic modes involved in meaning making from the explicitly multimodal novel to 'more traditional ones which most readers would probably tend not to think of as multimodal at all.' (Nørgaard 2017: 471)

The strength of social semiotics analysis is to be found in context, even if, considered among many other modes, typography does not get detailed attention and is not really treated outside of a linguistic perspective. In 2004, Kress and Van Leeuwen define semiotic resources:

> 'Semiotic resources are the actions, materials and artifacts we use for communicative purposes, whether produced physiologically – for example, with our vocal apparatus, the muscles we use to make facial expressions and gestures – or technologically – for example, with pen and ink, or computer hardware and software – together with the ways in which these resources can be organized. Semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime.' (Van

#### Leeuwen 2004: 285).

The functional role of typeface design variations is sometimes mentioned as a 'visual semiotic resources' (Machin & Mayr: 2013) of multi-modal printed communication but not yet satisfactorily documented and analysed. Each mode requires its own grid of analysis and little is provided for letter shapes in particular. What is the value, therefore, of the criteria of semiotic analysis of text and images when applied to letter shapes?

In *Introducing Social Semiotics*, Theo Van Leeuwen (2005a) attempts to give elements of specific typographic analysis. He mentions typefaces as an illustration of the concept of 'composites of connotation', signs already loaded with cultural meaning. The top of page 147 (figure 43) shows a typeset illustrative text:

The underlying explanation for the interpretations may have been in the original edition of Dutch Cosmopolitan, however, it is missing from the book. Van Leeuwen does not say whether more details were provided in the article he quotes. The illustration in itself is puzzling. If the words 'Courier New', 'Helvetica', 'Times New Roman' and 'Verdana' seem to have been typeset in the eponymous typefaces, the word 'Georgia' is typeset in Georgia Bold All Caps, to the effect that it is difficult to imagine a whole document typeset this way and the word 'Universal' seems to be typeset in Univers, so the name must be an error of the typist. Finally, the words 'Comic Sans' look typeset in Bell Gothic, like the rest of the text, thus looking much more usable for text than the actual Comic Sans. If the article is accurate, then psychologist Aric Sigman seems to consider font choice as the modern version of handwriting, loaded with significant personality traits. The short paragraph conveys the encouraging message that the study of semiotics of letter shapes is still to be undertaken.

\* ligature: typographic term for the connecting link that joins two or three type characters together. *In Typographic Meaning* (2005b) Theo Van Leeuwen reflects on the meaning potential of letter shapes. First, he points to the connotative possibilities of typefaces to import and incorporate signs from other domains (a particular historical period, a particular group, a particular culture). But furthermore, he holds the view that, as in phonology, minimal alphabetic units, may be broken into distinctive features that could (Van Leeuwen's italic) become meaningful, thus opening the possibility of units of meaning smaller than whole typefaces. The example he takes is the irregularity in shapes and strokes that can be translated into a metaphor for other kinds of irregularity to represent unconventionality and rebelliousness in youth subculture. He gathers that typography is a multimodal resource, communicating through letterforms but also with colour, three-dimensionality, material texture, and sometimes, movement. Note that Van Leeuwen uses the word 'typography' for what art scholar Nicolete Gray would call 'lettering', ie. 'writing in which the visual form, that is the letters and the way in which these are shaped and combined, has a formality and an importance over and above bare legibility.' (Gray 1986: 9) And not, as done throughout the present thesis, in the sense of 'prefabricated letters' (Gerrit Noordzij 2005:16). Van Leeuwen calls for the development of concepts and method to define the potential of typography for meaning-making.

In 'Towards a Semiotics of Typography', the following year, Theo van Leeuwen (2006), calls on Jakobson and Halle (1956) to describe typefaces as bundles of features, unique combinations of distinctive features that could have semiotic potential, through processes of connotations and / or experiential metaphors. He bases his interpretation on what he argues to be shared experience, his own understanding of what the shapes communicate. In this article, Van Leeuwen makes two major contributions to the understanding of typographic shapes, he makes hypotheses about the nature of what shapes trigger and he also points to the source of his interpretation, common experience: 'The term 'connotation' is used here in a specific sense. It refers to the idea that signs may be 'imported' from one context (one era, one social group, one culture) into another, in order to signify the ideas and values associated with that other context by those who do the 'importing'. (Van Leeuwen 2006: 146) [...] The idea [of experiential metaphor], inspired by the groundbreaking work of Lakoff and Johnson (1980), is that a material signifier has a meaning potential that derives from our physical experience of it, and from our ability to extend our practical, physical experience metaphorically to turn action into knowledge.' (Van Leeuwen 2006: 146-7)

He also proposes to distinguish seven distinctive features: weight, expansion, slope, curvature, connectivity, orientation, and regularity. He adds a 'non distinctive features' category for serifs, flourishes, ligatures\* and 'capricious additions', 'features of letter forms [that] are, strictly speaking, not necessary for telling them apart, although they may be said to contribute to legibility'.

Van Leeuwen explains that the shapes can mean some quality of what is presented or attitudes towards what is being presented, or even do something to the reader, which are three very different types of meaning. In his Master's thesis *Towards a Typology of Typographic Signification* (2013), Mark Lemon attempts to summarise Van Leeuven's interpretations in a table (figure 44) that underlines some issues:

From a semiotic point of view, there is an issue with Van Leeuwen's use of the terms distinctive / non-distinctive. Either it refers to the linguistic question of distinguishing shapes from each other (b from a, or p) or to the graphetic particularities of the design that grant it semiotic potential. Technically speaking, weight, expansion, slope, curvature, connectivity, orientation and regularity are not strictly necessary for telling letters apart. Or rather, letters are legible on a wide range of possibilities for each of these axes. When analysing a text, we have to assume that it is legible, otherwise we have to consider it as a non-verbal illustration.

<b>Distinctive Feature</b>	Associations	Example Type
Weight	Bold: 'daring', 'assertive', 'solid'	Bold
	'substantial' or 'domineering' and	
	'overbearing'.	Light
	Light: 'timid' or 'insubstantial'.	
Expansion	Condensed: 'Precise',	Condensed
	'economical', 'packing the page'.	
	Wide: 'spread themselves around',	NW do
	'using space as if it is in unlimited	wide
	supply' or 'providing room to	
- 01	breathe', 'room to move'.	of much
Slope	[Due to its association with	Sloped
	handwriting	
	Sloped: 'organic', 'personal',	LIPRICHT
	'informal', 'handcraffed'.	Grideri
	<b>Upright:</b> mechanical,	
	'impersonal', 'formal' and the, the	
Currenture	mass-produced .	
Curvature	Angularity: controlled, brisk,	
	'harch' (tochnical' (masculine'	
	Curved: 'aradual' 'fluid	Gurved
	movement' (smooth' (soft' (natural'	
	'organic' 'maternal'	
Connectivity	[Associated with handwriting and	
Connocating	therefore shares much of its meaning	
	potential with 'slope']	
	<b>Disconnection:</b> 'atomisation', or	
	'fragmentation', 'distinctive	Connected
	individuality of the elements'.	
	Connection: 'wholeness', or	
	'integration'.	
Orientation	[Based on our experience of gravity,	
	and of walking upright]	
	Horizontal: 'heaviness', 'solidity'	Vartical
	or 'inertia', 'selt-satistaction'.	ventical
	Vertical: 'lightness', 'upwards	
<b>D</b> 1 11	aspiration' or 'instability'.	Desulesite
Regularity	Regularity: 'traditional	Regularity
	typography 'legibility'.	Irregularity
	Irregularity: rebellion against the	2 mag and g
New Distinction Fronting	Turne surgeby has developed a wide	
INON-DISTINCTIVE FEDTURES	range of flourishes lightures and	
	capricious additions, inguidres and	
	can be said to have a meaning	
	potential in many cases derivable	
	from that of the distinctive features	
	described	
	above.	

Fig. 44: Summary of typographic features and their associations

Adapted by Mark Richard Lemon from Van Leeuwen 2006: 147-50 (Lemon 2013: 53) From a typographic point of view, several dimensions make sense: 'weight' is a relevant distinctive feature, 'expansion' would be 'width', 'slope' would be 'slant' – if Van Leeuwen did not refer to Lucida Calligraphy, thus introducing an element of cursiveness. 'Curvature' seems relevant. 'Connectivity' seems to refer to a combination of cursiveness, proportionality and completeness. 'Orientation' refers to a combination of ascender / descender length and xheight, its meaning potential in terms of verticality and horizontality giving meaning akin to expansion. 'Regularity' refers to the reuse of shapes throughout the typeface but also to different aspects of stroke modulation such as widening verticals and the repartition of thicks and thins. As to 'non distinctive features' such as serifs, they may not increase the readability of printed matter but they certainly affect the atmosphere value of letter shapes and more precision in their definition seems desirable.

In terms of the expressive potential of those distinctive features, Van Leeuwen draws on cultural connotations and on 'our ability to extend our practical, physical experience metaphorically, to turn action into knowledge' (2006: 147-8). He reports experiencing irregularity in letter size and stroke modulation as a sign of rebellion.

Beyond its function to create salience, he experiences boldness of letter shapes as 'daring', 'assertive', or 'solid' and 'substantial', and thinness as 'timid' or 'insubstantial'. He notes that boldness could also be interpreted negatively as 'domineering' and 'overbearing'. An elegant script face can signify the idea of 'indulgence' and symbolically 'pamper' and 'soothe' the reader.

Narrowness can convey a sense of 'precise', 'economical' when it does not seem 'cramped', 'overcrowded' or likely to restrict movement. Wideness, on the other hand, can look like it is spreading itself around or like it is providing room to breathe and move. The variation on slope feel to Van Leeuwen as bringing a feeling of 'handwriting' vs. 'printing' and therefore 'human-made', 'personal', 'organic', 'handcrafted', 'informal' and 'old', or, by contrast, 'mechanical', 'impersonal', 'formal', 'mass-produced' and 'new'.

Angularity, beyond certain historical connotations,

[...] 'also has experiential meaning potential, based both on our experience of producing straight, angular forms, which requires controlled, brisk, decisive movement, and round forms, which require a more gradual, 'fluid' control of movement, and its significance may also be based on experiential and cultural associations with essentially round or essentially angular objects.' (Van Leeuwen 2006: 149) Roundedness can come to signify 'smooth', 'soft', 'natural', 'organic', 'maternal', and so on, and angularity 'abrasive', 'harsh', 'technical', 'masculine', and so on. Both may either be positively or negatively valued. External connectivity is evocative of 'handwriting', 'wholeness' and 'integration', external disconnection speaks of 'atomisation' and 'fragmentation'. Internally disconnected letterforms seem 'unfinished', 'sloppy' or 'easy going'.

Horizontal orientation, such as expansion, suggests 'heaviness' or 'solidity', but also possibly 'inertia' and 'self-satisfaction', while vertical orientation not only could suggest 'lightness', 'upwards aspiration', but also 'instability'. The length of ascenders or descenders indicates the tendency of letter shapes to 'stay within their allotted space or, when extended, their tendency to 'seek roots' or aspire to some form of metaphorical 'elevation'.

Far from any narrow determinism, the meaning potential of each feature is narrowed down by the presence of other features and the wider context of the publication. The analytic apparatus of social semiotics is still rudimentary from a typographic stand point and a little confusing as to the nature of the actual meaning-making of typefaces seen as bundles of features. Detailed analysis, such as Van Leeuwen's can provide interesting interpretation. However, the point here is to extract general principles. The principles unconsciously used to make these analysis. The least that can be said is that the diversity of associations, while a testimony to typographetic potential, gives little direction to proceed to similar analysis. Lemon proposes some general principles by building on Van Leeuwen's initial typology and summarising (figure 45) the potential functions of graphetic elements (He calls them 'typographic'):

Typography							
Text Type			Display Type				
Invisible	Literary			Message	Sender		
Typography				Embodiment	Stylistics		
	Values	History	Mode				
	Based	Based	Based				
Tschichold's	Truth	Futura to	Typewritten	Quarte	O w		
Skeleton	Value eg.	denote	eg.	Carg	Avality		
Letters	Baskerville	the	Courier				
		modernist					
	·	period.					

Fig. 45: Typographic functions of Text & Display type (Lemon 2013: 62) Lemon supposes an axis where letter shapes and text play inversely proportional roles. On the far left, the letters have no conscious graphetic influence on the reader, the text carries all the meaning. (The purpose of Lemon's inquiry is to conjecture about possible unconscious influence of any kind of typeface.) On the far right, the letter shapes carry all the meaning, the text is almost irrelevant, 'typographic signification may be of equal or greater importance than linguistic signification (Lemon 2013: 70). In the yellow zone, the text combines with the shapes to create meaning. The literary text typefaces are supposed to play three distinct kinds of functions: carrying, by association with previous contexts, connotations of values or historic references, and / or giving indexical indication of their supposed means of production.

Note that the function of salience by contrasting typefaces would have its rightful place here too. On the right side of the table are the functions of display type, i.e. typography meant to draw at least as much attention to itself as to the text. Lemon assumes that display typefaces can have the functions of other literary typefaces, but furthermore, they can reinforce the message by iconic decorative shapes, which is a particular kind of appropriateness. They can also possibly, provide what he calls 'sender stylistics' (Lemon 2013: 63), i.e. information about the provenance of the text.



# 5.1.7. Authorship or sender stylistics

This last point has its importance. A handwritten letter from someone we know immediately betrays its scriptor. By the same process we tend to make inferences even if we cannot identify the sender and even if the text is typeset rather than handwritten. Harris notes that writing is a technology that, unlike orality, grants communication the possibility of anonymity. That writing, in a sense, is precisely a device allowing a text to replace a person. Nevertheless, the interpretation of a text often depends on whether or not the reader knows who the author is. 'In any case, the reader can not help wonder who wrote it; a written text does not fall from the sky.' (Harris 1994: 177). Some texts are 'authorless', in the sense that it is not possible to point to any author. Even in such cases, Harris thinks that the interpretation demands a speculation about its author. For Harris, the author is a 'necessary hypothesis', made up by the reader and more or less grounded in facts, depending on the context. Signatures present a particular case. They are not, by construct, typographic but constitute proof that, in a civilisation of writing, the writing itself creates the author. Harris distinguishes autocentric signs, that refer to the person who signals, from heterocentric signs, that refer to something or someone else. For him, a signature is the epitome of the autocentric sign. But the distinction itself makes possible to think of other features of the written matter that might also be autocentric in their integration and fulfil the function of sender stylistics

Summarising what we have seen so far, Nørgaard notes that stylistics analysis is still mostly logocentric in nature and needs development. Yet, some of the concepts can be transposed to metalingual elements, in particular, Nørgaard makes use of salience, distinctive features, and discursive import. Beyond salience, the correlation between distinctive features and discursive import – or other names this meaning-making process takes in various disciplines – is a combination of evaluation of what is there and its interpretation in a complex context. In Harris's words:

'We are in the presence of a semiologic mechanism capable of bestowing on graphic forms certain grammatical and semantic status, in a way totally independent from its pronunciation. And this mechanism is no other than contextual integration in a visual ensemble.' (Harris 1994: 143)

Grammatical and semantic status are the objects of linguistics. The principle of economy leads to highly legible bland shapes, with optimised legibility resulting in a loss of expressivity. The extra time required to see the figural line allows for a process of contextualisation and interpretation, where a sign acquires meaning in context through the process of sign-making or 'conceptual blending'. Roy Harris argues for linguistic integrationism, which goes beyond the rule-based model of Saussure and the semiotics of Peirce, and instead bases the understanding of signs in a multitrace model that is also applicable to letter shapes. He proposes that sign-making is a continuous process of contextual interpretation by the reader. However, interpretation is influenced by multiple traces of culturally shared experiences, which make it more of a sociological event than an individual one. The nature of the extra information semioticians see bestowed on shapes is still unclear, Mark Lemon sorts it into values, historical connotations, denotation of its means of production, iconic decoration and sender stylistics. He concludes that:

> 'Connotation is linked to Text type, for which typographic signification is secondary to the linguistic, experiential metaphor is linked to Display type, for which typographic signification may be of equal or greater importance than linguistic.' (Lemon 2013: 70)

This conclusion raises the question of whether seeing the same shapes in different sizes changes the nature of one's interpretation from learned associations in small sizes to experiential metaphorical interpretation in larger sizes. This requires first to look deeper into these processes of meaningmaking and their interpretational consequences.



### 5.2 Meaning-making

How do we make sense of our environment? Our understanding of the world is the result of a complex interplay between sensory input, neural processing, and interpretation, shaped by both our biology and our experiences. This chapter makes a closer examination of the meaning-making process that happens unconsciously when triggered by typographic clues, starting with interpretation in general and continuing with the type of inferences we make because of our physical apparatus, our environment and our tendency to integrate data points into meaningful patterns. It concludes with a closer examination of the Semantic Differential scales, identified in chapter 2 as commonly used to measure our meaning-making.

### 5.2.1. Hermeneutics

Interpretation is a subject of research in its own right, the specialty of hermeneutics, a sub-branch of philosophy. At its core, hermeneutics is concerned with the idea that meaning is not simply inherent in a text, but rather is constructed through an active engagement between the reader and the text. This involves a process of interpretation that is shaped by the reader's cultural and historical context, as well as their own experiences, biases, and assumptions. Hermeneutists assume that a text (person, group) that one wants to interpret has a meaning. They are chiefly concerned with the interpretation of linguistic objects. However, once again, their reflections are worth bringing to the consideration of shapes and typographic ones in particular. The hermeneutists's approach seeks to understand the path of construction and recreate the experience of the reality they are observing. When shapes are read in a specific context and processed by a human reader, they become the object of an interpretation that turns the perception of the dry space of shapes into the

wet space of experienced type, a kind of meme. A similar hermeneutic process is at work when a researcher tries to make sense of a complex question. Hermeneutics present therefore a double interest, shedding light simultaneously on the object of research and on the process of research itself.

In *Hermeneutics, a very short introduction*, Jens Zimmerman (2015) defines hermeneutics as 'the sort of understanding by which we integrate facts into a meaningful whole, the kind of practical operation that provides knowledge in the sense of deep familiarity with something'. (Zimmerman 2015: 2) Zimmerman gives many examples and explanations referring to textual objects, which are re-framed here to apply to typography and research.

When the meaning is obvious, it does not require interpretation. Something is a 'sign' only if it is interpreted as the sign of something else by an interpreter. Letter shapes can therefore very well not be interpreted as a sign of anything other than their semantic value. Interpretation is an individual process, motivated by personal interest and concern. If objective truth requires an impersonal, theoretical stance toward things, it is based on the assumption of separation between mind and world. If it is at all possible, it is not our primary mode of perception. Rather, our understanding of the world is practical and depends on our current motivations. To know is to interpret:

> 'Interpretation is not only something we do but also something we are. Interpretation is not an occasional luxury but our fundamental way of being in the world. We are 'interpreting animals' and human knowing always entails interpretation, whether we are dealing with a Shakespearean play or a hypothesis in physics.' (Zimmerman 2015: 9)

The key concept here is the personal integration of details into a meaningful whole. 'For hermeneutics, knowledge is more than naming and describing objects; it involves understanding meaningful structures we already participate in.' (Zimmerman 2015: 10) Thus, truth is an event that happens to us, with our participation. Hence the Canadian proverb that 'there is no such thing as bad weather, only inadequate clothing.' Naked truth does not exist in an abstract form, as something we could observe from a distance. Events bear meaning for us because we experience them and construct mental representations. For example we might feel vaguely threatened by 'terms & conditions' because of the experience of painfully small type.

To hermeneutic thinkers, the impossibility of true objectivity does not lead to relativism either. Objectivism and relativism appear as extremes, both based on the same faulty concept of objectivity. Our experiences are unique, yet not as different from other people's as we might think. We are connected by culture, by history, as if standing in the same stream of collective context that gives shape to individual experience. This universally valid context of meaning is called a 'horizon'. 'This horizon is the tradition and language we inhabit, and through which we share a meaningful world.[...] To understand is to interpret: this universal claim of hermeneutics is not relativism but the admission that we are not gods.' (Zimmerman 2015: 18) The world is given to us as already endowed with meaning.'We don't do hermeneutics; we are self-interpreting animals, beings whose very nature is to negotiate a complex world of meaning relations into which we are thrown at birth.' (Zimmerman 2015: 35)

Far from being an obstacle to objectivity, context is considered the key to meaning-making. We understand events because we metaphorically step into a conversation and stand in a flow of cultural coordinates that form horizons, or what Hans-Georg Gadamer calls 'historically effected consciousness' (Zimmerman 2015: 41). Our presuppositions, built on previous experiences, are precisely what inclines us to interpret elements this way rather than another. 'History is not a barrier but the very thing connecting us to the cultural traditions that are giving us the initial lenses through which we see the world.' (Zimmerman 2015: 38) The process of integration by which we interpret is symbolised by the hermeneutic circle, the greater context that influences our understanding of a particular part. There is a circular movement operating between the object of focus and its context.

Hermeneutics are usually applied to the interpretation of texts, using every part of the text to reach an understanding closest to the thoughts of its author, their overall intention. The understanding happens as an intuitive leap into the meaningful relation of part and whole. Interpretation emerges as an educated guess rather than an arbitrary conjecture. As in integrative linguistics, meaning arises as an event between the sign, the context and the observer and from there, takes part in the context of further events. Similarly, the intuitive interpretation of letter shapes influences our understanding of the author's identity and intention. In professor and literary critic Eric Donald Hirsch's words, 'the only universally valid cognition of a work of art is that which is constituted by the kind of subjective stance adopted in its creation.' (Hirsch 1968: 55)

By allowing us to make sense of something unforeseen and incorporate it in an updated internal map of reality, we let ourselves be changed by the experience. Rather than letting things remain strange and inaccessible, we relate them to what is already familiar to us thanks to our human ability to detect similarity in difference. This extraordinary ability is the basis for metaphor, the subject of the next section. The metaphoricity of language structures our thoughts as much as its conceptual dimension, inviting a similar reflection about letters whose shapes may carry as much meaning as their unicode value. This capacity to detect similarity in difference, to enlarge our perspective by transposing concepts from one realm into another, provides new experiences with instant context. It also enables imagination, creativity and empathy. Interpretation might even be a key to the development of knowledge:

'Scientific discovery depends heavily on the personal intuition of a scientist whose deep familiarity with a prior theory and the relevant facts, together with the hitherto stubbornly unexplained anomalies, allows him to intuit a better way of integrating all of these particulars into a new coherent framework. This intuitive vision, while based on experience, cannot be reduced to logic but constitutes an intellectual leap from one existing integrative framework to another.' (Zimmerman 2015: 127)

Regarding typeface expressivity, interpretation is a gradual process generated in the slow integration of silent letters on the page. Type speaks through its performance of conveying the text. Like other art forms, it delivers its putative author's intention in a subtle way. Here Zimmerman defends the relevance of intentionality through all artworks, though his comment could just as well be extended to letter shapes, whether considered as art or merely design:

> 'Created in order to be displayed, read, or performed, artwork is the most conscious expression of what human understanding always entails: the interpretive integration of life's details into a meaningful whole. The author's creation is therefore already an act of interpretation in which an impression about life is joined with the most congenial literary or artistic form of expressing the artist's take on human reality. In this activity, neither artistic material, such as paint, canvas, marble or clay, nor stylistic forms, such as words, pictures and poetic structures, are arbitrary choices. The artist will intuitively choose the artistic medium that is most suitable for expressing the intended meaning.' (Zimmerman 2015: 54-55)

We saw in chapter 4 the different phases of the semiotic event happening at the design stage, the typesetting and the reading stage. Recreating typoiesis, the combined intended typographic meaning of the typeface designer and the document designer is mostly an intuitive operation, the tentative fusion of one's horizon with those of the typographers. Zimmerman adds a comment, that, while intended to be about the interpretation of text is oddly relevant to the interpretation of the graphetic potential of typefaces and congruent with the findings of Brinton (1961) and followers that professional designers attribute more qualities than lay people to a given typeface:

'Our construed meaning, however, can only ever be the most probable reading, a hypothesis that best accounts for the greatest number of facets provided by the text. There is always the possibility that a reader with greater experience, a keener eye, and a better imagination can provide a more persuasive reading that integrates more of the textual parts and clues into a convincing whole.' (Zimmerman 2015: 65-66)

Interpreting the meaning of complex shapes as expressing a designer's typoiesis requires the integration of many details into a coherent whole. It requires previous experience and an act of imagination. Regardless of the reader's level of competence, the process has value. Hermeneutics assert the power of shapes, among other dimensions, to convey valid knowledge about reality. Intuition, as an irrational dimension of reality, is recognised as part of the truth of experience. Therefore, the perceived intonation of typefaces may be experienced differently and to different degrees from reader to reader, depending on their horizons and intuitions. The following section probes further into the processes by which we derive interpretation from our perceptions.



## 5.2.2. Metaphors & Gestalt principles

As our letter shapes derive from pictographic representations, they might still carry associations. Victor Hugo, in *Alpes et Pyrénées* (1839) justifies his connotative alphabetic musings (Appendix C) by the idea, right or wrong, that all letters have first been signs and all signs have first been images. Such examples are common, more recently, writer and artist James Bridle comments on the origins of the shapes in our writing system:

> 'The M is a wave and the O is an eye, as in the Eye of the Oculus, the Q is the monkey, the A is the bull. They're there. They're just living, just dancing around in the things that we are trying to write and say right in front of us. And we are using them for all these complex, abstract ideas. And they're kind of just sitting there winking at us the whole time.' (Bridle 2023)

This type of interpretation is directly triggered by the forms, whether inspired by the original rebus-like structure of the alphabetic system or by free association with patterns emerging in nature. They are still derived from the semiotic or skeleton shapes rather than their typeface design but they already talk to the symbolic dimension of the letters. There is only a narrow gap between this type of inference and the perception of more metaphoric dimensions.

Our interpretation of typefaces makes meaning via a complex process of perception (as in section 4.3.), alongside an even more complex process of situating them in a wider cultural context. In graphic design, these biases are called Gestalt Design principles. This theory –originating in Goethe's work and based on perceptions– posits that a design in its globality is perceived as more or, at least, as other than the sum of its parts (Dair 1967:92). Our brain, striving constantly to make sense of what it perceives, interprets spatial organisation of design elements as meaningful, a tendency called apophenia\* and also pareidolia\* when it involves seeing meaningful shapes in abstract patterns, such as faces in clouds. This meaning-making tendency operates

\* apophenia: tendency to perceive a connection or meaningful pattern between unrelated or random things such as objects or ideas.

\* pareidolia: tendency for incorrect perception of a stimulus as an object, pattern or meaning known to the observer, such as seeing shapes in clouds, seeing faces in inanimate objects or abstract patterns, or hearing hidden messages in music.

along several principles (reinterpreted here from *Graphesis* by Johanna Drucker 2014: 57, figure 46)

- proximity > we mentally group objects that are presented close to each other
- closure > we look for patterns in complex arrangements
- similarity > we see elements bearing similarities (colour, size, shape, etc.) as related
- continuity > we mentally group objects that seem to form a continuous line
- perception of figure vs. background > we can view shapes in the negative space\*
- organisation > we mentally group elements that move in the same direction or are enclosed together
- symmetry > we mentally group symmetrical elements



Fig. 46: Gestalt diagrams (Drucker 2014: 57) The brain perceives subjective contours created by alignment and creates a global experience of unconnected marks. These principles allow us to read text set in very different

\* negative space: the space around two-and three dimensional forms. It is the space within or against which positive forms are defined – the white page around a silhouette or the gap between the arms and torso of a statue. typefaces, even distorted or broken ones, interpreting shapes with our reader's experience of letters as well as with the experience of a wider world. Our brain organises the information in meaningful ways even when the information is incomplete and identifies text in very improbable contexts and formats. Furthermore, beyond internal cohesion of the design itself, we tend to see patterns borrowed from other contexts or metaphors.

For linguistics experts George Lakoff and Mark Johnson (Metaphors we live by 2003), metaphor serves as an explanatory device. Their theory of experiential metaphors is universal in scope, in spite of being originally centred on linguistic objects. They insist on it on page 153: 'Metaphor is primarily a matter of thought and action and only derivatively a matter of language.' (Lakoff & Johnson 2003: 153) In light of this, metaphors might be just as important to global interpretations as the shapes themselves. As noted by Mark Lemon (2013), their theory applies convincingly to typographic shapes too. In the realm of typography, the concept of signification is grounded in two fundamental principles: connotation and experiential metaphor. Connotation draws upon our previous experiences with a typeface and can thus give rise to meanings related to its history, mode of production, and functional value. In contrast, experiential metaphor comes into play when we lack a strong connotative association with a given typeface or when it is presented to us in a way that encourages further interpretation. This process enables the creation of metaphorical links between typography and other spatially-interpreted phenomena. These links draw upon conceptual metaphors and embodied philosophy, as posited by Lakoff and Johnson, and involve an experience-based process of Peircian abduction\* that generates context-dependent, flexible meanings. These processes can operate simultaneously at different levels, resulting in a loose hierarchical arrangement of multiple meanings associated with a given typographical token.

The process of interpretation works by progressive association. From experience of a source domain in real life, we infer metaphoric understanding in a target domain, thus creating metaphoric mapping between the two domains and enabling implicit communication. A metaphor is a kind of imaginative rationality in that it involves experiencing similarities, seeing one kind of thing in terms of another kind of thing. For Lakoff and Johnson, we interpret the nonphysical in terms of the physical, 'we conceptualize the less clearly delineated in terms fo the more clearly delineated. (Ex. Harry is in Love, as if he was in the kitchen. The in is a metaphor)' (2003: 59). Relevant to our everyday physical existence, human spatial concepts emerge from our constant interaction with the environment and the resulting spatial experience. 'Concepts that emerge in this way are concepts that we live by in the most fundamental way.' (Lakoff & Johnson 2003: 57) Lakoff and Johnson call it the 'Me-first orientation' and explain:

> [...] 'Since people typically function in an upright position, see and move frontward, spend most of their time performing actions, and view themselves as being basically good, we have a basis in our experience for viewing ourselves as more UP than DOWN, more FRONT than BACK, more ACTIVE than PASSIVE, more GOOD than BAD. Since we are where we are and exist in the present, we conceive of ourselves as being HERE rather than THERE, and NOW rather than THEN. This determines what Cooper and Ross call the ME-FIRST orientation: UP, FRONT, ACTIVE, GOOD, HERE, and NOW are all oriented toward the canonical person; DOWN, BACKWARD, PASSIVE, BAD, THERE, and THEN are all oriented away from the canonical person.' (Lakoff & Johnson 2003: 132, all capitalisation theirs)

Following Lakoff and Johnson, the relationship between the reader and the typeface is dynamic. We interpret typefaces as relative to our current place and time. We grant them human attributes and interact with them as representatives of external meaning (be it from the author / sender or elsewhere). These principles offer keys for the interpretation as they show that properties of design elements (perceptual, functional, etc.) are 'interactional properties':

> 'The properties we directly experience an object or event as having are products of our interactions with them in our environment. That is, they may not be inherent properties of the object or experience but, instead, interactional properties.' (Lakoff & Johnson 2003: 177)

Lakoff and Johnson move beyond the myths of objectivism and subjectivism –the idea that objects have properties bearing disembodied meaning vs. the idea that experience is purely holistic and therefore unstructured– by arguing in favour of an experientialist myth where:

> [...] 'understanding emerges from interaction, from constant negotiation with the environment and other people. It emerges in the following way: the nature of our bodies and our physical and cultural environment imposes a structure on our experience, in terms of natural dimensions of the sort we have discussed. Recurrent experience leads to the formation of categories, which are experiential Gestalts with those natural dimensions. Such Gestalts define coherence in our experience.' (Lakoff & Johnson 2003: 230)

Such a framework is the lens through which we understand external phenomena and integrate experience in a cohesive manner. New typefaces are therefore situated in this evolving and personal framework to allocate meaning.

If we conceptualise typographic forms in spatial terms, as we do linguistic forms, certain spatial metaphors may apply directly to the shapes. This may create automatic mapping of form and content, based on experience rather than arbitrary connection. Lakoff and Johnson explain that conceptualising linguistic forms leads to metaphors such as 'the conduit metaphor' which

> 'defines a spatial relationship between form and content: LINGUISTIC EXPRESSIONS ARE CONTAINERS, and their meanings are the content of those containers. When we see actual containers that are small, we expect their content to be small. When we see actual containers that are large, we normally expect their contents to be large. Applying this to the CONDUIT metaphor, we get the expectation: MORE OF

#### FORM IS MORE OF CONTENT.' (Lakoff & Johnson 2003: 126, their capitalisation)

For example 'He ran, ran, ran' implies more running than just 'He ran'. In typographic terms, it must be what Tomas Garcia Ferrari (2012) meant when he formulated the intuitive impression that typeface weight stood in for the pitch of sound: 'It takes more space to display a heavy sound'. Pierre Di Sciullo, in his Quantange typeface (1989) draws higher letter shapes to indicate higher vocal pitch. More typographic shape, be it weight, height, width, or even caps can be intuitively interpreted as a stronger message. Depending on context, it can change our interpretation of the pitch, the emotional charge or even the message's credibility (Kahneman 2011: 63). The conduit metaphor is therefore a materialisation of intention. The physical attributes of the typeface convey the message according to the norms we have internalised.

Furthermore, Lakoff and Johnson suggest that cultural and personal metaphors are partly preserved in ritual. Cultural metaphors and the values they convey are carried and spread by ritual. I suggest that typography in general and typefaces in particular are examples of such rituals carrying cultural significance by way of metaphors. After all:

> 'Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent. In this sense metaphors can be self-fulfilling prophecies.' (Lakoff & Johnson 2003: 156)

The repeated association of typefaces with particular context triggers connotations. For example, the culturally loaded uses of Impact for memes (see chapter 4) or Comic Sans for missing cats notices and children birthday parties give cues of sender's intentions and prompt adequate responses. Furthermore, we do not choose whether or not to think metaphorically. The process of metaphorical mapping is largely unconscious and common to humans: [...] 'since our brains are embodied, our metaphors will reflect our commonplace experiences in the world. Inevitably, many primary metaphors are universal because everybody has basically the same kinds of environments, so far as the features relevant to metaphor are concerned. The complex metaphors that are composed of primary metaphors and make use of culturally based conceptual frames are another matter. Because they make use of cultural information, they may differ significantly from culture to culture.' (Lakoff & Johnson 2003: 257)

Sensory-motor experiences such as moving in space or manipulating objects inspire sensory-motor conceptual metaphors. This would explain why we perceive typographic figures as human-like shapes with attitude. Our sense of verticality, of movement and progression are projected onto the forms we read, conferring them extra meaning. 'Any written document is an index of an event that occurred earlier, ie the act of writing that produced it.' (Harris 1994: 209) This idea of our understanding of shapes as Piercean indexical base for interpretation points to our capacity to project sensory-motor metaphor onto the person and intentions that originated the text. And complex cultural connotative constructs, such as the polemic around Comic Sans (Browser 2017), show that further interpretation is contextdependent rather than purely experiential.

Conceptual metaphors are the basic units of rhetoric figures. Wikipedia currently lists more than 100 tropes, from accismus to zoomorphism, all drawn from linguistic material. However, with a small stretch of imagination, it is possible to think of letter shapes in terms of a few of these tropes. Figure 47 presents a list of typographic tropes – typefaces or typographic elements whose contextual meaning differs from the manner or sense in which they are ordinarily used – skilfully used by graphic designers and, voluntarily or not, by other typographers.

For Lakoff and Johnson, metaphorical thought is 'unavoidable, ubiquitous and mostly unconscious' (Lakoff & Johnson 2003: 273). Far from the postmodernist thought that meaning is

Allusion	Covert reference to another work of typography or art		
Antiphrasis:	A typeface used ironically		
Archaism	Use of an obsolete, archaic typeface		
Catachresis	Blatant misuse of typefaces		
Cliché	Overused typeface or layout		
Humour	Provoking laughter and providing amusement		
Innuendo	Having a hidden meaning in a typeface connotation		
Irony	Use of typeface in a way that conveys a meaning opposite to its usual meaning		
Malapropism	Using a typeface through confusion with a typeface that looks similar		
Metalepsis	Figurative typography is used in a new context		
Metaphor	An implied comparison between two things, attributing the properties of one thing to another that it does not literally possess		

Fig. 47: typographic tropes (adapted from Wikipedia's tropes of rhetoric figures) ungrounded and arbitrary, they argue that some meaning is rooted in systematic correlation with our physical and emotional experience and some of it is built on those experiences as cultural constructions. Human categorisation derives from interactional properties and dimensions emerging from experience. They are shaped and constrained by our physical experiences and enriched by somewhat arbitrary associations. 'We live our lives on the basis of inferences we derive via metaphor.' (Lakoff & Johnson 2003: 273) Typefaces as cultural objects are no exception. We create, use and read them with eyes biased toward metaphorical processing of shapes. We may choose to see causality where our brains detect similarities in shapes from different context, therefore naturalising a parallel message conveyed by forms only. At stake are the multiple internal echos of our perceptions, the faculty of experiencing stimuli in different ways.



### 5.2.3. Crossmodal correspondences

The idea that something we see can trigger inner experience along other senses is often called synaesthesia from the combination of Greek words *syn*, 'together', and *aisthēsis*, 'sensation'. In the case of typefaces, a visual stimulus may trigger sound, colour, taste, kinesthetic perceptions or ideas. The word 'synaesthesia' points to a medical condition in which one sensory or cognitive information triggers involuntary experiences in a second sensory or cognitive pathway. (When the secondary perception is induced by semantic, linguistic rather than visual, representations, the phenomenon is called ideaesthesia.)

Fig. 48: 'Voyelles' Rimbaud, A. (1895) *Poésies complètes*. L. Vanier. p.7

> A noir, E blanc, I rouge, U vert, O bleu : voyelles, Je dirai quelque jour vos naissances latentes : A, noir corset velu des mouches éclatantes Qui bombinent autour des puanteurs cruelles,

Golfes d'ombre ; E, candeurs des vapeurs et des tentes, Lances des glaciers fiers, rois blancs, frissons d'ombelles ; I, pourpres, sang craché, rire des lèvres belles Dans la colère ou les ivresses pénitentes ;

U, cycles, vibrements divins des mers virides, Paix des pâtis semés d'animaux, paix des rides Que l'alchimie imprime aux grands fronts studieux ;

O, suprême Clairon plein des strideurs étranges, Silences traversés des Mondes et des Anges :

- O l'Oméga, rayon violet de Ses Yeux !

As a stable life-long phenomenon, synaesthesia is rather rare but partial connections are common. Ramachandran & Hubbard (2001) report that grapheme–colour synaesthesia (the stable association of certain letters or figures with certain colours) may occur in as much as one in two hundred people (Ramachandran & Hubbard 2001: 6). On the other hand, cognitive psychologist Donald Hoffman's evaluation is ten people in a million (Hoffman 2000: 193)

The phenomenon might be better explored with cerebral imagery and has been difficult to trace with self-reporting. Poet Arthur Rimbaud famously testified about his own letterrelated synaesthesia in a poem (figure 48). By associating colours to letters, he builds an inner web of sensations that encompasses all his senses and triggers feelings.

It seems to run in families and to be six times more likely to affect women than men. However, beyond synaesthesia as a medical condition, 'listening with one's eyes', for example, is made possible by what researchers call *crossmodal correspondences* (Velasco & al. 2013). These, whether instinctive or learned by association, let stimuli activate multiple brain areas simultaneously. Typographer Sarah Hyndman expands her Type Tasting experimentations by collaborating with professor Charles Spence from the University of Oxford to measure the impact of fonts on perceptions. For example, Carlos Velasco, Alejandro Salgado-Montejo, Fernando Marmolejo-Ramos and Charles Spence found that:

> "sweet' tastes are better expressed by means of rounded shapes, typefaces, and names, and low-pitched sounds, whereas 'sour' tastes are better conveyed by means of angular shapes, typefaces, and names, and high-pitched sounds." (Velasco & al. 2013: 88)

Roundness in general, not just in typefaces, may be interpreted as 'sweet' when the context allows it and, conversely, angularity may be taken as sign of 'sour' or 'non-sweet'. These findings underline the far-reaching importance of graphic design on packaging and point to the underlying processes at work in our brains when we interpret visual clues. Writer Ian Crofton (2011) explains that we usually distinguish between 'sensation' and 'perception'. 'Sensation' refers to the way our senses (sight, hearing, touch, smell and taste) register inputs from the world outside of our bodies and send them to the brain. 'Perception' refers to the interpretation of the inputs supplied by sensation, it is influenced by the mental maps we build from previous experiences to make sense of the world. To illustrate the difference between sensation and perception, Crofton takes the example of a young baby. With human eyes comparable to those of an adult, it registers the same data. However, its perceptions are different since it has no understanding of what it is looking at.

He adds:

'With experience, perception enables us to make predictions- for example, to assume the whole of an object is present, even when we can only see part of it. It may also lead us into error, as is the case with optical illusion'. (Crofton 2011: 354)

Such phenomena are at play in reading; different typefaces manage to point to the same glyphs with different shapes (ie. a**a**aaa), incomplete outlines and optical corrections carry meaning without drawing attention to themselves. According to Ramachandran and Hubbard (2001: 8) grapheme-colour synaesthesia is a sensory effect rather than a cognitive effect based on memory associations. They also note that ordinary language is rich with synaesthetic metaphors such as 'loud shirt' or 'hot babe', pointing at a possible connection between metaphor and synaesthesia. They mention a zone of the brain called Angular gyrus as the seat of polymodal convergence of sensory information. They observe that lesions to the Angular gyrus sometimes lead intriguingly to the loss of ability to understand metaphors, pointing to a link between perception, thought and language.

In a discussion paper titled 'A Social Semiotic Theory of Synesthesia?' (2016), Theo Van Leeuwen proposes to move beyond binary systems of opposition to build a parametric Fig. 49: Common qualities of the parameters of four expression media (Colour, Graphic shape, Timbre and Texture) (Van Leeuwen 2016) table of crossmodal correspondences. The discussion paper is not a full-scale study. Its merit lies in breaking down concrete sensory stimuli into diverse perceptions, precise enough to invite individual evaluation. It closes on the summary table (figure 49). The heading 'graphic shape' encompasses letter shapes and its content could be further refined to better serve typographic purpose.

Colour	Graphic shape	limbre	Texture
Saturation Temperature	Weight (Slope + bold)	Pitch range Loudness Tension	Weight Rigidity
Value Luminosity Luminescence	?	Pitch level Frontality	?
Modulation (application of colour)	Irregularity (of contours and visual texture)	Roughness Breathiness Blending	Relief (roughness)
Modulation (distribution of parameters)	Regularity (distribution of parameters)	Regularity (of parameters in sustained tone)	Relief (distribution of indentations and protuberations)
Differentiation	Differentiation (of shapes)	Orchestration Blending	Relief (differentiation of indentations and protuberations)
(merging of transitions?)	Connection	Legato/staccato	(merging of transitions?)
?	Expansion	Aperture	Density
?	Angularity	Staccato Friction Tension	(sharp protuberations?)
Purity			
Lustre			
	Orientation	N (le se tre	
		Vibrato	Liquidity
			Viscosity
	Saturation Temperature Value Luminosity Luminescence Modulation (application of colour) Modulation (distribution of parameters) Differentiation (merging of transitions?) ? ? Purity Lustre	Saturation TemperatureWeight (Slope + bold)Value Luminosity Luminescence?Modulation (application of colour)Irregularity (of contours and visual texture)Modulation (distribution of parameters)Regularity (distribution of parameters)Differentiation (ransitions?)Differentiation (of shapes)?Expansion?AngularityPurity LustreOrientation.Orientation	Saturation TemperatureWeight (Slope + bold)Pitch range Loudness TensionValue Luminosity Luminescence?Pitch level FrontalityModulation (application of colour)Irregularity (of contours and visual texture)Roughness BlendingModulation (distribution of parameters)Regularity (distribution of parameters)Regularity (of parameters)Differentiation (of shapes)Differentiation (of shapes)Orchestration Blending(merging of transitions?)Connection ExpansionLegato/staccato Friction Tension?Angularity UlarityStaccato Friction TensionPurityIILustreOrientationVibratoUnityIVibrato

Van Leeuwen bridges the meaning gap by commenting:

'Many of the common qualities we have proposed clearly connect to the basic human facilities neuroscientists have associated with the limbic brain: emotion (brightness, acuteness, expansion) and attention (regularity, energy), for instance.' (Van Leeuwen 2016: 118)
If weight, regularity, irregularity, differentiation of shapes, connection, expansion, angularity and orientation of graphic shapes are likely to be mapped in the brain in association with connotations such as emotions, typographic shapes in particular must be ideal signifiers.

Whether called synaesthesia or crossmodal correspondences, what is at stake is the link between visual cues and perceptions of other senses. The Kiki-Bouba effect (Milan & al. 2013) is an excellent illustration of the way sound-vision synaesthesia triggers the elaboration of meaning from clues that may not have intrinsic meaning. It describes a process directly applicable to the description of letter shapes.

The experiment, first conducted by Wolfgang Kohler in 1929 and repeated many times since, consists of telling participants that two nonsense shapes, one spiky and one smoothly curved (figure 50), are called nonsense names Kiki and Bouba, asking them which name applies to each.

Fig. 50: Kiki and Bouba shapes. Andrew Dunn (2004) commons. wikimedia.org/w/ index.php? curid=19653163

In multiple studies, participants associate the shape A with kiki and the shape B with bouba in a non-arbitrary manner.



These results are widely shared among speakers of different languages. Ramachandran and Hubbard propose to explain the results by the sharp changes in visual direction of the lines of the spiky figure that 'mimic the sharp phonemic inflections of the sound kiki, as well as the sharp inflection of the tongue on the palate' (Ramachandran & Hubbard 2001: 19) They hypothesise that it suggests patterns of mapping between sound and shape, perhaps including motor and vocal systems, allowed by the neighbouring location of the relevant cortical connections in the brain. Round or angular shapes would be seen as reflecting the appearance of speaker's lips and the movement of the tongue when pronouncing the word. Cognitive psychologist Aditya Shukla, in a review of the Kiki-Bouba research, concludes:

> 'These findings suggest that affect, which is fundamentally not a sensory input, can also be abstracted and mapped as congruent or incongruent with cross-modal associations. One can hypothesize whether a deeper level of abstraction is at play or an entirely different process is involved in enabling an affective component to correspond with sensory data.' (Shukla 2016: 245)

If affect can indeed be abstracted by crossmodal associations, there is ground to hypothesise that typefaces may affect readers's emotions. The link between visual clues and perception of sound seems to be frequent for text. Some people can 'hear' a voice when reading a message from a familiar person. If the text stands for the lyrics of the track playing in their head, the typography contributes to the music. Steven Connor, in a lecture titled 'The acoustic text' (2021) argues that attention to crossmodal correspondences can make typography speak to more forms of social and psychological experience through our propensity for seeing voices and hearing turns of phrase in tones of face, in this synaesthetic manner. He suggests 'psychophonotypography' as a polymodal name for the phenomenon (Connor 2021: 1), thus demonstrating an intention to bridge knowledge from several disciplines and bring it to typographic practice. Synaesthetic mapping paves the way for interpretation and further typographic research.



## 5.2.4. Semantic differentiation and the measurement of meaning

Reflecting on the nature of our perception of typographic shapes would be incomplete without acknowledging the tools we used to build our understanding of them. Here, a methodological detour may be helpful. The typographic literature about perceptions relies often on semantic differentiation as a method to establish the link between shapes and meaning. This could explain the diversity of results obtained when measuring associations and point to enduring directions for interpretation.

Social sciences are based on the assumption that if people repeatedly engage in behaviours, these behaviours can be assumed to be meaningful. However, the description and measure of meaning, in spite of its practical and theoretical importance, is complex and elusive. Meaning, as a phenomena, does not yield easily to measurement and has long been left to philosophical conjecture. Through an examination of a large number of Semantic Differential scales, Charles E. Osgood, George J. Suci and Percy H. Tannenbaum (The measurement of Meaning 1957) developed a system of objective measure of meaning by building scales on a bipolar principle (paired opposite terms such as 'sweet-sour'); an approach compatible with Saussurean structural linguistics that constructs meaning as a process of differentiation. Rather than intrinsic meaning, the tool can evaluate people's subjective response to artefacts and ideas. Osgood, Suci and Tannenbaum found that most anything can be rated along three conceptual dimensions: Evaluation, Potency and Activity. Evaluation includes scales such as 'good-bad', 'beautiful-ugly', 'refined-rough', etc. Potency covers scales such as 'strong-weak', 'formal-personal', etc. And Activity, covers scales such as 'active-passive', 'fast-slow', etc.

Their approach is not specific to any discipline but rather a general tool to convert subjective opinions into quantitative

data. Adapted to each context, this makes it a suitable method to evaluate differences in subjective matters of taste along scales specific to the problem at hand. In the case of kiki-bouba experiments, the spiky shape has been rated high on attribute scales such as clever, tall, small, slim, nervous, unpleasant, and upper-class (Ramachandran & Hubbard 2001). Semantic differential scales have often been used to evaluate typefaces too (Tannenbaum, Jacobson & Norris 1964; Wendt 1968; Bartram 1982; Rowe 1982; Langen & al. 1994; Brumberger 2003a; Henderson 2004; Shaikh 2007; Hazlett & al. 2013).

Nonetheless, beneath the appearance of rigour, they hide the complete subjectivity in the selection of dimensions. Furthermore, organising attributes by pairs raises some questions. Not all pairs can be considered opposite extremes: 'sweet' can be opposed to 'sour' or it can be combined, as in 'sweet & sour'. This does not make 'sweet & sour' a neutral point between the two. The same issues apply to 'masculine' and 'feminine'. These considerations led Eva Brumberger (2003a) to use rating scales with single attributes instead. Besides, there is no obstacle to the measurement of anything the researcher can suggest. One might, for example, request the rating of a typeface along a 'dictatorial-democratic' scale, regardless of contextual relevance. In any case, the Semantic

Differential scales have proven steadily useful for research since 1957. Efficient and standardised, they provide data that is more consistent than free association or concept mapping, compensating their limited range of options by their simplicity of use. They have gradually built a case for sorting attributes into the three main categories Evaluation / Potency / Activity whatever the object under scrutiny.

To render the concept operational, the terms for connotations identified in academic literature by psychologist Dawn Shaikh (2007) can be sorted into stereotypic categories based on Semantic Differentiation principles, allowing to make better sense of previous research. Such sorting into three main categories is not always obvious. In another study two years later, Shaikh (2009) undertook to measure typefaces along Semantic Differential scales grouping:

- Under the label Potency the scales reflecting strength, power, or force: feminine / masculine, soft / hard, delicate / rugged, relaxed / stiff.
- Under the label Evaluative the scales reflecting value, worth, and importance: beautiful / ugly, expensive / cheap, good / bad
- Under the label Activity the scales reflecting energy, movement, and action: passive / active, calm / exciting, slow /f ast, quiet / loud
- Under the label 'Non-Loading' the other scales: sad / happy, weak / strong, cool / warm, old / young

And separately the scale going from illegible to legible.

This shows that however 'universal' they might be, the repartition of scales into the categories of Potency, Evaluation and Activity is not as straightforward as it may seem at first. Sad / happy could be in Evaluation, just as weak / strong could be in Potency.

And placing feminine / masculine in the Potency category rather than the Evaluative is a controversial political move if the scale is relevant at all. Figure 51 shows a few adjectives, sorted into the three main Semantic Differentiation categories, with all the ambivalence possible:

Some concepts are so abstract (futuristic, low / high, old / new ) that they could be interpreted as belonging anywhere. For example, happy / sad could belong in Evaluation or Activity, feminine / masculine could belong anywhere depending on one's perspective and should therefore belong nowhere without further specification. Still, this type of sorting gives a sense of what typographic shapes could potentially do for readers. It calls for a critical examination of these associations and tools to bridge the gap between shapes and connotations.

Evaluation	Potency	Activity
Affection for children	Artistic	Active/passive
Angular rounded	Clean/dirty	Lively, young, fast
Anxious confident	Big/ little	Calm, serene, soothing, tender, longing,
Appetising	Blurred/clear	Romantic, plaintive, sentimental
Attractive/unattractive	Bold/delicate	Dramatic, forceful, vigorous, martial,
Bad/good	Cheerful/sad	Ponderous, emphatic, majestic, exalting
Bad, unpleasant, ugly, unhappy,	Clear headed/dreamy	Exciting /dull
Beautiful, beauty	Clear/hazy	Leisurely
Bright/dull	Contemporary	Gentle
Charming not charming	Conformist/rebel	Fast/slow
Cheap/expensive	Danger	Ferocious/gentle
Cuddly/coarse	Dignity	Loose/tense
Clerical/secular	Confident	Passive, still, old, slow
Delightful, impressive	Complex simple	Sparkling, playful, merry
Elegant/plain	Distinct not distinct	Stable/unstable
Helpful/cooperative egoistical	Dignified, spiritual, solemn	Vitality/no vitality

Fig. 51: Tentative repartition of some connotations from the list established by Dawn Shaikh (2007: 303-311) along categories of evaluation, potency and activity As can be seen in the above table, the process of interpreting forms turns out to be a highly subjective and complex process of sensory input, neural processing, and interpretation, in other words the integration of the reading experience with the reader's horizon. This integration can be deep or superficial, or even can sometimes fail to happen. It involves many layers of understanding and interpretation ranging from emotions and perceptual biases to metaphors suggested by the biological equipment or by associations, present and past, provided by the environment. The designer plays with codes to provide multiple layers of information in the hope that they will be decoded correctly. In doing so, design plays on tacit knowledge (Polanyi 1967) acquired through experience, which is difficult to articulate or communicate explicitly. As designer Chip Kidd (2015) explains about good book covers that make a strong first impression, the role of the designer is to give just enough information and credit viewers with previous knowledge that allows them to interpret the design adequately. This comment made about typography displayed at larger size for titling may still be relevant for text type, set at smaller size. Visual cues, typographic or

not, when handled skilfully may trigger cognitive associations, sensations and emotions, that may be apprehended on a whole range of Semantic Differential scales.



# 5.3. Denotations and connotations

Evaluation, Potency and Activity are broad enough categories to encompass most value judgements. What exactly do we see in letter shapes? This chapter dives deeper into the associations of shapes and sensations and emotions in an attempt to understand how our cognitive judgements are built from perceptions and lead us to specific interpretations and stereotypic judgements. We start with a tentative outline of scales for the Activity category, building on Gerard Blanchard's analysis of speed of writing. We then consider other sources of interpretations of shapes, inherited, for better or worse, from graphology. We finally put everything together through speculations about the way we form our judgements of people and things.



#### 5.3.1. Kinetic feeling

As early as 1982, Gérard Blanchard laid the ground for the semiotic interpretation of shapes and their arrangement into some kind of grammar inspired by synesthesia and structured by semantic differentiation. Through his analysis of the different uses of letters (Capitals, Roman and Italic) emerges a correspondence between the visual traces of speed in the letterforms and several connotative differentials such as fast-slow, collective-individual, cramped-spacious, cheap-expensive, personal-formal, cryptic-loud, activepassive.

In a later book publication that Blanchard considered as his legacy, *Aide au choix de la typo-graphie*, (1996), he comments on the utility of the Semantic Differential tool developed by Osgood, Suci & Tannenbaum (1957). He deems their categories of Evaluation, Potency and Activity acceptable criteria in typography (Blanchard 1996: 112). Indeed, his analysis of the visual traces of typographic speed seems to fit in the Activity category. Blanchard also comments on many aspects of the shapes but does not offer more formal ways of identifying Evaluation and Potency factors. However, he notes, citing Abraham Moles (*Les sciences de l'imprécis*, 1990), that by superimposing such differential scales, stereotypes emerge, as explicative factors of the semantic space. (Blanchard 1996: 37)

In his doctoral thesis, *Semiologie de la Typographie* (1982) Blanchard explains the tension between the forward motion of handwriting and the typographic necessity to separate letters. Writing is a somatic practice, its trace has haptic qualities that, in particular, lets the reader relate to the speed and urgency of the message. Transposed into typography, the construction of the letters deliberately reflects the visual characteristics of speed and urgency, or the lack thereof. Gerard Blanchard sorts letters by speed of realisation or speed of writing and notices that it is inversely proportional to the speed of reading.

(20 2). 2<sup>2</sup>! nonly <u>ner</u> 1. K. R. Spisk 2 2 -2. Long ~ M. - vestoner 2hgh Jooblak, No love North 1202-05 - Men 12 nor ALIC Linengu nor ichener - No 2-22- 5-20-At beh cot the cher on son ~ ~ ~ vy 1400 Man; of the contain of the months on the months Ser a al the to we there has the part

Fig. 52: Stenography commons. wikimedia.org/ wiki/File: Finnish\_ shorthand\_ example\_Julius\_ Krohn.png Starting with stenography (figure 52), a scriptural style of personal notes, where the shapes signify whole words and require specific prior knowledge to decipher:

A little less fast and a lot more readable, italic letter shapes (figure 53), cursive and personal, are already formal enough to communicate with others while still aiming at saving space and therefore printing costs.



Fig. 53: Typeface Alizé, by Tom Grace. typetogether.com/ book-typography Steven Connor (2021) poetically summarises the difference between italic and regular letter shapes:

> 'The slope of italic, almost always forward, or in the direction of readerly travel, i.e. from left to right in most European writing systems, implies the onward press of hurried handwriting, slightly ahead of itself and bent on get

ting somewhere it is not yet. Italic script is closer to speech and the fluid continuity of cursive writing; where blackletter typefaces are blocky and anticipate the repeated impressions or impacts of the seal or stamp, italic script has the quality of duration, or time on the move and in the making. The fact that italic script seems to be gliding across a ductile material, like slate or paper, rather than being applied percussively and perpendicularly to a surface also associates it with the act of speech. It is not surprising that italic is often employed for the representation of interior monologue, or orality without obvious origin.' (Connor 2021: 8)

Connor's description does not stop at the shapes but travels to the denotations of speed and various connotations, linking them to crossmodal perceptions such as speed of motion, gliding, fluidity and the orality of speech. He credits shapes with the power to transform our understanding–or at least our interpretation– of the origin of the trace we see on paper.



Fig. 54: Typeface Essay Text, by Stefan Ellmer. type-together. com/booktypography Regular (or Roman) is the style of books, simple and economical, it offers maximum legibility (figure 54). It illustrates well Zuzanna Licko's words (1990), 'We read best what we read most.' (VanderLans 1990)

Regular strikes the balance between the typographic necessity to sit each glyph on a separate matrix to make movable type and the closeness desirable for a fluid reading forward motion. Often but not always inspired by handwritten models, it borrows shapes informed by the use of writing tools such as quill or nib pen. It aims at such legibility as to vanish behind the content of the text. Regular is the native or default rhythm of typography. Other shapes, inspired by calligraphy or lettering styles aim at adding another layer of meaning by association.



Fig. 55: Roman capitals engraved in the base of the Trajan column in Rome. 1 ancaster.ac.uk/ users/yorkdoom/ palweb/week02/ palwk2.htm Uppercase is the style of monumental inscriptions (figure 55) and, by extension, the style of formal documents, diplomas, charts. Monumental inscriptions were originally constrained by the tools used to carve stone, a realization that also inspired Edward Catich's hypothesis for the origin of the serifs (1968). They were labour intensive and therefore expensive, reserved for durable authoritative communication. Steven Connor makes the connection between the shapes and further textual modalities:

> 'Capitals enact power and pain, their angularity resulting directly from the difficulty of carving cursive shapes, and repeating the penetrative shapes of the stylus or chisel. The transcoding whereby large and uniform letter shapes are understood to represent increased volume, the raised voice which seems to want literally (in an unusually literal sense of that word) to impress its intent on the air, has become a standard feature of newspaper headlines.' (Connor 2021: 9-10)

In recent years, with the growth of digital communication and social media, the same 'raised voice' mentioned by Connor has jumped into the practice of using all-capital words or sentences in e-mails or tweets, which are routinely interpreted as the author 'shouting'. 'Capital letters derive much of their force from the sense, deriving obscurely perhaps from the memory of the resistant material into which they may have been incised, that they are words that are themselves pressing into something like material form. Despite their corporeal references to the head, the caput, from which human articulation issues, headlines and capital letters seem to enact a kind of autonomisation of sound, a message whose urgency precipitates a second, visible body, as though the letters themselves were all variations of that inflammatory shape we know as the 'exclamation mark', a sign which not only signifies exclamation but seems to image its cicatrising trace, like the scar left by a bolt of lightning.' (Connor 2021: 10)

Here, Connor credits the shapes with the power to evoke pain and tactile perception to the degree of flesh wound, sound, intention, urgency. He calls shapes inflammatory, as a stimulus capable of triggering the reader's immune system, capable of provocation.



Fig. 56: An initial, showing Jonah and the whale from the Evesham Psalter (Gray 1986: 113) Ornate letters (figure 56) are used for drop caps and are barely meant to be read. They require skill and patience to execute. They symbolically signify cultural sophistication by their mere presence, sometimes even obscuring the text and requiring the reader to guess their semantic value by contextual deduction.

By placing these few examples on a continuum of speed (figure 57), Blanchard proposes to associate shapes with a range of connotative dimensions. If 'grouped-individual' or



Fig. 57: Visual summary of Blanchard's understanding of speed in writing 'condensed-spaced' are purely descriptive scales, their association with 'cheap-expensive', 'personal-formal' and 'crypticloud' are definitely connotative.

Crossmodal correspondences constitute the concept that bridges the interpretative gap between visual sensations and visual perceptions, complex understanding of reading stimuli. Applied to typographic shapes, they open the possibility to finely associate design variations –such as those separating a regular from an italic– with connotative scales of the evaluative, potency or activity kind.



# 5.3.2. Graphology & sender stylistics

The term graphology has two distinct meanings, which are differentiated here by the use of G/g. The two meanings do not normally pose a problem since they are used respectively in two mutually exclusive contexts. In the context of linguistics, Graphology refers to the writing system of a language. Graphological analysis, however, is concerned with defining the minimal contrastive units of a visual language, usually defined as graphemes. The present research is also concerned with the definition of minimal contrasting units of a visual language however, these being non-verbal, the names grapheme and Graphology are mostly avoided. In contexts other than linguistics, graphology is the term popularly used to refer to the analysis of handwriting to determine the psychological characteristics of the writer.

The present section is concerned with this second meaning, the graphological conceptualisation of handwriting. It questions the pertinence of classical interpretations of handwritten letters to analyse what concepts, if any, could be transposed to interpret typographic letters.

The first observation is that graphology is oddly discreet in the literature around the semiotic expressivity of letter shapes. Considering the first meaning of the term Graphology and the common use of the second meaning, one could expect to see graphology appear in many interpretations.

Underware type foundry, that, among other things, develops typefaces mimicking handwriting, states in one of its booklets:

> 'Whenever we are writing something by hand, we can look at the result from two perspectives. We can just look at the text and read the words. Or we can look at the form of the writing as an illustration of the writer's brain. As something which is revealing someone's inner personality. Give somebody a pen, and ask them to write, and you will see what this person is really about.' (Underware 2018: 9<sup>th</sup> unnumbered page)

If some typographers intuitively recognise handwitten letters as expressing personality, graphology is not popular in academic publications. Apart from Gerrit Willem Ovink (1938) who used graphological categories with their specific vocabulary, researchers avoid referring to graphology. Could the poor academic status of graphology as a means to infer a scriptor's personality be an obstacle to the serious examination of the visual dimensions of writing?

Bringing the baggage of graphology of handwriting into semiotics studies of typography requires a few precautions. Indeed, graphology is not to be taken at face value. Margaret Gullan-Whur, in 'The function of the semiotic principle in establishing the claims of a pseudo or proto-science (graphology) to the status of empirical science' concludes that graphology has claims to the status of proto-science and still needs to establish itself as a science by submitting itself to stringent tests (Gullan-Whur 1994). Whereas, in a very complete article titled 'How Graphology Fools People', Barry L. Beyerstein (2002) reviews the claims and methods of graphology before concluding that it is a pseudoscience, a very static system denying scientific progress. In practice, some trust it and some do not, but it remains a matter of belief, not of science. Beyerstein argues that graphology is no more than a 'character reading method' (referring to the character of the reader, not to the letter shapes) that evaluates the similarities between writing and personality using merely the representativeness\* heuristic, first identified by Tversky and Kahneman in 1974. He points out that it justifies judgement of people's personalities based on their handwriting. Judgement that, in many cases, can sway an important decision such as in a recruitment interview. This, with no scientific support. Beyerstein remarks with indignation that such a judgement is comparable to discrimination based on arbitrary factors such as ethnicity and gender. As a divinatory art based on sympathetic correspondences ('like begets like'), it offers little scientific credibility. Yet, it has a certain recognition amongst the general public, which makes its misuse

\* representativeness heuristic: evaluation of the similarity between two things on the basis of their superficial resemblance to each other. highly dangerous, while also revealing deeply rooted sociological biases.

Developed during the 19th century along with phrenology and morphopsychology, graphology is an interpretative system based on the observation of the characteristics and patterns of handwriting. Once mainstream, graphology has since lost credibility and is now generally considered a pseudoscience that fails to reliably predict personality traits and job performance. However, the question could be framed differently. What if instead of predicting the personality of the scriptor we predicted the interpretation of the reader? Does it matter whether the interpretation is right? Or only if it is believed and reliably shared? In the case of the present research, it matters not whether graphology is reliable or valid in its predictions. The crucial element is that its main categories are widely regarded as intuitively pertinent. What is of interest is not whether the personality of the scriptor is as described by the graphologist. Rather, it is that the reader really does feel that the scriptor's personality is as described, irrespective of whether this is the case. The question asked by graphologists, 'What does the writing reveal about the scriptor?' is akin to the question asked here, 'What do readers read into letter shapes?'. They are close enough to justify examining the vocabulary and categories used by graphologists to describe what people see, intuitively or analytically, in handwriting.

Typography is a very particular (per)version of handwriting. It is formalised to the point of complete modularity: every letter can be combined to any other. However, even though modern tools allow the creation of new typefaces entirely disconnected from handwriting (or even from actual outlines, thanks to parametric type), most text typefaces have deep roots in handwriting. The first typefaces were modelled on the common scribe's hands of the 15<sup>th</sup> century and Gutenberg's Bible was meant as proof that a printed book could be as beautiful as a handwritten one. The first real difference between type and written letters was the constraints imposed on the shapes. Writing with prefabricated letters means that they need to fit together in any possible combination without any adjustment to the shapes other than a slight increase of the space between them. This constraint influences the shapes of typographic letters. The natural flow of forward reading motion is submitted to a steady rhythm of micro-interruptions (So-called script typefaces, mimicking handwriting, are not considered text typefaces and sit at the edge of the present speculations.), all letters are required to have compatible sizes and consistent stroke modulation. Therefore, a number of personal idiosyncrasies of handwriting that might be considered meaningful by graphologists, such as baseline variations, letter size variations or white space variations in general, are not relevant when observing text typefaces. These choices tend to be made by the type setter and remain constant throughout the text. However, the basic structure of the script bears the same elements as handwriting and can easily be analysed as a formalised kind of writing.

The graphological interpretation of handwritten signs is not a fixed system. It operates in two steps. First, it describes shapes, then it offers an interpretation. The graphological physical description of handwriting is concerned both with black marks (some significance is also attributed to variations of ink density) and white space. Early graphology methods were inductively derived by matching observations of handwriting traits to observations of character, a valid way to construct hypotheses if not to actually validate them. Over time, the complexity of the combinations of clues increased and the relative weight given to each element can vary with context, making interpretation increasingly subjective. Gullan-Whur notes that interpretation based on iconicity makes non-graphologist predictions match those of trained graphologists. 'Resemblances between the look of the handwriting and the state of affairs extrapolated from it are almost certainly culturally perspectival, and may have

many acceptable but contradictory interpretations.' (Gullan-Whur 1994: 272) She points out that features such as slant, size and spacing are the most reliably assessable and measurable traits of handwriting but that, in most graphological practice, all these have multiple interpretations. Even though only French, German and American methods were closely examined here, it seems pertinent to note that descriptions are chiefly concerned with the discrepancy with a given calligraphic standard. National differences remain noticeably marked in adults's writing. As a consequence, a sample of handwriting is described with better pertinence in the context of its own culture, when calibrated with the calligraphic models that formed it in the first place.

Fig. 58: Graphological interpretation of printing type (Ovink 1938)

Graphological scheme for printing types and decorative lettering. After Klages (modified).

1. Level of form (Formniveau)	1. Very high; 2. Fairly high; 3. Medium; 4.	Low; 5. Very low.
2. DUCTUS	1. Very high; 2. Fairly high; 3. Medium; 4.	Low; 5. Very low.
3. Rнутнм (Ebenmass)	Rhythmic: Low affectivity - Bluntness, Apathy	Unrhythmic: $\chi$ + Openness, Delicacy High affectivity $\ell$ — Flatness, Irritability
4. REGULARITY (Regelmässigkeit)	Regular-Preponderance + Will-power of Volition - Lack of Sentiment	Irregular-Preponderance of Sentiment
5. FULLNESS (Völle)	Full { + Phantasy, "Anschauungsvermögen", Imagination, Impressionability - Intellectual weakness	Thin $\left. \begin{array}{c} + & \text{Intellectual force} \\ - & \text{Lack of Phantasy} \end{array} \right.$
6. ENRICHMENT (Bereicherung)	Creative impulse $\rangle$ + Sense of beauty - Exaggeration	Simplification $\left\{ \begin{array}{l} + \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
7. Pressure	a) Volition. High $\begin{pmatrix} y \\ - \end{pmatrix}$ + Will-power $\begin{pmatrix} y \\ - \end{pmatrix}$ Heavy on hand	Low $\begin{pmatrix} v \\ - Lack & of will-power \end{pmatrix}$
(Druckstärke)	b) Sentiment, High $\begin{pmatrix} + \text{ Impulsiveness } \\ - \text{ Vehemence } \end{pmatrix}$ Bornness	Low $\begin{pmatrix} + \text{ Excitability } \\ - \text{ Lability } \end{pmatrix}$ Subjectivity to distractions
8. PASTINESS (Teigigkeit)	+ Sensuality, Originality, Attachment to the Earth, Instinct - Lack of spirituality and selfconstraint	Sharpness
9. WIDTH	Wide } + Unconstraint, Activity - Superficiality, Inaccuracy, Impatience	Narrow } + Self-constraint - Lack of directness, Anxiousness
	Long ( + Ambition	Short { + Content, Discretion - Indifference, Apathy
10. Length of descenders (D) and ascenders (A)	$\begin{array}{c} \mathbf{A} > \mathbf{D}; \\ \textbf{Mobility of} \\ \textbf{the Mind} \end{array} \left( \begin{array}{c} + \text{Capacity for enthousiasm} \\ \textbf{Abstract thinking} \\ - \text{Superficiality} \\ \textbf{Volatility} \end{array} \right)$	$ \begin{array}{l} D > A: \\ Lack of \\ Mobility of \\ He Mind \end{array} ( + Realism, Accuracy \\ Powers of observation \\ - Materialism, Hard-headedness \\ Lack of intellectual skill \end{array} $
	a) Volition. High + Activity - Unrest	Low + Tranquillity - Inactivity
11. Speed	b) Sentiment. High $\left\langle \begin{array}{c} + \text{Liveliness} \\ - \text{Excitement} \end{array} \right\rangle$	Low $\begin{pmatrix} + & \text{Equanimity} \\ - & \text{Bluntness} \end{pmatrix}$
12. Inclination	For the social sentiments of the social sentiments Capacity for self-delivery and enthousiasm — Rashness	Steepness + Preponderance of Intellect, Reserve —Coldness, Heartlessness
13. CONNECTION (Verbundenheits- grad)	Undisturbed connection + Powers of combination, Versati- lity of the mind, Systematic and speculative intellect - Poverty of thoughts, Dependence of judgment, Flight of thoughts, Incapacity for observation.	Gaps in the connection + Wealth of idea's, Independence of powers of observation - Lack of logical sense, Jumpiness, Lack of adaptability and abstraction
14. NATURE OF CONNEC- TION	Wire + Versatility, Adaptability - Suggestibility Lack of character. Mimicry	Angle
	Garland + Goodness, Sympathy, Unconstraint, Indulgence — Dependence, Instability, Suggestibility	Areade $\begin{pmatrix} + \text{Reserve, Distinction} \\ - \text{Lack of frankness, Conventionalism} \end{cases}$
PATHOS OF SENTIMENT	+ Capacity for enthousiasm Depth of sentiment - Exaltation	<ul> <li>( + Realism, Thoroughness</li> <li>( - Dryness, Severity</li> </ul>
15. SIZE PATHOS OF VOLITION	Large Large - Lack of powers of concentration, Absent-mindedness	Small ( + Powers of concentration, Precision ( - Narrow-mindedness
PATHOS OF SELF-ESTEEM	<ul> <li>+ Pride, Dignity</li> <li>/ - Haughtiness, Arrogance</li> </ul>	<ul> <li>Humility, Unpretentiousness</li> <li>Lack of faith, Anxiousness</li> </ul>

An early adaptation of graphological principles for typographic purposes was devised by Ovink (in *Legibility, atmosphere-value and forms of printing types*, 1938). He held Ludwig Klages (German philosopher and graphologist, 1872-1956) and his work in high regard. Ovink considered Klages's system the only acceptable one because it went beyond the 'signes fixes' of the French school to build the interpretation on combination of bi-valent features. Ovink therefore based his analytic grid on Klages's theories. For each attribute of the shapes, depending on the context and the analyst's intuition, the interpretation can be either positive or negative.

Rob Waller (1988: 34) suggests that, even though Ovink's results are now obsolete, the analytic scheme (figure 58) could be applied to modern typefaces. It is, for example, possible to guess how each dimension can affect a particular connotation and to devise 'recipes' for various connotations. For the sake of argument, we can extrapolate that a typeface perceived by the reader as displaying high competence would have high Formniveau (a "firm hand") and ductus, have a regular rhythm of shapes, some pressure (either bold or modulation), sharp contours, be neither narrow nor wide, have a moderate x-height, long descenders, upright verticals, regular in-strokes and, possibly out-strokes, be somewhat angular and of relatively small size (or be readable at small size). Whereas a typeface seen as displaying warmth would be more proportional than monospaced, present some irregularities, show some pressure or modulation, have relatively long ascenders, perhaps a bit of slant (even if Ovink remarks that speed and inclination can be determined for script types only), U shaped garland connections and a relatively large xheight. Figure 59 proposes two typefaces that match some of the criteria, tend to make competence look fairly compatible with warmth and underline that many more design aspects contribute to connotations than the ones described by Klages and Ovink.

A typeface displaying high competence? Pennypacker regular?

A typeface seen as displaying warmth? Bogart regular?

Fig. 59: Translating values into design guided by graphological concepts Designing a typeface that reads as both competent and warm would require careful balance and adjustment of each dimension. Ovink, analysing each typeface along the abovementioned dimensions, rated typefaces on their connotations of 'strength', 'economy', 'luxury', 'dignity', 'precision', 'hygiene', 'reliability' and 'comfort', thus operating a shift from perceived scriptor's personality to some general atmosphere value of typefaces. Whereas graphology claims to comment on a scriptor's personality, there is vagueness around what typographic shapes convey: if 'dignity', 'reliability' and 'strength' could refer to the scriptor, 'economy', 'luxury', 'precision' and 'hygiene' seem to point to connotations associated to shapes.

At first sight, it seems that very diverse interpretations can be attributed to the various printed traces. In fact, the table in figure 60 is a highly synthesised system for evaluating the atmosphere value of typefaces. Understanding the graphological principles underlying it is necessary to judge of its pertinence. The first item on the list is 'Formniveau', an abstract concept to describe the level of energy expressed in the shapes. Klages coined the name Formniveau to locate shapes on an axis between soul and spirit, between Dionysos and Apollo, between pleasure and rationality. It is intuitively evaluated by the graphologist depending on the level of constraint or freedom, and the energy expressed in the handwriting. It could be related to the similarly vague notion of 'tension' used in typeface design, often to qualify strokes with non-parallel inner and outer outlines. It could also be related to the completeness of strokes and the loosening or tightening of letter shapes.

Danièle Dumont, in Les bases techniques de la graphologie (inspired by the classic works by Jules Crépieux-Jamin publish from 1885 to 1930) details into 'genres' and 'espèces' the observable categories in handwriting. The 'genres' are very similar to the numbered items in the left column above, they constitute the observable aspects of handwriting considered meaningful parameters of the scriptor's personality. The 'espèces' are the possible values of each parameter. There is no absolute consensus on the number of genres and even less on the number of espèces since it is always possible to observe intermediary values but it is not always considered pertinent. Some genres, such as the description of the shape of a text's baseline are not very relevant in typography where, by construction, baselines are straight and evenly spaced. Yet, the impression made by a straight baseline remains pertinent in typography. A person's handwriting that displayed such consistency would be seen as having stamina, rigour, organisation skills, stable goals and good grip on one's emotions. Therefore, compared to handwriting, typography immediately gives a sense of the scriptor's competence.

Some genres, such as the organisation of space or connections between letters, intuitively bear meaning for typography in the same way as for handwriting. The following interpretations are extrapolated from Michelle Sardin (2010), Danièle Dumont (1994) and Jules Crépieux-Jamin (1929).

The balance of white and black space is a genre of utmost importance in graphology. In typography, space management is crucial too. It is, of course, a matter of typographic layout (Moys 2013; Waller 1987) but also a matter of typeface design. Even if the brain registers the black shape as the most important element, the white shape is perceived simultaneously and is arguably just as important, if not more, in the overall impression. Design students train their brains to look at so-called negative space and typeface designers are keenly conscious of the task of balancing black and white \* color/colour: the darkness of the type as set in mass, which is not the same as the weight of the face itself. The spacing of words and letters, the leading of lines, and the incidence fo capitals, not to mention the properties of the ink and fo the paper it is printed on, all affect the color of type.

\* justified text is spaced so the left and right sides of the text block both have a clean edge. With type, it requires to distribute the spaces between words. space consistently and in the right proportion for their design brief. Symbolically, graphology equates the black marks as the conscious parts of the mind and the white space as the unconscious. The balance between black and white is revealing, a preponderance of black is perceived as a lack of perspective. The white space in general expresses a request for clarity, perspective, professional and social distance. The word-space holds a symbolic role of indicating the comfortable distance to others. Oversized word space tells of a lack of warmth and distended interpersonal relationships. In typeface design, the word-space is conventionally set to 'slightly more than a quarter of the em space' (Karen Cheng 2006: 224). It can be adjusted by the designer for effect but students are warned to look out for so-called gutters running vertically through the printed text making it look broken and uneven. In graphology, these gutters are read as an irruption of the unconscious through the deliberate verbal communication. Both in graphology and typography, the aeration of the text, providing a balanced typographic color\* (or colour, an even grey) is considered a sign of harmony. Line spacing contributes to a perceived sense of perspective up to the point where excessive spacing makes the text look elitist and cerebral, whereas compact line-spacing speaks of concentration but also possible closure to others.

The white space around the writing (the margins) represents the relationship to the environment and its regularity stands for the respect of conventions by the scriptor. Each margin has its own symbolic expressivity. The top margin represents the space given to authority: too much space is crushing the scriptor, too little betrays rebellion against authority.

The left margin shows the scriptor's connection to the past and the space they request before jumping into action. Unjustified (uneven) margins show emotionality. Hence, in typography, a higher degree of formality is deduced from texts justified\* than in texts left ragged on the right side. The ratio of white space reveals boldness when the right is smaller, but caution when the text is shifted to the left by a smaller left margin.

apprehension renunciation recoil repression isolation mood	superego idealism aspirations spirituality dreams speculation contemplation psyche spirit	faith fanatism ambition pride revolt courage fighting spirit aggressiveness indiscipline
the me restriction brake conservation introversion interiority passivity femininty stinginess	the self adaptation sociability everyday actions realisation	others momentum activity world future virility expansion generosity enthusiasm
selfishness grabbing stubornness capture resistance	the id instinct, roots materialism sensations positivism impulse sexuality physical life	affirmation obstination pessimism relentlessness

#### Map of the writing space

Fig. 60: Consolidated interpretations of the writing space from Sardin (2010), Dumont (1994) and Crépieux-Jamin (1929)

The box defined by the digital writing space of each letter could therefore interpreted as holding meaning along two axes. The horizontal axis progresses from the past on the left to the future on the right, along with the direction of writing, it symbolises action and achievement, to have. The vertical axis reveals the affirmation of being, with materiality and physicality below the baseline, sociability in the middle and thought, aspirations, and spirituality in the upper part of the writing space. A tendency to distort letterforms towards one of the nine zones thus defined can be interpreted according to the concepts in figure 60. When letter shapes tend to occupy too much of a certain section, it speaks of the scriptor as being poorly adjusted. Too much towards the top betrays exaltation or loss of reality that can lead to poor adaptability. Too much towards the bottom also shows poor adaptability but, this time, by lack of ideals. Leaning to the left shows withdrawal and closure to others, defence and sulkiness, self-centredness and lack of spontaneity. Going with the flow of writing by leaning to the right shows openness to the external, physical world. It also forms a propulsive script that expresses speed, as shown in the section on metaphors. The degree of freedom of the movement and its easy progression speak of the vital force of the scriptor and their level of organisation, while when the forward motion shows the irregularities of an effervescent movement, it betrays impatience and hypersensitivity.

The relative size of the letters stands for the ego and self-importance, in text typography, it is usually consistent throughout a typeface. The verticality of the shape contributes to the affirmation of the self, with the top part of the letter representing the spirit and the bottom part of the letter representing the body. Horizontality of the shape speaks of realisation of the self.

Another aspect of graphological analysis pertinent for typographic expressivity is that of connection, flow and modulation. Typographic letters are mostly separated from each other. When certain combinations of letters form a blacker zone of ink on the page, ligatures are designed to keep the pace without overcrowding the space but they remain the exception. However, separated does not mean free-standing. In many typefaces, the shape of the letters is deeply rooted in a calligraphic model. Despite a white space between letters, their connection can still be perceived. Hence the saying, among typeface designers, that the aim is 'to create a beautiful group of letters and not a group of beautiful letters' (attributed by Matthew Carter to Mike Parker in Unger 2018: 99). In the former, the connections are consistent throughout the typeface, materialised by the shapes of serifs or in-strokes. In graphology, the continuity between letters reveals a thought-action sequence, internal cohesion, interpersonal connections and past-present link. The shape of the connections is also deemed meaningful: when out-strokes and in-strokes connect in an arcade shape  $(\cap)$ , they show protectionism and when they connect in a garland shape  $(\cup)$ , they point to connectedness and receptivity. A rounded garland is a sign of conciliation and wisdom, a deep one, a sign of exclusivity and selectivity.

The pen flow and pressure of graphology, which translate into weight and stroke modulation indicate libido and dynamism when fast, ease or stiffness when more or less regular. When thicks run from top to bottom in tension and the thins run from bottom to top in relaxation, the ductus\* shows balance and harmony. The thins evoke a cerebral refined mind and the thicks a sensual grounding and possible engorgement. Tapered shapes speak of sensuality and pressure indicates emotional energy. Generally, modulation thick-thin represents the mind-body relationship, angularity and roundness stand respectively for male and female identification.

Slant expresses willingness, but upright points to emotions being under control. Hence, perhaps, Gerard Unger's personal comment to his Reading University students that a good text face was upright with a slight wind in its sails. The simplicity of the forms makes one look sincere. Clarity and precision show mastery; people who do not have clear handwriting are suspected of not being able to explain. On the other hand, ornaments on caps betray social ambition, reversed ductus\* reveals originality or indiscipline, weird writing can be interpreted as a sign of vanity or even alienation. Calligraphic shapes, close to the model, speak of lack of personality and conformism. But stiffness of form makes one look uncompromising.

\* ductus: movement or path made by a tool when writing. For graphologists, small irregularities are a positive sign of a person's sensibility and emotivity but big irregularities show instability, point to problems, absences and disconnection. However, distortions of shapes can come from tiredness, hurry, depression, old age, and sickness, making interpretation more hazardous. Still, when lines that should be straight are winding or counters that should be round are flattened and ovalised, it is generally interpreted as expressing frustration and emotional suffering.

Written matter gives the reader the impression of revealing personality traits of the scriptor, making the documented intuitions of graphologists relevant as verbalised clues of other readers' perceptions. Graphologists read into letter shapes indications about levels of energy, authenticity, flexibility, imagination vs. rational thinking, beauty and effusion vs. order and simplicity, strength vs. fragility, concentration vs. distraction, sensuality vs. intellectualism, focus, anxiety, mastery, childishness, organisation, gestural economy. Despite the complexity of the analytic system, typeface designers can therefore use graphological clues to evaluate the atmosphere value of shapes. As Zachrisson (1957: 20) suggests, in spite of typefaces being limited by conventions and traditional categories, there are many possibilities of creating type designs that are able to speak as individual voices, loud or low, sweetly, precisely or appealingly.



### 5.3.3. Noemata

Fig. 61: 'Letters are a lot like people, they come in all shapes and sizes, with different personalities and charms and foibles, but all with the same basic reason and purpose for existence.' (Dair 1967: 17) The phenomenon of attributing personality to typefaces, as reported by several studies (Bartram 1982; Rowe, 1982; Brumberger 2003a; Shaikh 2007; Hazlett & al. 2013), presents an intuitive leap that demands problematisation. 'The mind – especially System 1, good at quick automatic processing (see section 4.1.1.) – appears to have a special aptitude for the construction and interpretation of stories about active agents, who have personalities, habits, and abilities.' (Kahneman 2011: 29). Typefaces may be active agents, however their 'personality' must be of a metaphoric kind (figure 61).



Beyond 'the quality or state of being a person', Merriam-Webster online dictionary defines 'personality' as:

> 'a: the complex of characteristics that distinguishes an individual or a nation or group; especially: the totality of an individual's behavioral and emotional characteristics

b: a set of distinctive traits and characteristics: the energetic personality of the city' If the word 'personality' can apply to non-human entities, 'personality traits' seems a better wording. Recent studies tend to mention 'personality traits' rather than 'personality' (Shaikh & al. 2006; Šilić & al. 2009; Hazlett & al. 2013; Lieven & al. 2015). It is also better than 'anthropomorphisation' that implies a human-like behaviour and requires the attribution of a human body (sometimes, by extension, an animal body). In any case, typefaces have a body (figure 62: the vocabulary used to describe shapes often refers to body parts.



Fig. 62: Type nomenclature, Printing Types, (Updike 1922) cited by Tetenbaum, B. (2012) Setting Type By Hand, Letterpress Commons. Available at: https:// letterpresscomm ons.com/settingtype-by-hand/ ) A type 'face' can have a 'body', 'ears', 'shoulders', 'feet', to name a few. We intuitively apply morphometrics, the quantitative analysis of form, to inanimate objects, whether pertinent or not. This type of projection may contribute to explain the personification that happens when readers interpret shapes as sender stylistics and personality.

Echoing the title of Ladislas Mandel's book *Ecritures, miroir des hommes et des sociétés* (*Scripts, mirror of men and societies*, 1998), the mental image one constructs of a typeface personality points to a two-dimensional mirror image of a personality, rather than a three dimensional person. Here, the concept of 'noema' (plural 'noemata'), borrowed from phenomenology, can be of use.

Sociologist Edmund Husserl gave new meanings to the greek word  $v \acute{o} \eta \sigma \iota \varsigma$  (noesis) in Ideas: General introduction to pure phenomenology (1931) proposing to distinguish the concept of 'noema', what is perceived, from that of 'noesis', how it is experienced. Phenomenologist Aron Gurwitsch's re-interpretation of Husserl's concept of noema allows us to define typeface personality as just and only the part of the speaker that is perceived:

> 'In all external perception, there is always more to the object than is contained in the noema. There is an excess, as it were. Thus Aron Gurwitsch interpreted the noema as the object itself, the object itself as seen from a certain perspective, or perhaps a part of the object, for example the tree as perceived. Gurwitsch tends to think of the object as an assembly of noemata; thus when we grasp a noema we grasp the object in part, as it were. For Gurwitsch, the object is a series of noemata and nothing more.' (Moran 2002: 160)

Typography, as a trace of human activity seems to be interpreted as a noema, as the part of the author that is given to be seen, even allowing us to identify them. It is not a living person, just the shape of its trace. For linguist David Crystal:

> 'Graphic substance, likewise, has a person- or group- identifying capability. Thus, as we all know, we can recognize someone by their handwriting and many groups or products by their characteristic typography (e.g. newspapers). It is not so much what they are writing about, or even the way they are writing about it, but the way that their written language looks, while writing about it, which is the thing.' (Crystal 1997: 12)

Defined as such a thin slice of reality, it would be misleading to attempt to make sense of the personality emerging from phenomenological observation within a theory borrowed from Psychology; there is no behaviour to be predicted of a noema, what you see is what there is. The noema instead constitutes a unit of interpretation, itself a juxtaposition of design dimensions. This juxtaposition takes various names depending on the discipline: schema, pattern, genre, stereotype, etc. Beyond the question of how to name it, this pattern is an interesting unit of information because it is not just unique and personal, it is widely shared, it has the stability of a social, cultural object. It manifests repetition in typographic behaviour and therefore some kind of meaning, whether conscious and rational or not. For Japanese art historian Soetsu Yanagi (2017), the beauty of everyday things is revealed in the power of patterns to guide our perceptions of nature by revealing its laws. 'Pattern is the conveyor, the transmitter, of beauty. Good patterns teach us how to view nature, how to perceive it. Without patterns, our perception of nature would be far more nebulous and unclear.' (Yanagi 2017: 77)

> A good pattern, while inherently the product of human observation and skill, describes and makes visible a natural appearance, mapping on the laws or nature.

Typefaces, as noemata, constitute a particular kind of pattern. While not limited to text typefaces, the curly brackets of the 'Field guide to typestaches' (figure 63) illustrate well the potential of the shapes to contain a figure, a schema, a pattern and to evoke personality. Catherine Emmott, Marc Alexander, and Agnes Marszalek in a chapter called 'Schema theory in stylistics' (In Routledge Handbook of Stylistics, 2017) explain:

> 'A schema contains common default information which aids comprehension by allowing the reader to extrapolate details which are either not mentioned at all in a text or which are not fully specified. Authors stipulate only some elements, and readers easily comprehend such texts by uniting these elements with their appropriate generic knowledge from schemata. These elements therefore provide cognitive support for the default inferences readers make when they process language, and enable a reader to fill 'gaps' in the information given in a text. Schema theory is important not only because it explains a central mechanism by which all reading takes place, but also because 'special effects' can be created by an author through the subversion, exploitation, alteration or violation of a reader's schema knowledge.' (Burke 2017: 268)

Emmott, Alexander and Marszalek credit readers with the capacity to intuitively connect visual and linguistic elements to build complex mental representations. This capacity, in turn, allows the authors, or designer in the case of the Field Guide to Typestaches, to share only the essential necessary information, leaving to the viewer the task of metaphorically connecting the dots.
The field guide to typestaches (figure 63) (Weeks 2010) invites the viewer to associate curly brackets in various fonts, rotated 90 degrees left or right, and their matching typeface names with the visual simplification of moustaches.



Fig. 63: Field guide to typestaches by Tor Weeks (2010) The curly brackets are used as synecdochic clues with only 'Mr.' in front of the typeface's name to indicate that they represent moustaches standing in for male characters, leaving to the viewer's mind the task to leap between concepts and infer connotations of efficiency, elegance, arrogance, simplicity, etc. from typographic curves. It invites the viewer to feel the sensual dimension of the shapes. It also demonstrates the importance of variations of stroke modulation and general thickness and also the importance of the roundness or sharpness of curves. The poster features a few text typefaces and several more that would barely, or at all, be suitable for text. It does so in a context of display and at display size, it remains nonetheless a good invitation to look closely at a typographic glyph to get a feel for the extra bit of information its shapes can carry beyond its strict linguistic function.

Even if typeface designer Victoria Rushton makes a good case against tagging typefaces with gender stereotypes (Rushton 2015) the process that converts visual cues into evaluative judgement represents what sociologists call typification (and, alternatively, eidetic reduction or reduction of reality): the idea of creating typical social constructions based on standard assumptions.

From these typifications of the social environment emerge expectations. It ensues that expectations are usually built according to types, standardising and spreading the meaning, in spite of the absence of fixed categories. This means that we do not encounter every aspect of reality with fresh eyes but rather through pre-formed categories or, since writer, reporter and political commentator Walter Lippmann's first use of the term in 1922, stereotypes:

> 'The attempt to see all things freshly and in detail, rather than as types and generalities, is exhausting, and among busy affairs practically out of the question [...] Instead we notice a trait which marks a well known type, and fill in the rest of the picture by means of the stereotypes we carry about in our heads.' (Lippmann 1922: 88-89)

By serendipity, the term *stereotype* originally comes from typography and refers to the 19th century use of a cliché (mould of a page of type) to reprint a text. Lippmann would have been familiar with the typographic lingo of newsrooms and repurposed the concept of a stable set of properties. Bringing it back to typography, typefaces, as fixed sums of design decisions, sometimes end up carrying stable cultural meaning. In the same laborious process by which Kahneman's System 2 teaches System 1 to read, it generates interpretative stereotypes of the shapes themselves. These stereotypes are subjective interpretations shaped by a shared culture. They are at play every time a reader's System 1 encounters letter shapes and every time a type designer's System 2 labours at producing them.

If typefaces are by default interpreted as sender's stylistics and invested with personality, it would make sense to consider models of personality such as the Myers Briggs Type Indicator. However, if unlike people, type itself has no personality, the only inner working is that of the reader. What is needed instead is a model of the way people make sense of the patterns they recognise and interpret as personalities.

For psychology professor Susan Fiske and marketing consultant Chris Malone, people, products and companies make emotional impressions (Fiske & Malone 2013). Expanding on research on stereotypes by Susan Fiske, Amy Cuddy, Peter Glick and Jun Xu (2002) and subsequent research by various people (Fiske et al., 2002; Cuddy, Fiske, & Glick, 2007; Caprariello, Cuddy, & Fiske, 2009; Cuddy, Fiske, Kwan, Glick, Demoulin, Leyens, Bond, et al., 2009; Asbrock, 2010; Asbrock, Nieuwoudt, Duckitt, & Sibley, 2011; Fiske and Taylor 2013), Fiske and Malone reach the conclusion that humans developed through evolution the intuitive ability to make rapid and fairly accurate judgements about people's intentions and their capacity to carry out those intentions. They call it the Stereotype Content Model (SCM). The stereotype content model (figure 64) is a psychological theory that explains how individuals form stereotypes and how those stereotypes influence their judgments and behaviours towards members of certain social groups.

The model posits that stereotypes are formed through exposure to consistent information about a particular group, which leads individuals to form stereotypes about that group's characteristics, abilities, and behaviours. These generalisations are then used to make judgments and predictions about members of that group, leading to biased treatment.

Warmth Assessmen	it	Competence Assessment		Emotional Response		Behavioral Response
Warm	+	Competent	>	Admiration, Pride	>	Attraction, Affiliation Alliance
Cold	+	Competent	>	Envy, Jealousy		Obligatory Association, Potential Sabotage
Warm	+	Incompetent	>	Sympathy, Pity	>	Patronizing Help, Social Neglect
Cold	+	Incompetent	>	Contempt, Disgust	>	Rejection, Avoidance

	Low Competence	High Competence
High Warmth	Older, disabled	In-group, allies, middle class
	Pity	Pride
Low Warmth	Poor, homeless, immigrants	Rich, professionals
	Disgust	Envy

Fig. 64: Stereotype Content Model (Fiske & Malone 2013:26-27) The model also suggests that stereotypes are often reinforced by societal norms, leading to their persistence and perpetuation. At their core, these are judgements about warmth, on a scale from hostile to benevolent, and about competence, on a scale from clumsy to efficient: is this person ill meaning? Are they dangerous? Similar patterns of warmth and competence judgement emerge from dozens of researches using this model in other countries. We judge others instantly along these dimensions of social perception and, according to Fisk and Malone, we apply it to all our relationships, including relationships to inanimate objects, 'anything that acts or seems to act of its own free will' (Fiske & Malone 2013: 22) and commercial transactions.

> 'A person who demonstrates both warmth and competence inspires feelings of trust and admiration within us, motivating us to seek a continuing relationship with that person. One who displays competence in the absence of warmth, however, tends to leave us feeling envious and suspicious, while someone we perceive as warm but not competent stimulates feelings of pity and sympathy. A person who

exhibits low levels of both warmth and competence often provokes feelings of contempt and disgust.' (Fiske & Malone 2013: 2)

Because this ability was critical to our distant ancestors for their survival, their brains developed, by natural selection, deeply programmed social circuitry that we still spontaneously use in human interactions. Susan Fisk's studies and those of other researchers showed that as much as 82 percent of our judgement of others can be predicted by perceptions of warmth and competence (Fiske & Malone 2013: 23). They explain:

> 'Studies show that of the two dimensions, warmth comes earliest and carries more weight in our perceptions. We are highly sensitive to warmth and its absence. Studies show, for example, that you are judged for your trustworthiness within a split second of someone's seeing your face. Moments later, you'll be judged for your competence. Even seemingly minor comments, actions, or appearances can suggest negative intentions that set off emotional alarm bells heard only in the unconscious.' (Fiske & Malone 2013: 23)

In human interactions, studies of warmth and competence are conducive to the prediction of emotions and subsequent behaviours. For example, Alexander Todorov et al. (2005) published a study titled 'Inferences of competence from faces predict election outcomes' in which they show the performative effect of stereotypes. For Fiske and Malone, 'Brands are people too' (Fiske & Malone 2013: 27). By a process of projection of sender's stylistics, a reader's emotional response to corporate written communication influences behaviours.

In the context of film, a genre is a category or type of movie (comedy, drama, action, horror, etc.) that is identified by its characteristics and conventions: a comedy might be expected to be humorous and lighthearted, while a horror movie might be expected to be suspenseful and scary. Similarly, in typography, genres are conventions around graphetic profiles that can help guide the reader's expectations and guide typeface designers to create type families that will be well-suited for particular purposes. Typographic genres include news, medical reports, fine prints, urgent product recall, advertisement, etc. They require specific levels of attention, reading strategies, being saved or thrown away: they define typical combinations of content in typical contexts with a typical reader response. Genres constitute the ultimate agglomerate of typographic connotations as can be argued both from the perspective of multimodal analysis such as that by John Bateman (2008) or from the perspective of typographic design as shown by Rob Waller (1987).

Connotations, multiplied by the number of readers, operate as a cultural units. Genres are patterns that spread in the consciousness of a population by temporary convergence of re-production of typographic combinations. They contribute to the branding of corporate identity and lead us in the interpretation of values and intentions potentially embedded in the visual identity. Fisk and Malone affirm that we judge brands, companies, and institutions the way we have judged people for millennia: fast, categorically, and on very individual basis. They invite us to 'Consider first that every corporation is literally a body (corpus), and as customers, we perceive them as acting with intention and volition, just as we perceive other people.' (Fiske & Malone 2013: 27) Conscious of the typographetic potential of letter shapes, graphic designers such as Matteo Bologna advise companies to pay close attention to their branding and to avoid the temptation of one-size-fits-all blandness:

> 'The voice of a company should be as unmistakable as the voice of an actor. Try to imagine Matthew McConaughey speaking with the the same voice as Robert de Niro. That would be really weird. Not a good fit. Though that's actually what's happening in Italy, because since all the movies are dubbed by the same three people from the union, you really have Matthew McConaughey speaking with the same voice as Robert de Niro. And this parallel reminds me of why I hate Helvetica. It's exactly the same thing. The indiscriminate use of Helvetica is like using the same voice-over actor for everything.' (Bologna 2016)

If the mere aspect of typographic communication triggers judgements and emotions relative to people and organisations, analysing graphetic profiles to reinforce the communication of values might just be worth the extra effort. Designing for high warmth and high competence could foster emotions of admiration and pride, possibly triggering behaviours of attraction and affiliation. Warmth is measured along adjectives such as kind, friendly, good-natured, sincere, honest, moral, trustworthy, helpful, tolerant, fair, generous and understanding.

Warmth (Evaluation)	Competence (Potency)	Activity
kind, friendly, good-natured, sincere, honest, moral, trustworthy, helpful, tolerant, fair, generous , understanding	efficient, skilful, capable, clever, knowledgeable, creative, intelligent and confident	speed, excitement, calm, enthusiasm, passivity, vigour

Fig. 65: Possible dimensions of warmth, competence and activity Placed in the framework of Semantic Differential, as summarised in figure 65, these dimensions would belong in the Evaluation category. Competence is measured along adjectives that would belong in the Potency category: efficient, skilful, capable, clever, knowledgeable, creative, intelligent and confident. And again, Activity is measured along concepts of speed, excitement, calm, enthusiasm, passivity, vigour, etc.

Choosing the variables carefully is no guarantee of an accurate model of reality. In fact most of these categories are loosely defined, for both typographic or semiotic variables. They are not always mutually exclusive. Semiotic variables can even refer to very different levels of consciousness. Bridging the gap between design features and connotations may require inventing a scheme layering dimensions as varied as the elements that constitute the semiotic moment of the typographic meme. Assuming the construction of connotations means giving credit to our human desire and capacity to find symbolic meaning everywhere, we would have to construct variables with large amounts of creativity and symbolism in an attempt to imagine all the associations readers could make with particular shapes. Johanna Drucker reaches the same conclusions about graphical forms in general (not typefaces in particular) in *Graphesis, Visual Forms* of Knowledge Production:

'At the far edge of speculation, we can approach the analysis of graphical forms expressing interpretation through a poetics of relations, with its combination of inflected values and attributes— of hierarchy and juxtaposition, entanglement and embeddedness, of subordination and exchange, and other properties [...]' (Drucker 2014: 53-54)

As Steven Connor suggests in this comment about the associations one might make in connection with italic:

> 'Unlike bold face, which, as its name suggests, is straightforwardly assertive, and implies increase both in stress and in volume, the italic is simultaneously conspicuous and sinuously confidential. Where bold face looks you brazenly in the eye, italic takes you aside. The tilt of italic implies the lilt, or lifted eyebrow, following Emily Dickinson's hint to 'Tell all the Truth but tell it slant' (Dickinson 1960: 506). The italic has the audiovisual import of wryness, the inflection of inflectedness, or the sense that there is more here than meets the eye, or indeed ear. To enunciate the italic is to attempt to impart the sense of unspoken import or inclination given by what is a scriptive gesture: even though, when we read the italic on the page we are enjoined to imagine it as a sort of visual intonation, a hearsay or hear-see.' (Connor 2021: 9)

Connor credits italic with more than a contrasting power. It conjures voices, body language, humour, closeness, complicity, trusting the reader with the complete interpretation of the message. The diversity of possible interpretations points to the need to be creative in defining variables and setting up experimentations. And finally, some design variations may also turn out to be less relevant or even 'empty signifiers' (Chandler 2017: 90) and simply mean different things to different people.

When encountering new typographic memes, we derive denotations and connotations from the integration of our

sensory experience with our cultural horizon. The functions identified by Mark Lemon (2013) may all be perceptible separately or layered. Denotation of a typeface's means of production, iconic typographic decoration, sender stylistics, historical connotations and values can be conveyed by a process of integration of increasing abstraction. Perhaps the whole range of interpretations is available in all sizes, with various degrees of intensity, whether they are intuitively derived from the physical apparatus we use to perceive or integrated from an inner memetic landscape of previous experiences and associations.

Interpreting typographic forms as traces of human intentional activity leads readers to sensations such as kinetic feeling and projection of personality traits and metaphorical symbolic constructions. The processes unfolding in the semiotic moment of integration are complex and influenced by many dimensions of the context, making the unpicking of correlations very uncertain. Studies conducted in diverse domains indicate that we tend to respond to objects in ways that pertain to categories of Evaluation, Potency and Activity as defined by Osgood et al. (1957) Whether referring to the speed of writing or other characteristics of handwriting, the syneasthetic and metaphoric interpretation we form of handwriting may be relevant to the evaluation of typographic connotations and their affiliation of categories of Evaluation, Potency and Activity.

Our interpretation of Sender Stylistics may include perceptions of warmth and competence potentially capable of triggering emotions. These interpretations can be used as guidelines to define connotations as dependent variables for experimentation. However, to explore how design decisions affect the rating on the Semantic Differentiation scales requires first taking a closer look at those design dimensions, their internal logic and expressive potential.





### 6. Design – Independent variables



Fig. 66: Sections developed in chapter 6

We have examined a range of possible dependent variables, the kind of cognitive response typefaces can produce in readers. To attempt to find correlations between typographic variations and their connotations, it is important to build experimentation on sound independent typographic variables too and, therefore, to finish with a few considerations about typeface design. As much as the chapter 5 on connotations is intended for everyone, including designers, this chapter 6 on design is intended for researchers of all horizons who want to use typefaces as variables without any particular prior typographic knowledge. This is not a basic general course in typography but some specific considerations that strike me as missing from the research literature: what qualifies as a typographic variable and how to make it vary in a typographically relevant way.

This chapter starts with an outline of the designer's freedom space as defined by the design brief and its constraints. By determining a large part of the design decisions, the constraints structure lasting typographic genres. It continues with a survey of the resources available to vary design features systematically. And this chapter closes with a general framework for thinking about typographic connotations.

I hope that the following pages will make researchers aware that typefaces are the product of multiple design decisions.



#### 6.1. Typoiesis

Typeface design practice is a good place to identify elements of design that matter in the evaluation of expressivity. What is the typographic variable, how do we identify it and how can we handle it? The following explanations aim at outlining the typeface design process in a way that points to the dimensions that might be relevant for the consideration and potential measurement of typographetic meaning.

How does the materiality of the typographic signifier develop? It responds to multiple pressures, in particular the constraints of the brief and the creative freedom of the designer, these two kinds of pressure being often assumed to pull Bézier curves<sup>1</sup> in opposite directions. Typeface design is practiced in different contexts. Some projects aim to find solutions to concrete technical problems, whilst others have a strong artistic dimension. Most projects fall somewhere between these two poles and require both an awareness of the constraints and an eye for harmony. The practice of typeface design offers some perspective to pick out how much intention can be embedded into the shapes.

'The term practice derives from the Greek word '*praktikos*' pertaining to action. That which is practical is that which relates to action. The practical was distinct from the theoretical. The practical pertained to action. The theoretical pertained to thought. Related words and concepts included '*praxis*', '*poiesis*', and '*phronesis*'. '*Praxis*' referred to doing, performing, and accomplishing, that is, to practical knowledge and to applied expertise. '*Poiesis*', was the knowledge needed to make something, in contrast with a praxis, a doing. '*Phronesis*', meant the practical knowledge needed to address political or ethical issues.' (Friedman 2000: 24)

Poiesis, the knowledge needed to make something, refers to the process of creation itself. Therefore, I propose to distinguish here the **'typoiesis', the creative process of typeface design**, from the aspect of the praxis that is constrained by the design brief. This distinction is what permits the identification of the expressive dimensions.

1. Bézier curves such as the curves, points and handles defining the liminary ampersand of this chapter Typoiesis is the integration of the concept and the execution, the materialisation of an intention. At its best, typeface design is a kind of non-linguistic thinking. The process of bringing a typographic meme from the wet (see section 1.1.) space of a designer's mind to the dry space of a drawing, a computer file or metal matrices. It mirrors the semiotic moment of integration of the sign by the reader. This process happens upstream of the reception by readers but is formed by all the previous experiences of the designer, their habits of paying attention and noticing details. To paraphrase the instructions of advertising copywriter Thomas Kemeny, the trick of typoiesis is to feel something then shape it to be felt by someone else (Kemeny 2019: 46). This makes sense in a context of art where one has a vast freedom of expression; it is less obvious but still happens within the narrow constraints of typeface design, hence the tongue-in-cheek hand-written (rather than typed) comment of designer Alan Fletcher in figure 67.



Fig. 67: The art of

looking sideways

(Fletcher 2001: 351)

design decisions that derive directly from the brief. Designers evolve their workflow over many projects and eventually follow very idiosyncratic procedures, making generalisations difficult. Figure 68 shows a slide presented by typeface designer Nina Stossinger to illustrate the creation process of her typeface Ernestine.

The straightjacket Fletcher (2001) refers to is the set of

Fig. 68: Summary of the design workflow on her Ernestine typeface by Nina Stossinger, TypoBerlin 2012, 'details omitted for clarity'

The constant testing feeds back to more research, more drawing, more spacing and more kerning, eventually leading to mastery.



The following considerations are therefore very personal and constitute what has emerged as significant through my own practice and informs my understanding of the impact of shapes on typographic expressivity.

#### 6.1.1. Design constraints

Drawing pretty letters can be a goal in itself but designing a typeface requires a brief, and a functional brief carries with it the answer to many a design question. It starts with a genre of publication for which the typeface is to be optimised. Research into the documents of the genre allows the compilation of a list of desirable features and often provides some existing typefaces to outline and illustrate the P's and Q's of the genre. The designer saves time by deciding early on what the character set is to include, considering diacritic marks, punctuation, symbols and figures of all kinds.

#### Fig. 69: Empathic Memoing (Harkins 2018: 188)

Different genres of documents will require different kinds of typographic hierarchy. The character set will therefore take



Typical non-exhaustive decision consideration for lowercase n (precedent construction memo)

- 1 Stroke/stem width
- 2 x-height relative to baseline
- 3 Extention beyond x-height for curved elements etc. (over-shoot)
- *4 Quality of outline (smooth, rough etc.)*
- 5 Width of counter (frequency between uprights)
- 6 Connection of curve to upright/width of Thin stroke/height of join relative to upright
- Modulation of curved stroke (stress)
   7a Attributes of outside curve (position of curve peak throw, relative to uprights)
   7b Attributes of inside curve (static/dynamic arch)
- 8 Connection of curve to upright/width of Thick stroke/height of join relative to upright
- 9 Attributes of top of terminating upright relative to curve (cut-in etc.)
- 10 Attributes of top serif (flag serif etc.)

#### 11 Serif style/kind

11a Termination and depth of serif
11b Attributes of serif join
11c Attributes of serif base (flat, cupped etc.)

- 12 Serif length/position left and right
- 13 Left side-bearing (spacing)
- 14 Right side-bearing (spacing)

different directions if it is intended for complex typesetting such as mathematics or dictionaries. The final use of a typeface is also decisive in defining its vertical proportions.

Keeping track of the design decisions in a systematic way may help in the consideration of their connotative effect. Michael Harkins, for his thesis *Contemporary processes of text typeface design* (2018) interviewed leading experts in the field. He provides a visual summary of the multiple dimensions considered at the initial stage of conception of a typeface (figure 69).

Harkins explains that the decisions made designing the letter n –a common starting point to building a character set– become 'constructed precedents', impacting other lowercase letters if the typeface is to show enough design consistency for typesetting continuous text. The order in which these decisions are made is only indicative since several iterations are often necessary to achieve an adequate compromise between legibility and expressivity. The following comments are linked to the design decisions as listed in Harkins's Empathic Memoing (ex: EM 1 for stem width)

The x-height (EM 2) is a function of the size at which the typeface will be read; it determines the space that ascenders and descenders, and capital letters, can take up. Dividing the character space around baseline and x-height, giving every mark its necessary vertical zone sets the vertical metrics.

The final rendering in high or low resolution impacts the range of possible stroke modulation (EM 6 & 7) and the relative importance of design details. The reading size also determines the limits of stroke modulation. Too fine a stroke would create a sparkly effect in smaller sizes and disappear in caption size. Usage partially determines the possibilities for variation in character width (EM 1/5/13/14). For example, monospace typefaces are used for code, machines and environments where it is crucial to be able to predict the total length of the text.

Only once these basic constraints are determined is it useful to start drawing. The design of letters can happen in a range of ways, with various tools, at various sizes, by writing, drawing or by assembling modular parts (Unger 2018: 97). However, the design intention emerges with more clarity on paper where one can draw globally, since the manipulation of whole shapes is difficult on font editors and the risk of fussing about on details prematurely is significant. Once a basic set of letters is put together, the different elements of a typeface have to be evaluated side by side for coherence, the regular with the bold and the italic, the small caps with the lower-case letters, the Latin with other scripts, etc.

Finding such an equilibrium makes it almost necessary to tone everything down for acceptability. As discussed in section 2.2., convention determines that typefaces for continuous text reading are not supposed to draw attention to themselves. With limited scope for overt expressivity text typefaces tend to be conservative by construction. The typeface is now in what Alan Fletcher (2001:351) calls a 'straightjacket'.

The designer still has room for typographetic expressivity, confined to defined areas. Moderation of a designer's impulse toward originality is likely to be interpreted as serious whereas incompleteness of the strokes, imperfections and irregularities would likely bestow a sense of human intervention (Mackiewicz 2005, see section 2.1.1.).

The thickness of vertical strokes (EM 1) will influence the darkness of the page (colour\*). The width of counter shapes (EM 5) and the general ratio of space between letters (EM 13 & 14) compared to counter space within the letters will complete the general balance of black and white on the page and determine legibility at small point size. The regularity of the distribution of white space creates the rhythm of the reading event, much like notes on a music sheet. The distribution of black marks on the white background creates a pattern that should be as even as possible. It is not always

possible to optimise the texture of that pattern for very different languages since they show different frequencies in the distribution of characters such as vowels, some such as German use more capitals or others, such as Czech use more diacritics. From then on, if not before, the typeface designer will consider shapes at different sizes, both separately and together, in a seemingly endless iterative process of making small changes while zooming in and then judging their effect by zooming out.

At this stage, a typeface designer who has not worked out the full design on paper may still be working with a digital (or even paper) version of what typeface designer William Addison Dwiggins called 'templets': modular shapes to be reused multiple times across a typeface to create texture (figure 70)

Fig. 70: WAD to RR, A letter about designing Type (Dwiggins 1940: 5) Using modular elements to build an alphabet is still an efficient way to judge the compound effects of small design decisions on the overall appearance of a typeface.

etc., etc., accordingly. Curves do all kinds of queer things when reduced; and the row lines running together make spots is a thing that will surprise youbut one or two tries on these points give you the information you need. I am beginning to get the drift of it and to foresee from the large drawings what will happen in the type. I can modify in the large outline drawings, but so far I conit originate in that medium In making the Falcon I tried another scheme

for arriving at the characteristics of the first-run exfor arriving at the characteristics of the first-run experimental letters. I cut stencils in celluloid-a long and a short stem, the n arch, and a loop-twice the size of 12 point-pretty small!-and constructed letters from these elements by stencilling. When I had achieved a line of these little 24 point characters that looked good Griffith ran them up with his 'hade orgraph' projector to the pattern drawing size in pencil outline. From these enlargements I again cut stenecls, or, more properly, templets, in cardboard, forstems, the n arch, and the b loop, in the 64, times sizeand made my hard-pencil outline patterns through

n nı nihil diminuendum

Falcon stencils:

1 1 1 3 C

letters built up from the above elements



#### 6.1.2. Room for manoeuvre

It helps to work out the general direction of the design before starting to obsess about details. The main decisions about proportions often have a domino effect on subsequent decisions which make some changes extremely time consuming when they happen late in the development of a character set. Achieving a satisfactory texture with a small character set is therefore more efficient. A consistent 'tool' effect is one of the ways to achieve a satisfactory visual texture. Whether obtained with an actual tool (pencil, quill, broad nib pen, brush, etc.) or an imaginary one, defined along any concept (counter shape (EM 5/7b/8), serifs (EM 10/11/12), connections (EM 9), etc.), the consistency of having the same kind of strokes and counter shapes look similar throughout the typeface is a crucial quality for a text typeface. Typographer Gerrit Noordzij explains in The stroke, theory of writing (1985/2005) the behaviour of different tools around the concepts of expansion and translation (figure 71) and the way they are handled to build the strokes.

running interrupted translation M M expansion M

Fig. 71: Interrupted and running stroke construction, with translation or expansion (Noordzij 2005: 7) Consistency requires the choice of a stroke logic and its application convincingly, even when the result has to be optically corrected to match the style of the whole typeface.

The conceptual tool chosen for a typeface is therefore an important element of typographetic expressivity. The definition of a tool can include direction of the stress (EM 7), stroke modulation (EM 6/7/8), openness of counters, serif or terminal shapes (EM 10/11/12), tension between the inner and outer edges of the strokes (EM 7a/7b), texture of these edges (EM 4), sharpness of curves (EM 5/7b/8), straightness or slight curving of stems (EM 8), etc.

Some aspects of the design strongly affect the word-image of a typeface, i.e. the way shapes gel into a pattern to form words. Negotiating the tension between calligraphic cursiveness and typographic modularity, letters are optically connected by in-strokes and out-strokes (EM 10/ 1/12), residual marks of an hypothetical association. Bigger counters (EM 5) provide contrast and therefore, legibility. Which explains that letters for display at small sizes need to be wider and heavier, whereas letters optimised for display size can be condensed, lighter and tighter to achieve a similar effect.

Fig. 72: Comparison of white space in Meta and Helvetica (Dixon 2023)

The shape and openness of counters also contribute significantly to the way letters connect together to form words. Figure 72 shows the open counters of Meta connecting with the letter spacing more cohesively than those of Helvetica.

Open characters and quirks of form can help move the eye along a line, and help more clearly articulate character shapes and readability.

## Meta book Helvetica

Squarish letters make more of a cohesive line than ovoid ones and open counters make so-called 'negative space'\* hold letters together better. Multiple combinations are possible to give a sense of inner cohesion to a typeface. The counters are balanced by the space between letters, a compromise to make the different letters fit together evenly in any combination. The white shapes created by the outlines of a typeface through the spacing of letters, contribute to the expressivity.

Similarly, the sense of speed is affected by several factors: slant, compression (italic is often narrower than its regular counterpart), longer in-strokes and out-strokes, ovoid and/or angular curves of counters, thinner stem width, smaller or absent serifs, ligatures, etc. These options can give speed to any design and are often combined to develop a distinctive italic compatible with a roman typeface.

As a first step, defining the general shape of the 'straightjacket' is a good opportunity to crystallise one's design intention and give shape to expressivity. The research around the tropes of the typographic genre of the brief help identify the visual clichés and decide where to respect conventions and where to breach them. Once consistency is achieved, isolated inconsistencies can be introduced to add distinctiveness without cluttering the design. **A fruitful strategy for injecting expressivity is to add details seemingly invisible in small sizes but expressive anyway and making an obvious impact in bigger sizes**. For example, the bracketing or curving of serifs (EM 11 & 12), ink traps (EM 9), subtle shapes of terminals (10/11/12) or angular counters (EM 7b) can unobtrusively contribute to expressivity.

To evaluate the expressive potential of a typeface, it matters to first take into consideration the original purpose of the design and the possible conventions of the genre. The constraints defining the genre constitute a list of proportions responsible for a large part of the expressivity. Then compiling a list of what makes this precise design unique would allow it to be compared to any other. adhesion Times New Roman

# adhesion

Fig. 73: 'adhesion' typeset in Times New Roman and in Ubuntu at the same point size In light of these considerations, it should be clear that comparing two whole typefaces, for example (figure 73) Times New Roman compared to Ubuntu (see also Appendix B), without a context, amounts to comparing two complex sets of design decisions. Even if one could be deemed more formal or modern than the other, there would be no possibility to attribute these advantages to specific features.

Remembering Rovelli's observation (2015) that concepts emerge at certain levels of focus, **the level relevant to the observation of connotation memes is probably that of design features, transversal to a whole typeface**, rather than the global typeface bundle itself or, at the micro level, the separate dots that form its outlines. Finding out what aspect of shapes influences what connotations therefore requires the testing of features separately. However, putting together a typographically pertinent list of design features is more complicated than it seems.



#### 6.2. What could be or should be varied?

To evaluate the intention embedded in the letter shapes implies selecting variables and making them vary, ideally, *ceteris paribus*, all else being equal, so as to establish correlations. But first, it requires naming them. Any researcher wanting to measure the impact of design decisions on connotations has to choose a nomenclature for the inventory of visual units to be tested. What is needed to handle variables is something 'good enough' to distinguish them and flexible enough to evolve with needs. There might be surprisingly different ways of handling this question. This section offers some considerations to inform those choices if the testing is to make sense beyond teleologic questioning such as in the experimental research reviewed in chapter 2.

#### 6.2.1. Axes of variation

Paradoxically, calling things by their names can be misleading in the sense that it gives the illusion that we know something about the object we are naming. Knowing what things are called is not always conducive to knowledge about them. Typography is deceptive in this regard as typeface names are not protected in the same manner in different countries and the same name may refer to slightly different shapes. And a typeface often groups several designs under the same name, often adding such as light, italic, stencil, slab, mono, condensed, display, etc. Furthermore, they might also contribute to the multimodality of the textual experience by evocation. Seen from other disciplines, the various classification schemes may be the most obvious source available for typeface description (Janet 2012). The exponentially growing typographic diversity of the 20th century saw many attempts at type classifications, with unequal success. The ultimate classification system could be the ever changing mapping of shapes to emotions.

Typeface designer John Hudson (2005, 2018) reflects that classification schemes tend to function like buckets grouping typefaces by similarities along arbitrary criteria, operating a useless form or reductionism. Whereas **tools to evaluate how typefaces differ from one another would be much more useful**. The last section having shown that thinking of type variations in terms of features is likely to be more relevant than in terms of categories, experimentation will require to find means to consider typefaces at the level of features.

It might therefore help to start with what is already at hand. The information available about typefaces ranges from dimensions to metadata, with a whole array of criteria by which one might choose to sort a typeface database. Not all information is available about all typefaces but there should be enough to build coherent sets of variables.

Variable dimensions might include shape elements, serif specifications, references to tools, while dependent variables can revolve around the referencing of place and time and other classifications, use (context) and mood.

In theory, any dimension requiring a design decision can be used as an independent variable. In the context of experimental testing, the next question is 'what can possibly be varied?' and, among these possibilities, 'which design variations may be causing semiotic variations?'.

Adopting this angle for a different purpose, Jean-Baptiste Levée, in a presentation titled 'A designer perspective on OpenType Font Variations – chances and risks' (Levée 2017), lists all the dimensions designers could dream of attributing to the 64'000 theoretically possible axes of variable fonts, leaving no stone unturned. However imperfect the list (and sometimes however obscure), it offers a wide base for thinking through typographic decisions:

#### The obvious Multiple Master legacy:

Width Weight Optical size Serifs (shape, length, bracketedness) X-height (+length of extenders) Opening of aperture (angle of terminals) Contrast amount Contrast axis (from oblique to straight to reverse) Grades (lighter / darker, positive, negative) Angle / slant Depth & size of ink traps, light traps Corner roundness Squareness of round shapes Small caps height Automatic superior / inferior figures and small caps Per glyph axis Distressedness, expressiveness & bounce 'cookies, fringe, concavity...' Roughness, darkness, corrosion and grunge effects Colour fonts Animations

#### Script fonts:

Angle/slant Length of connecting strokes and tracking axis Swashiness, size of balls Spacing & kerning axis Multiplexing of weights Make the headline text fit the given column width Hyphenation & Justification, line break tweak Contextual bolds and relative weight changes

#### **Respond to:**

Device resolution Device rendering Device screen proportions (dynamically)

Background colour / background image Ambient light conditions / time of the day / weather Age-responsive design Viewing distance and angle Maps, augmented reality

The list is intended as a typographer's reflection on the positioning of their work in view of the –then recent (2016)– launch of the variable fonts format. Not everything is relevant to the consideration of connotations. Some items are answers to various contexts and are impossible to test outside of a context, but most items of the list represent the design decisions that affect the appearance of the whole typeface and, possibly, its interpretation. Levée's list offers a clear view of what dimensions may be varied all else being equal and may therefore constitute clear independent variables, whether or not they are likely to influence typographetic expressivity. The categories under the label 'the obvious Multiple Master legacy' are those that have been used as variables by typeface designers since the 1980's to mimic the optical sizes of lead typography, i.e. the subtle changes in shapes necessary to optimise reading at different sizes. The first dozen or so categories are also obvious variables for expressivity. Therefore, each one could be considered in a research process in order to answer the question of what might be relevant units of typographic expression smaller than a typeface.



#### 6.2.2. Statistically defined relevant units

Another way to identify relevant units is to use artificial intelligence to locate them. Relying on image analysis and machine learning techniques, Masaya Ueda, Akisato Kimura, and Seiichi Uchida (Ueda & al. 2021) use a large (18,815 fonts) font image dataset to determine exactly what design features are statistically linked to the tags associated with each font. They use an image dataset obtained from myfonts.com by way of Chen & al. (2019).



Tianlang Chen, Zhaowen Wang, Ning Xu, Hailin Jin and Jiebo Luo explain having taken great care to ensure the accuracy of the data set of 'impression' annotations (metadata) connected to the fonts. The impressions collected are arranged in a word cloud (figure 74), the size of the word reflecting its frequency in the data set. The 'impression annotations' are tags frequently associated with the fonts, regardless of their meaning. The word cloud reveals a great diversity of tags describing the typefaces and their possible uses (poster, logo, magazine, display, etc.), fewer describing typographic design features (serif, heavy, round, rough, etc.) and very few describing connotations (retro, modern,

Fig. 74: A word cloud of highfrequency tags (Chen & al. 2019) elegant, informal, etc.), showing that it is possible to tag fonts extensively without commenting much on the semiotic message of the letter shapes.

Fig. 75: 'Which parts determine the impression of a font?' The circles locate the area of the letter shapes most correlated to the tag on the left. (Ueda & al. 2021: 9) Ueda, Kimura and Uchida (Ueda & al. 2021)use this large dataset of fonts and metadata to uncover the nonlinear relationship-between fonts and their impressions by focusing on local shapes or parts formed by character strokes, such as terminals, corners, curves, loops, and intersections, following the reasoning detailed in section 4.2.6. They consider that parts can explain the relationship more clearly and appropriately than the whole character shape because they are less affected by the semantic shape of the character (figure 75). In other words, they focus on what letters have in common throughout a typeface rather than the difference of shapes due to the 'a' having to be distinct from the 'm'.



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By this device, the approach is close to the hypothetic ideal of dissociating the design of the typeface from the letter shapes themselves. It seems important to note here that most design decisions apply throughout a typeface, whatever the letter shape, and are therefore relevant regardless of the letter examined. Furthermore, focusing on details fails to take into account some font properties, such as the whole character width and the general proportions.

For Ueda et al. the general approach is consistent with a concept of the 'straightjacket' that considers the design constraints of a text typeface as less pertinent than other dimensions when attempting to link atmosphere value to design decisions. It also explains that they find strong correlations with impressions such as 'sans serif', 'script' and 'text' and much loser ones with impressions such as 'new', 'package', 'chic' or 'travel'. Figure 75 shows a number of obvious correlations such as the presence of serifs in serif typefaces or the outline texture of rough typefaces but also the importance of counter space for legibility, the correlation of tight curves with 'girliness' –whatever that may be– and the correlation of pointy shapes with letters perceived as 'ancient'.

Ueda & al. show the relevance of details in the overall impression even if they do not question the properties of their initial dataset and the kind of impressions typefaces are likely to make. Their results are an argument in favour of testing specific design features for semiotic potential.

Rather than making so-called artificial intelligence find out what design features contribute to typographic impression, it would make sense to evaluate what designers consciously attempt to encode in their shapes. Realising that 'bold' implies 'vertical stems twice as thick as regular', that serifs are largely responsible for making a typeface 'serif' or that all glyphs of an italic have the same slant makes machine learning look efficient but any typeface designer could have said so without the fuss, as it stems directly from the design recipe.



#### 6.2.3. Design features

The interesting correlations to uncover are those between the elective design options and the connotations. Hence the importance to identify them and make sure they are varied intentionally.

Thinking of type in terms of design features is precisely what the online platform of typographic resources *I Love Typography* proposes. They call their framework CEDARS+ (CEDARS 2023), it stands for Contrast, Energy, Details (serif and stems shapes, junctions and filling), Axis, Rhythm, Structure and a few extra descriptors such as ratio of x-height to caps and proportions of letter widths. It allows the sorting of their data base of typefaces by pertinent typographic features that result from the deliberate use of design tools, be they conceptual or real. It could be a good starting place for the identification of testable typefaces. Figure 76 shows a range of serif options accompanied by the comment that they influence the personality and voice of the typeface:

Fig. 76: Sorting Latin type by its serif shapes on fonts. ilovetypography. com/cedars CEDARS is a set of principles used to sort through a data base. It is not particularly geared toward typographetic distinctions. However, its principles are all design variations and most of them would be pertinent to test for typographetic expressivity: contrast between thin and thick, energy


level as expressed by the sharpness of curves, finials and stems (terminals), arches (shape of connections), filling of shapes, axis angle, rhythm and regularity of the pattern of vertical strokes, loops (counter shape), letter construction (ductus), serif shapes and shapes of certain latin letters.

### 6.2.4. Super families

A somewhat stricter way to control variables would be to use typefaces designed to share many metric dimensions in order to work together in the same documents. Typically, super families feature typefaces that share vertical metrics and other proportions. The design is adjusted around the different features, yet a sense of typographic compatibility is carried over from one typeface to the other. Related sets of serif, semi-serif and sans serif components include Otl Aicher's Rotis, Lucas de Groot's Thesis, Playtype's Berlingske, Fontspring's Questa, Commercial type's Roboto, Malou Verlomme's Macklin, Fred Smeijer's FF Quadraat, to name a few. For example, the variations shown in the next section are typeset in Questa, since its different typefaces were distinct enough to trigger variations in my brain perceptible by magnetic resonance imaging (MRI), as explained in section 4.3.



# 6.2.5 Letter shapes description

To keep track of the design variations, it might help to use a systematic descriptive system. PANOSE (1988/1993/2016) for example is a numerical classification system conceived for typeface substitution that preserves the typographic layout. It was developed by Benjamin Bauermeister (1988). At first glance, PANOSE seems clunky and outdated. It might be, however, its internal logic constitutes a simple and robust approach to shape variations and could fruitfully be repurposed for experimentation. It proposes to associate with each typeface (and to actually embed it in the font file) a PANOSE string of ten digits that describe its design features.

Typefaces that share the same PANOSE string still have some visual differences due to variations in the specific design details. However, typefaces with different PANOSE strings can be assumed to be significantly different, perhaps to the point of carrying different meaning.

While large scale studies could retrieve actual PANOSE encoding to anchor the design variations, the system is



Fig. 77: Visual summary of the PANOSE system (Hughes 2009), the variations of text type occupy the top tier of the chart

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complicated to use and the data bases may not be properly encoded.

Nonetheless, the principles underlying PANOSE encoding remain an excellent framework for design variations. A notation system inspired by its logic could constitute a precious tool to monitor what is being varied at each stage. Figure 77 provides a visual summary of the encoding options, offering a wide range of testing possibilities.

PANOSE Classification Numbers used in static outline fonts consist of ten digits. For Latin text type, the following categories are qualified:

- 1. Family Kind (the value is 2 for Latin Text)
- 2. Serif Style
- 3. Weight
- 4. Proportion
- 5. Contrast
- 6. Stroke Variation
- 7. Arm Style
- 8. Letterform
- 9. Midline

10. x-height

Fig. 78: PANOSE encoding of Times New Roman (w3.org/ Printing/stevahn. html

For example, Times New Roman is defined as 2263545234 (figure 78):

ATTRIBUTE	SETTING		1 1	
amily Kind	Latin Text			
erif Style	Cove			
Veight	Medium			
roportion	Modern			
Contrast	Medium Lo	w		
troke Variation	Transitional		 	
rm Style	Straight Arr	ns ———	 	
etterform	Round		 	
1idline	Standard		 	
(-height	Large			



# 6.3. Systematic variations with PANOSE

As we saw in part 4.3., the concept of a neutral typeface, devoid of connotations for a majority of readers, is a very elusive one. Rather than choosing a starting point in an elusively empty zone of connotations in some hypothetical reader's mind or supposedly neutral design options, the variations could be applied to typefaces situated roughly half way through the possible PANOSE encoding of each dimensions, anchoring the variables around average values. The PANOSE encoding could serve as means to identify existing typefaces showcasing the desired variations. Or the variations could be designed specifically by means of variable fonts.

The variations have to be applied to a default shape and unfortunately for the scientificity of the experiment, it does not make sense to apply all variations to the same default skeleton because some decisions have a domino effect on other dimensions. For example, the shape and size of serifs affect the spacing. And monospaced faces have a limited range of possible modulation. Therefore, variations should be applied to two basic skeletons, serif and sans, to account for most common possibilities.

The starting points might be a PANOSE string for an 'average sans' (2154633586) and a PANOSE string for an 'average serif' (2254633586):

- 1. 2, Latin
- 1, no fit (sans serif) /
   2, cove serif for an 'average serif'
- 3. 5, book weight
- 4. 4, even width
- 5. 6, medium
- 6. 3, gradual diagonal
- 7. 3, straight arms / wedge
- 8. 5, normal / flattened
- 9. 8, constant / trimmed
- 10. x-height 6, constant / standard

Each of these dimensions can affect the typographetic potential of the shapes and would therefore benefit from being examined separately, whether or not the variations follow the PANOSE descriptions. PANOSE (2016) encoding follows a very precise and complex process of evaluation. The following description outlines the principles at work and they make a sound base to decide what feature variations could be interesting to measure. However, a good protocol for testing connotations does not have to go into such complexity and could include idiosyncratic variations.

The illustrations (except position 7: arm style) are given as visual explanations using the Questa Project typeface family (Fontspring) when possible and slightly modified when necessary. Varying the shape of text type 'all else being equal' presents a dilemma. Either only one dimension actually varies and the typeface does not look like a proper text face anymore or the variation is accompanied by various corrections to ensure design cohesion and the 'all else' is not equal anymore. In the following illustration, when possible, I have chosen to use actual cohesive design rather than 'pieced-together monsters'. Therefore, the shapes are optically adjusted to look good in spite of the variations.

1. A value of 2 indicates Latin text shapes (rather than Latin script (emulating handwriting), decorative or picture)

2. (EM 10/11/12) The value indicates the absence or the presence of serifs and their eventual shape. The presence of serifs is a debated element of legibility (Unger 2007: 164-168), possibly because it reinforces the visibility of the baseline and calls for slightly more white space inside and outside the letter shapes to counterbalance the serifs. Serifs on the upper side of letters may also support letter recognition (Javal 1905/2009: 199). On a semiotic level, serif shape can refer to the cultural era in which they were first popular and therefore introduce a dimension of 'tradition' or 'classicism', thus contributing to an interpretation of 'competence'.

Questa slab: The quick brown fox jumps over the lazy dog

Questa sans: The quick brown fox jumps over the lazy dog

Fig. 79: Questa<br/>slab and Questa<br/>sansFigure 79 shows that with fairly similar proportions, slab<br/>serifs require more space and may give a more classic tone<br/>than sans serif.

3. (EM 1) The weight of the typeface determines the darkness
of the overall effect of the page. Painters Paul Cézanne and
Paul Gauguin reflected respectively that 'a kilo of green is
greener than half a kilo' and a 'square centimetre of blue is
not as blue as a square meter' (Clay 1975: 29), using the
conduit metaphor to make the connexion between 'weight'
and 'intensity of colour' or 'surface' and 'intensity of colour'.
Typographic colour\* also responds to the conduit metaphor
with darker shapes feeling metaphorically bolder than light
or regular ones. Stroke thickness confers weight to the
words and their message, and possibly, symbolically,
'boldness', 'assertiveness' and 'trustworthiness', thus contributing to a dimension of 'competence' (figure 80), at least
until the darkness impairs reading altogether.

Fig. 80: Questa sans in three different weights

Questa sans medium light:The quick brown fox jumps over the lazy dogQuesta sans medium regular:The quick brown fox jumps over the lazy dogQuesta sans medium bold:The quick brown fox jumps over the lazy dog

4. (EM 1+5+10+11+12) The width of characters affects the rhythm of the text. Monospaced typefaces, as their name indicates, must fit each letter in the same overall space: the w is not allowed anything more than the i. As a consequence they are not the first choice when one has other options and they are reminiscent of the circumstances in which they are necessary: typewriters, computer code, etc. These connotations may contribute to a sense of mechanical 'competence'. Proportional width, where space is allocated to letters according to their needs, can perform different rhythms; with regularity probably also contributing to a dimension of 'competence'. The variations from 'condensed' to 'extended' contribute to a synaesthetic sense of 'speed', with 'condensed' giving a sense of moving the reader through the text faster (figure 81).

Questa condensed:The quick brown fox jumps over the lazy dogQuesta regular:The quick brown fox jumps over the lazy dogQuesta expanded:The quick brown fox jumps over the lazy dog

Fig. 81: Questa, artificially condensed and expanded by 5% Fig. 82: Questa sans, Questa and Questa grande with spacing adjusted for display at text size	5. Contrast and 6. Stroke variation (EM 6+7+8) refer to stroke
	modulation, the variation from thick to thin and back, its
	amplitude, its direction and sharpness. Digital typography,
	by freeing the letter shapes from the constraints of the
	metal and those of photocomposition, allows a wider range
	of stroke modulation. Considering our tendency to interpret
	the variations of stroke as the mark resulting from a
	movement shaped by human emotion, these variations are
	likely to affect our perception of 'warmth' whereas mono-
	linear strokes could be interpreted as more 'mechanical' and
	'competent' (figure 82).

Questa sans:	The quick brown fox jumps over the lazy dog				
Questa:	The quick brown fox jumps over the lazy dog				
Questa grande adjusted: The quick brown fox jumps over the lazy dog					

7. Arm style refers to the shape of diagonal stems and the termination of open rounded letterforms, such as 'c' (figure 83) and 'e'. These are subtle variations that are likely to affect dimensions of 'Evaluation'.

8. Letterform combines the description of the curvature of the letters and their slant. These two aspects may affect different dependent variables and would therefore deserve to be tested separately. Slant, or oblique, as described in

# CCCCCCCCC

Fig. 83: From left to right: flared, tapered, blunted, calligraphic, teardrop, ball, serifed and curled terminations. From www.fonts. ilove typography. com/cedars PANOSE, is the quality of italic letterforms. Originally modelled on the handwriting of students, it was used to produce affordable textbooks, saving on paper costs thanks to a tighter typesetting. It clearly increases a sense of speed or 'Activity' as it unfolds the text on shorter space. (figure 84)

Note that italic is likely to designate a completely different design and not merely an oblique regular.

Questa:The quick brown fox jumps over the lazy dogQuesta oblique by 6°:The quick brown fox jumps over the lazy dogQuesta italic:The quick brown fox jumps over the lazy dog

Fig. 84: Questa, Questa oblique and Questa italic Curvature (EM 7b) affects greatly the aspect of a typeface. The outlines and the counter forms inside the letters can be round, oval, ogival, flattened, squarish or even square (figure 85). Roundness of shapes is likely to affect 'warmth'. However, angular counters and outlines may also affect various dimensions of 'competence' such as 'skilful' or 'efficient'.

# The quick brown fox jumps over the lazy dog The quick brown fox jumps over the lazy dog

Fig. 85: Letter shapes damaged beyond recognition to illustrate the variation in curvature 9. This position combines the description of the mid-line and that of the apex of letter A and other diagonal stems. Midline describes the hight of midline of uppercase glyphs. It is likely to affect connotations of place and time, depending on fashions. The apex can be trimmed, pointed or serifed, usually in keeping with the style of serif. It can affect the sense of angularity and therefore of 'warmth'.

10. (EM 2) X-height refers to the relative height of lowercase to uppercase letters and to the treatment of uppercase letters to accommodate diacritics. A bigger x-height directly increases the legibility of a typeface until the lack of remaining space for the ascenders and descenders makes difficult the differentiation of letters. A bigger x-height is likely to be interpreted as more 'warm' and possibly less 'elegant' (figure 86).

Questa sans normal x-height: The quick brown fox jumps over the lazy dog Questa sans small x-height: The quick brown fox jumps over the lazy dog

> The shortening of uppercase letters to accommodate diacritics is getting rarer and is also very context dependent as the frequency of accented letters varies greatly from a language to another. It may therefore not be a very relevant feature to vary. Overall, PANOSE gives a useful structure to the process of variations even if its dimensions do not exactly overlap. For example, it does not specifically describe the aperture of open shapes. It describes their form, not how open they are. This opening determines the flow of white space through the words and contributes to legibility but also, very likely, to 'warmth'. It may be worth creating a position for variations of aperture of open letter shapes.

Fig. 86: Questa

sans compared

to a modified version with a

10% smaller x-

height

## 6.3.1. Finding correlations

Harkins's empathic memoing is meant to foster consistency in design whereas Bauermeister's PANOSE is optimised for description of final typographic shapes. They concentrate on different aspects and only overlap partially. Figure 87 lists features likely to affect connotations, which is yet a different rationale to select features. It compiles some design decisions from the empathic memoing and some design characteristics of PANOSE. It also adds regularity, stroke completeness and aperture of open shapes because experience and user's comments point to their importance.

Each of these typographic features could, in turn, be evaluated, by differentiation, on a number of connotative scales, thus linking axes of design variations with corresponding connotative affordances, and defining 'meaning-making units'. Figure 87 shows by the presence of ampersands the

Feature / Connotation	Warmth	Competence	Speed
Regularity		&	&
Stroke completeness		&	
Terminals	&	&	
Slant	&		&
In & out strokes		&	&
Stroke modulation	&		
x-height / Cap-height	&	&	
Roundness of curves	&	&	
Width	&		&
Aperture of open shapes	&		

#### Fig. 87: Features and probable connotations

Fig. 88: Compiled ratings of Times New Roman by 379 participants having been shown five lines of nonsensical text typeset in Times New Roman. (Shaikh 2009) probable location of a correlation between the features and the categories of Warmth, Competence and Speed identified in chapter 5.

Depending on the context, a possibly fruitful way of testing might be to emulate the method used by Shaikh (2009) to determine graphetic profiles along design variations, instead of whole typefaces, as shown in figure 88:



Sheikh showed five lines of nonsensical text set in Times New Roman to a group of 379 test subjects, asking them to evaluate it along 16 criteria, each of which was set on a spectrum (such as "soft-hard" or "passive-active"). Asking viewers to rate two typefaces with only one varying design feature along pertinent scales would yield two sets of coordinates. Subtracting one from the other would theoretically indicate the power of connotative variation of a particular design feature. This approach raises the question of the appropriateness of using a nonsensical text for testing purposes. Indeed, while nonsensical text gives a pertinent word image, it dissuades participants from actual reading and reduces to almost nothing the performance of the typeface "playing" the text in the reader's mind.

Testing typefaces is not the same as testing natural objects. They were conceived and built the way they are and serious knowledge about them should take this typoiesis into consideration. Practice can even provide the tools necessary for consistent and relevant experimentation. Since the introduction, in September 2016, of a new Open Type standard (OT 1.8) supporting variable fonts, some typefaces are now defined as a range of possible shapes on up to 64'000 axes. This astonishing range of possibilities raises the question of which parameters to consider, explore and test. It seems now more than ever possible to play with typeface variations in semiotically relevant ways for testing purposes.

To ensure reliable experimentation that provides valid data about subtle variations, I would suggest testing design features against connotations while:

- Controlling for context as much as possible by providing a very specific context and taking into consideration the age and cultural geographic background of the subjects doing the testing,
- 2. Applying consistent changes along some of the possible variations to average typefaces, by means of existing typefaces, super families, variable fonts or bespoke design variations,
- 3. Generating visuals to be tested at letter, word and paragraph levels.



# 6.4. Typefaces as Intentional Agents

Bringing together everything we have seen shows letter shapes as performative objects, performing the text as we read, always spacing, pacing, but also seriffing, curving, slanting and otherwise modulating our experience of it. Their meaning is not obvious, it requires our interpretation. It can even be lost if we fail to interpret. Letter shapes themselves are affected by the gestures and tools used to create them but also by the personality of the designer, the current fashion of the place and time, the display conditions for which they are optimised and a whole set of design constraints, not to mention the need to conform to recognisable semantic shapes. These influences on letter shapes are multiple and all can be suspected of affecting the connotations. Furthermore parameters evolve with time. What was once considered the default appearance of printed type is now seen as fancy letterpress. Far from the structuralist perspective of the 20<sup>th</sup> century, the link between letter shapes and their connotations is never going to be a term-toterm inventory of visual signifiers. However, it seems reasonable to hypothesise that design features affect the way we perceive the text. As we saw in section 5.3.3., the dimensions of Warmth, Competence and Speed can be translated and measured into a range of connotations depending on context, for example:

- Warmth (Evaluation): kind, friendly, good-natured, sincere, honest, moral, trustworthy, helpful, tolerant, fair, generous, understanding, authentic, sensual, intellectual
- Competence (Potency): efficient, skilful, capable, clever, knowledgeable, creative, intelligent and confident, orderly, imaginative, rational
- Speed (Activity): excited, calm, enthusiast, passive, vigorous, energetic

Some design features might affect certain dimensions of our perceptions more than others, however, the present research leads to hypotheses about the agency of letter shapes:

- Typographic letter forms embed information that can be unfolded about:
  - 1. the context and constraints of its design
  - 2. the designer's intentions (typoiesis)
- Shape variations operate with progressive intensity around a point of relative neutrality, which itself moves with place and time.
- By syneasthesia and metaphoric association, shapes communicate characteristics of speed, competence and warmth that lead to the attribution of personality.
- A typeface tends to be interpreted as a noema of the putative author of the text, and leads to stereotypic judgements about them.
- The typeface affects the reader's interpretation of the text.



Fig. 89: Possible correlations between design features and connotations It might be worth noting that an axis 'formal-informal' would combine notions of warmth and competence in a possibly misleading way. If formality seems a sign of competence, informality is not necessarily a sign of incompetence and conversely, if informality can seem a sign of warmth, formality is not necessarily a sign of hostility - although all these dimensions talk about the perceived care communicated by the shapes.

Figure 89 summarises the probable correlations between design features and connotations. As demonstrated by Blanchard (1982) design features influence our understanding of the speed of the text, like a musical interpretation. In-strokes and out-strokes, the sharpness of curves, the slant of the vertical stems act as visual cues of the rhythm of the text. As demonstrated through the principles of graphology, certain features of handwriting tend to be interpreted as signs of 'competence' and 'warmth'. Formniveau, which might translate as completeness of strokes and shapeliness of movement is likely to affect our understanding of 'competence'. x-height is an important factor of legibility and consequently of 'warmth' but also affects the possible relative length of ascenders and descenders, influencing the general 'evaluation' of elegance of the design. Width and terminals are likely to affect all three dimensions. Modulation might be interpreted as a sign of human emotion in the trace-making movement rather than machine processing and consequently affect our perception of 'warmth'.

Following Drucker (2014) and Connor (2021) (section 5.3.3.) researchers should not hesitate to be creative in defining variables. Categories do not need to be mutually exclusive. Poetic license might reflect the reality of our human experience better than many attempts at reductionism. Drucker's generic comment on visual forms may be precisely relevant to letter shapes too:

> 'When graphical languages engage with poetics and rhetoric, we will have arrived at a fully humanistic system for visualizing interpretation.' (Drucker 2014: 55)

Therefore, in a spirit of bricolage at the crossroads of arts and sciences, in a half serious and half playful re-purpose of the forms, I would like to suggest a variation of the 14 categories of Borges's mythical encyclopaedia, following Hudson's version (2005) of Jorge Luis Borges (1999: 231) (see Appendix D) :

According to 'a certain Chinese Encyclopaedia', *The Celestial Emporium of Benevolent Knowledge*, typefaces would be divided into the following connotative categories (followed by the sections where they are discussed):

- 1. typefaces betraying the identity of the text's author (5.3.2.)
- 2. those that speak of other times and places (4.4.3.)
- 3. those that come by default with the operating system (5.1.2.)
- 4. those triggering multimodal perceptions of speed, strength or elegance (5.3.1.)
- 5. those you can still read without glasses (6.1.1.)
- 6. those merely included as tokens of diversity, for contrasting purposes (4.5.4.)
- 7. those featuring iconic ornaments whether or not relevant to the text (5.1.6)
- 8. those that attempt to go unnoticed (4.4.)
- 9. monospaced ones (5.1.4.)
- 10. those belonging to super type families (6.2.2.)
- 11. those carrying values such as warmth and competence (5.3.3.)
- 12. others (2.1.)
- 13. those designed by Gerard Unger (Reading guide)
- 14. those that also look good in big sizes (4.4.2.)

Beyond the playful irony around the esoteric criteria, **this list illustrates the legitimacy of adopting an arbitrary and open taxonomy of overlapping categories if it serves the purposes of a particular hypothesis. It displays a wide variety of possible associations, denotative or connotative, mixing physical qualities of the typefaces, personal horizons of the viewer and context**, inviting one to broaden understanding of what may be important to take into consideration. Drifting away from the 'definitive' framework of typographic variables this study originally set out to provide, it also underlines the difficulty of getting a conceptual grip on reality. Traditional classification schemes can be useful to acquire a general understanding of the historical evolution of letter shapes. Yet, bridging the gap between design features and connotations may require inventing a scheme almost as poetic and obscure as that of *The Celestial Emporium of Benevolent Knowledge*, layering dimensions as varied as the elements that constitute the semiotic moment of the typographic meme.

Typefaces co-create our experience of the text and thus, contribute to visual rhetoric inasmuch as they are **interpreted as intentional agents.** And their intentions behave like units of culture decoded by particular readers according to their own history and the various contexts of the reading event. Rightly or wrongly, people may use typeface connotations as representativeness heuristics (or rules of thumb) to draw inferences about the origin of the text and the appropriate emotional response they might give it. Knowing how design features are likely to affect connotations opens the possibility to design for emotional response. It makes typefaces ideal means to reinforce the semantics of text or to mislead readers by adding irrelevant layers of information, or even purposefully use connotative variables for nefarious purposes. Even more so in a digital space where information is increasingly mediated by Artificial Intelligence systems of questionable reliability. In this context, the stakes are high to harness typographetics for trustworthiness and persuasion. While the elusive nature of typographetic expressive correlations may, in itself, constitute a relative protection against manipulation, any quest for a definitive scheme would need to take into account the above mentioned risks.



# 7. Conclusions

The central object of this research is the sensory intuitive perception we, as readers and as designer-readers, have of typographic letter shapes. From visual input, it becomes auditive (4.4.2.), kinesthetic (5.3.1), gustative (5.2.3.) by syneasthesia, it appears through many guises yet can be difficult to locate, hidden in plain sight like Edgar Allan Poe's *Purloined Letter* (1844/1924), escaping search for lying open on the desk.

At the same time, in the present case, I would say that not only is typographic expressivity beyond the current reach of scientific light<sup>1</sup>, it is even hidden in the shadow of the streetlight itself, as it is carried by the letters regardless of their textual purpose. As a consequence, my typeface designer journey ran along two intertwined tracks, one following the typographic expression meme through its mutations while another meta track was pursuing the questioning about how to best account for this expressive dimension. It is fairly simple to define the expressivity of letter shapes as 'the experience of reading a text minus the semantic meaning of the text itself'. It is much more complicated to stay in the zone thus defined since it is, of course, impossible to actually separate one from the other.

The research took the form of a broad exploration, an unusual proposition in the field of typography where a lot

1. The story of folk hero Mullah Nasreddin Hodja looking for his ring where there is more light, rather than where he lost it (Ram Dass 2005: 38), inspired the now classic metaphor of science as a streetlight providing a limited halo of clarity on reality. happens at detail level. The choice of treating design features and connotations as the alternatively wet and dry states of the typographic expressivity meme allowed the reviewing of all the phases of typographic semiosis in the permanent dialectic of life and form. The multiplicity of theoretical stances stretched my perspectives beyond practice and yielded many new ones, including many possible responses to the question of 'how to think about type?'. The pluralism of the approach demonstrated the usefulness of rejecting any reductionism in the matter. Above all, it provided fresh arguments to guide researchers in their reflection on what might be relevant to measure.

Intuitive understanding, or tacit knowledge, is the informal base of professional practice, it is also the object of mostly inconclusive experimental research. The numerous contributions to research on connotations and the diversity of terms used to evoke the phenomenon testify to the interest of researchers from various disciplines in typographetics under many different angles. While this complicates the research by fragmenting it, it enriches the thinking from multiple perspectives. And it delineates a consensus around the power of forms to evoke more than words. Researchers seem to assume fixed relationships between typographic variables and connotations. On the other hand, the diversity of concepts intuitively incorporated into the experiments without prior analysis shows the imprecision of this tacit understanding and raises the question of which variables are relevant to measure and what the true nature of connotations is.

Nevertheless, all agree that typography can contribute to reading comfort beyond legibility. In turn, professionals in the field of typography expertly play with the effects of letter shapes and hardly try to explain them. It seems clear that precision of the variables as well as precision of the questions could lead to a better understanding of how the forms contribute to the overall message. However, new knowledge did not come from more experimental testing, nor from practice itself, but rather from the upstream work of constructing typefaces as an object of inquiry and sharpening the questions around their possible interpretations.

The most challenging aspect of the research has been to let go of the yardstick of falsification, to renounce reductionism and to embrace the subjectivity of the speculation. The research was rich and polymorph. Finding a path is more perilous than following one. As evoked by Jacques Anis (1983: 43) building the necessary concepts at pertinent levels of analysis often threatened to engulf me in an interdisciplinary swamp. I had to curate an itinerary through my growing inner typographetic landscape.

The importance of massaging my understanding into linguistic reality was obvious even if the process reminded me of the guess work of medieval cartographers attempting to put together a cohesive map from multiple exploration fragments. Putting my elusive impressions into words demanded a measure of inner work, replacing replicability with authenticity as a criterion for result validity. **I developed a new understanding and appreciation for the role of metaphors. They allow the rational formula** 

tion of elements of knowledge that activate and combine different modes of perception. The juxtaposition of different frames of reference, is necessary to express all the dimensions.

This speculative journey through the different aspects of typeface performance shows that **form does not just follow function but rather shapes experience**. It shapes space, and therefore, time, to move the reader's attention through the unfolding of the text. Typographic matter is a means of public transportation for memes of various kinds.



Fig. 90: Inter folia fulget BULyon2 (instagram.com/ p/CYo2\_AMIef6/) The quote, etched in italic on the exterior walls of the library building of Université Lyon 2 (figure 90) '*Inter folia fulget*' (it flashes / shines / glows / gleams / glitters between the pages) might be a comment on the evocative power of shapes and not just of words. A comment on all the memes that spring from between the pages and take hold of our minds, whether they be linguistic or not.

It applies beautifully to typoiesis.



# 7.1. Key findings

My exploration progressively gathered in one place a rich, interdisciplinary perspective on the cultural and cognitive processes involved in the creation, transmission, and interpretation of typefaces, highlighting the complex interplay between conscious and unconscious processes, individual and collective experiences, and the evolving cultural contexts that shape the expressivity of typefaces. Through this multiple lens, the evolution of typefaces can be seen as an ongoing conversation between designers, typographers, and readers, as they collectively adapt to new cultural and technological contexts to shape the expressive qualities of letterforms.

One of the chief difficulties of the research was deciding how to slice through the reality to explain the processes at work. The conceptualisation of typefaces as memes, suggesting that they are lasting units of information that spread through a population by copy, selection, and transmission allows the treatment of typefaces as units of replication in the cultural memetic process, to be constantly received and re-presented (4.1.2.). Its key findings lie more in the questions it raises and the way it informs reflection than in definite answers. The current digital nature of typefaces makes them ideal replicators. Software mutations occur through typeface design, and accidental mutations typically render the font unusable. Deliberate mutations require significant competence, which limits the loss of information. Selection is made through typesetting, intentional or not, either during the typing process itself or even earlier in the coding of digital interfaces.

However, memetics does not explain what makes some memes fitter than others. The frequency of certain solutions to typographic problems being possibly increased by the repetition of constraints and affordances, rather than by strict replication. While some typefaces may be more successful due to their design and therefore afford an evolutionary advantage to texts, other factors, such as their default availability in digital operating systems, can also contribute to their multiplication. Moreover, the memetic approach's focus on replication and interpretation may lead to the measurement of irrelevant dimensions if typeface duplication becomes the primary target rather than the reader's interpretation of shapes. This highlights the need for a more comprehensive understanding of typographic expressivity that takes into account not only the design and dissemination of typefaces but also the ways in which they are perceived and interpreted by readers.

A preliminary exploration of the potential of artificial intelligence (4.2.) showed that **the temptation is high to make measurements simply because they are possible**. Even though algorithmic clustering and generative models promised to outline areas of design where meaning might be found, the key finding was that such meaning remaines elusive as long as reserachers do not know exactly what they are looking for.

My incursion into the realm of neuroscience (4.3.) while not bringing conclusions, showed promising results for further exporation using magnetic resonance imagery to visualise the traces of typography in the brain.

The search for the true ontological status of connotative meaning kept leading into other directions and was eventually organised around the functions fulfilled by typographic shapes, starting with the strict function of carrying text and hopefully nothing else, then with the function of indicating salience and, at last, the semiotic function. Carrying nothing other than text in an elusive quest for neutrality turned out to be a myth in the Barthesian sense of the term (4.4.). The key finding being that **if the expressive dial of typefaces can be turned down, it cannot be turned off** and remains a question of context. Not only is the emotional charge of type always near the surface, it may not even be desirable to cancel it completely and it may be possible to design for Super Normal familiarity.

The salience function serves as pretext to examine the linguistic discourse around letter shapes (4.5.). By construction, linguists are preoccupied with the semantic modifications due to letter shapes and they have developed a detailed vocabulary to account for the possible variations. In spite of frequent acknowledgement of a semiotic process, it is not the object of linguistics. Consequently, the key finding is **the extreme difficulty of conceptually untangling the typeface design from the letters and the language they carry**.

The exploration of the expressive function *per se* was divided into three parts: first the formal contribution of semiotics (5.1.) and social semiotics (5.1.6.), second the process by which we create meaning (5.2.)and third, the type of information we associate with shapes through the meaning-making process (5.3.).

The key finding of the contribution of semiotics and social semiotics is **the concept of 'semiotic moment'. The emergence of the figure behind the text happens through the contextualisation of the text in the process of reading**; like music being performed differently every time, the conversion of the typographic meme into the wet space of the reader's brain only happens in the reading event. So much so that the context can take more importance than shapes themselves. The concept of semiotic moment sheds light on the question 'What happens in the process of reading, when shapes, with a solid dry form on paper or screen, form an impression in the subjective wet

mind of the reader?' The key finding of the contribution of social semiotics to the comprehension of connotations is **the different layers of meaning typefaces are suspected to carry: values, historical connotations, denotation of their means of production, iconic decoration and sender stylistics.** It answers the question 'What do shapes shape?'

The section on meaning-making looks into the cognitive processes at work in the semiotic moment and explains the way we interpret and connect shapes to metaphors (5.2.2.), and connotations by way of cross-modal correspondences (5.2.3.). It brings an explanation to the question of how an amodal meaning emerges from modal phenomena. Its key finding is **the breadth and the depth of connections we can effortlessly make from mere visual stimuli**. I was intrigued by the hypothesis that most of them can be organised along the concepts of Evaluation, Potency and Activity and measured by Semantic Differential scales.

The third part of the exploration of expressive functions of shapes is a survey of the specific categories we associate with letter shapes, typographic or graphological (5.3.). It answers the question 'What are typographic connotations?' We tend to consider letter shapes as traces of a writing event that we mentally reconstruct. Altogether, this part of the exploration provides guidelines about what may be pertinent to measure in terms of connotations. The key finding is that **we potentially extrapolate from the letter shapes much information about the supposed author of the text. In particular, we may make quick judgements about their warmth and competence from the mere appearance of the text.** 

Drawing on these findings about the nature of connotations, the last chapter (6.) is an outline from a typeface designer point of view of what matters in the design process and might be relevant to vary in the search for meaningful connections between shapes and connotations. It starts with an explanation of the design 'straightjacket' that qualify typefaces for text and contributes to expressivity by defining typographic genres. This section also outlines the space for creative freedom where the designer might embed intentions in the design features (6.1.2.). Thus, it answers the questions 'What defines letter shapes?', 'What do we mean by letter shapes variations?', 'What are the smallest units of typographetic expressivity?' and 'How can we handle shapes and connotations to further typographic knowledge?' The key finding of this section on typoiesis is that the smallest units of meaningful typographic design might be the design features transversal to a whole typeface rather than the typeface as a bundle of features.

The next part of this last chapter on design makes suggestions as to how to construct typographically pertinent variables and points at resources to handle them (6.2. & 6.3.). It then proposes a repartition of design features as modalities to influence connotative dimensions (6.3.1.). The key finding is that one must decide how they want to 'think about type' and find a way to make it vary 'all else being equal' if experimentation is to be reliable, valid and useful.

The last part (6.4.) brings together the independent and dependent variables to form an hypothesis about the expressivity of letter shapes and possibly contribute to answering the question ' What happens when I read and interpret letter shapes?' Conversely, it is also an invitation to design for synaesthesia and emotion.



# 7.2. Contribution to knowledge

This study contributes to knowledge in many different ways. It puts into a wide perspective the study of the impact of letter shapes on the overall meaning of a text, confirming its potential as a resource for meaning-making, a sign system rather than a language. By gathering in one place various ways of considering the power of shapes, it builds farreaching bridges between disciplines rather than merely connecting points with Bézier curves. It provides answers to important questions such as what is the minimal unit of typographic meaning and what are the possible natures of connotations. It builds hypotheses as to what design features contribute to what aspects of typographetic expressivity. Thus, it invites researchers from all disciplines to take into consideration the design process and its intentions in the evaluation of typographic connotations. This thesis provides insights into the processes of interpretation. By triangulation, it defines a location for the semiosis of letter shapes in relation to various disciplines of knowledge. The findings establish typefaces as potential intentional agents, capable of conveying specific connotations and fostering emotion. Furthermore, it provides typographic and semiotic explanation and clear guidelines as to how further knowledge can be developed with empirical adequacy in relation to the connection of letter shapes and connotations.



# 7.3. Implications for practice and further research

Neuroscientist Solange Denervaud (2017, 2023) explains that the emotions that accompany all cognitive functions constitute a network of connections, reinforced by habit, that gets triggered by visual stimuli when we read. Paying attention to these emotions while attempting to identify and question them separately from the semantic dimension may be possible with advanced brain scanning techniques but remains difficult for a typeface designer.

Letter shapes provide the physical basis on which each reader builds a semiotic narrative. Typefaces contribute significantly to the visual rhetoric of text by co-creating the reader's experience and being interpreted as intentional agents. In today's media-saturated world, where minds are constantly at risk of information overload, emotion is the new currency. In such context, the competitive edge comes from designing the user experience and, in the present case, the experience that can be sparked, engendered or triggered through the design of letter shapes. Therefore, we cannot afford to overlook the process by which typographic shapes 'shape out', rather than merely 'spell out', our interpretation of the ubiquitous written word. Building further research on sound typographic principles, perhaps supported by the processing power of modern computing and the feed-back loop enabled by medical-grade imagery, could lead to better tools to design for reader's emotional response and, as a consequence, signify a shift away from the pervasive quest for typographetic neutrality.


# 7.4. Type rider

On a personal level, these years of attempting to apprehend typographic expressivity through theory rather than practice have led me to a continuous search for adequate means of referring linguistically to non-linguistic experience and bear witness to the way the non-human elicits affects and tells stories. It also rewarded me with exciting new perspectives and insights on familiar matter. It has heightened my awareness of the processing of my sensations into perceptions and to the possibility of 'inhabiting' these perceptions beyond words, beyond any linguistic explanation.



Fig. 91: Type rider (Monotype) Screenshot of my phone. The process often reminded me of Typerider, a game we played as typeface design students (figure 91). The player is a pair of dots evolving through a landscape of letter shapes, rolling on stems, gliding on curves, bouncing on serifs, inviting to feel letters as a synaesthetic perceptual experience rather than a cognitive one. I progressively realised that before getting access to the perceptions of others, I had to be more aware of mine. I had to practice the "VuJàDé" (the reverse of "Déjà vu") that deconstructs stereotypes and offers familiar reality in a light of novelty. After all, a significant and valuable part of one's experience of life happens outside of the realm of language. There is no substitute for paying attention.



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# Appendix A: Glossary of terms

### apophenia

The tendency to perceive a connection or meaningful pattern between unrelated or random things (such as objects or ideas) <The promise of the Data Age is that the truth really is in there, somewhere. But our age has a curse, too: *apophenia*, the tendency to see patterns that may or may not exist. –Daniel Conover, *The Post and Courier* (Charleston, South Carolina), 30 Aug. 2004> compare PAREIDOLIA

Apophenia. (2016). In Merriam-Webster (Ed.), *Merriam Webster's Medical Dictionary*. [Online]. Springfield: Merriam-Webster. Available from: http://arts.idm.oclc.org/ login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fmwmedicaldesk %2Fapophenia%2F0%3FinstitutionId%3D105

### Bézier curve

A geometric curve, the overall shape of which is defined by two midpoints called control handles

COMMENT: Bézier curves are a feature of many high-end design software packages; they allow a designer to create smooth curves by defining a number of points. The PostScript page description language uses Bézier curves to define the shapes of characters during printing.

Bézier curve. (2006). In P.H. Collin (Ed.), *Dictionary of publishing and printing*. (3rd ed.). [Online]. London: A&C Black. Available from: https://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Facbpublishing%2Fb%25C3%25A9zier\_ curve%2F0%3FinstitutionId%3D105

### color/colour

The darkness of the type as set in mass, which is not the same as the weight of the face itself. The spacing of words and letters, the leading of lines, and the incidence fo capitals, not to mention the properties of the ink and fo the paper it is printed on, all affect the color of type.

Bringhurst, R. (2004) *The elements of typographic style*. Point Roberts, WA: Hartley & Marks, Publishers. p. 324

"Colour" is a curious piece of type terminology: here it has nothing to do with colour in the usual sense. Instead, it describes the overall shade of black that a piece of printed text appears to have - the general impression, you could call it.

Unger, G. (2007) While you're reading. New York: Mark Batty Publisher. p. 109

# diachronic

One of the two main temporal dimensions of LINGUISTIC investigation introduced by Ferdinand de Saussure (see SAUSSUREAN), the other being SYNCHRONIC. In **diachronic linguistics** (sometimes called linguistic **diachrony**), LANGUAGES are studied from the point of view of their historical development – for example, the changes which have taken place between Old and Modern English could be described in phonological, grammatical and semantic terms ('diachronic PHONOLOGY/SYNTAX/SEMANTICS'). An alternative term is HISTORICAL LINGUISTICS. The earlier study of language in historical terms, known as COMPARATIVE PHILOLOGY, does not differ from diachronic linguistics in subject-matter, but in aims and method. More attention is paid in the latter to the use of synchronic description as a preliminary to historical study, and to the implications of historical work for linguistic theory in general.

Diachronic. (2008). In D. Crystal, *Language library: A dictionary of linguistics and phonetics*. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc. org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fbkdictling%2Fdiachronic%2F0%3FinstitutionId%3D105.

### ductus

Movement or path made by a tool when writing.

(Laura Messeguer 2017:142) in Henestrosa, C., Meseguer, L. and Scaglione, J. (2017) *How to create typefaces: from sketch to screen.* Madrid.

### ductus

perfect participle passive of dūco (to lead, guide, bring, take; to draw, draw out)

### ductus

masculine, drawing, drawing off; form; command, generalship.

"ductus." In *Collins Latin Dictionary*, by Mary Wade. Collins, 1997. http://arts.idm. oclc.org/loginqurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fhcdlat%2Fductus%2F0%3FinstitutionId%3D105

### emic/etic

A pair of terms which characterize opposed approaches to the study of LINGUISTIC DATA. An 'etic' approach is one where the physical patterns of LANGUAGE are described with a minimum of reference to their function within the language SYSTEM. An 'emic' approach, by contrast, takes full account of FUNCTIONAL relationships, setting up a CLOSED system of abstract CONTRASTIVE UNITS as the basis of a DESCRIPTION. Emic is in fact derived from such terms as PHONEME and MORPHEME, where -eme refers to the minimal DISTINCTIVE units involved. An emic approach to INTONATION, for example, would describe only those features of the PITCH pattern which are used by a language to signal MEANINGS; an etic approach, on the other hand, would describe the UTTERANCE's pitch movements much more minutely, regardless of whether the features described were being used by the language to signal MEANINGS or not. The distinction is a central feature of the American linguist Kenneth Pike's (1912–2000) theory of language, known as TAGMEMICS.

Emic/Etic. (2008). In D. Crystal, Language library: A dictionary of linguistics and phonetics. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc. org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fbkdictling%2Femic\_etic%2F0%3FinstitutionId%3D105

# emic and etic

The terms 'emic' and 'etic' were widely used in the American anthropology of the 1960s and 1970s, and the distinction between 'emic' and 'etic' levels of analysis was a commonplace in the areas of linguistic anthropology known variously as componential analysis or ethnoscience. 'Emic' and 'etic' (derived respectively from 'phonemic' and 'phonetic') designate two contrasting levels of data or methods of analysis. An emic model is one which explains the ideology or behaviour of members of a culture according to indigenous definitions. An etic model is one which is based on criteria from outside a particular culture. Etic models are held to be universal; emic models are culture-specific.

Just as phonetic and phonemic levels imply different methods of analysis, so too do etic and emic levels. So-called cognitive anthropologists, especially in the 1960s, were interested mainly in emic analysis (Tyler 1969). They saw culture as possessing structures similar to those of language. In contrast, anthropologists influenced by cultural materialism, especially in the 1970s, were more interested in etic analysis. They saw culture in terms of minimal units which defined appropriate behaviour, often in direct response to environmental circumstances (see Headland *et al.* 1990).

The terms 'emic' and 'etic' were first employed by Kenneth L. Pike in his monumental book, *Language in Relation to a Unified Theory of the Structure of Human Behavior*. As this title suggests, their origin and early use reflect not only the analogy between phonological (phonemic) and cultural (emic) data, but also Pike's theoretical stance (which sees linguistics as closely related to behavioural psychology) and his search for a grand theory which could encompass both language and culture. The subfields of 'cognitive anthropology', 'the new ethnography' and 'ethnoscience' which emerged in the 1960s all stem ultimately from Pike's original concerns. These approaches emphasized emic over etic approaches through the meticulous analysis of semantic fields and indigenous classifications, and practitioners sought to apply Pike's distinction both as a method of ethnographic research and as an aid to the theoretical understanding of the relation between specific and universal aspects of culture.

### - etic and emic in cross-cultural comparison

Etic distinctions are explained in terms of various etic frameworks or classificatory grids. Classic examples of etic frameworks include: Linnaean taxonomy; disease, in medical science; and the genealogical grid. Linnaean taxonomy is intended as a universal, hierarchical system for the classification of plants and animals on the basis of relative differences and similarities, and it entails an implicit theory of evolutionary relatedness. In contrast, the non-Linnaean classification of plants and animals in different cultures (e.g. the classification of bats as 'birds' rather than as 'mammals') is based on emic criteria, which may be quite different. Medical anthropologists make a similar distinction between 'disease' (a pathological condition, as defined by medical science) and 'illness' (the culturally specific understanding of disease). Diseases are defined in the same way wherever western biomedicine is practised, whereas what counts as a particular illness varies in different cultural contexts.

These distinctions imply a value judgement, that those who have a special knowledge of Linnaean taxonomy or western medicine understand the true nature of the universe, and that cultures in which ordinary people have access to this specialist knowledge are superior to those in which ordinary people do not have such access. However, not all etic frameworks carry this notion of superiority and inferiority. In the study of relationship terminology the genealogical grid, which arguably is extrinsic to western culture, is more neutral. This is a particularly

good example for examining the relation between emic and etic distinctions, as well as the problems which can arise in reifying the emic/etic distinction.

The genealogical grid precisely denotates each genealogical position. These positions are presumed to be the same for all languages and cultures. The emic distinctions are those which enable languages to define their kinship categories differently, employing common terms for different combinations of genealogically defined kin. 'Aunt' and 'uncle', as distinct from 'mother' and 'father', are not universal notions but rather the specific categories of the English language and of the societies in which this language is used; other languages may classify Englishlanguage 'cousins' as 'siblings' or as potential 'spouses', and so on.

Analysts might distinguish the etic notion of the genealogical mother, written 'M', from the emic notion of the biological or social *mother* in British or American culture, written 'mother'. As the italics imply, this 'mother' is a culture-specific one, as foreign to the etic notion as a comparable word in any other language. Yet there are two problems here. First, what 'motherhood' might mean in any specific culture is a question beyond the confines of such simple linguistic distinctions and requires further emic analysis. Etically, it can only be defined very loosely. Second, the fact is that anthropologists have cultures and cultural preconceptions like anyone else, and they write in one specific language at a time. Such a language, of course, will have its own emic categories, and the etic grid accordingly remains elusive. In kinship the etic grid is relatively easy to specify, but in other aspects of thought (say, in the realm of religious belief), etic distinctions are very much more difficult to define and utilize with any precision.

# - the emic model is not the native's model

A commonplace assumption about emic models is that they are 'discovered' rather than 'invented' by the analyst. However, emic models, like phonemic ones, are ultimately exogenous constructions, formalized by the analyst on the basis of distinctive features present in indigenous usage. They are not in themselves 'the native model', though anthropologists often loosely identify them in this way.

This may be illustrated by Conklin's (1969) example of the structure of the pronouns in Hanunoo, a language spoken in the Philippines. Conklin argued that the conventional linguistic (etic) distinctions – first, second and third person; singular, dual and plural; and exclusive and inclusive – only describe Hanunoo pronouns in an inelegant and uneconomical way. These distinctions account for all Hanunoo pronouns, but they produce no less than four potential categories which the Hanunoo language does not distinguish. It is better, he suggested, to examine the distinctive contrasts made by the language itself. In doing this, he came up with three sets of emic distinctions for Hanunoo pronouns – minimal membership, non-minimal membership; inclusion of speaker, exclusion of speaker; and inclusion of hearer, exclusion of hearer. The application of these distinctions generates all and only the eight pronouns found in the language, and the resulting analysis is therefore more elegant and economical than the one employing the etic categories traditionally used by linguists. Yet the emic criteria he identified are distinctions which are not named or even consciously employed by the Hanunoo themselves. They are only implicit in indigenous usage.

As this example shows, an emic model is not necessarily a model held consciously by indigenous thinkers. Here it is clearly an analyst's model, but one which is built up from principles derived from, rather than forced upon, the data. This is equally true of behavioural, semantic or phonological data. Just as no native speaker, simply as a native speaker, can coherently describe the phonological system of his or her language, similarly no indigenous thinker can usually present a complete emic analysis of his actions or of a culturally significant semantic field of his language. Analysis, even emic analysis, is the job of the observer.

# - critiques of emic and etic

Although the emic and etic levels of culture are intended to correspond analogously to phonemic and phonetic levels in language, there are nevertheless crucial differences between culture and language which make the correspondence problematic. Most obviously, culture is much more variable than language, and cultural behaviour is much more difficult to assign to a single structure than speech is.

Marvin Harris (1976) has objected to the notion that culture is made of sets of rules or 'grammar', in effect denying the possibility of emic models at all. He argued, especially against Goodenough (1956), that the methods of linguistics are a poor example for anthropologists to follow, since there is no anthropological equivalent to a native-speaker or one possessing absolute 'cultural competence' in any sense analogous to linguistic competence. Goodenough's view was that the native 'authorities' should be sought and that their ideas should be used in the construction of emic models. In Harris's view, several problematic questions remain. Is there any such thing as a cultural authority? If so, how can such a person be identified? What about the ideas of those who are not considered authorities, but merely average members, of their own culture?

Others have questioned the existential status of etic models. What guarantee is there that the observer's supposedly objective, etic model is not in fact his or her own emic one? Since the 1980s, under the influence of postmodernism and reflexivity, critics have challenged the notion of objectivity upon which etic grids depend. These approaches imply instead that an interplay between what might be considered the emic models of the observer and the observed are as close as we can get to an etic level of analysis.

### - the future of emic and etic

As Lévi-Strauss (1985: 115–20) has pointed out, the emic level is the level of perception. People do not understand sounds as sounds, but through the phonological structure of their language. Likewise, people understand actions or words only through the culture they possess. Thus, in Lévi-Strauss's view, the materialist objection to the emic as merely culture-specific and not based on objective principles does not hold. The poststructuralist objection to the etic is more difficult to counter on a philosophical level. However, the simple answer to this apparent dilemma is to seek objectivity, while realizing that it is elusive. Clearly, etic models can exist as heuristic devices, but they are as problematic as emic ones to define precisely.

The concepts 'emic' and 'etic', although less often discussed today than in the past, are implicit in more recent anthropological approaches, even postmodernist and reflexive ones, where they exist as exemplars of the contradictions in anthropology itself. They are also taking on new significance in regional analysis and regional comparison. A defining feature of the classic emic approach is that ideology or behaviour is studied from 'within' the cultural system. This implies that only one cultural system can be studied at a time, and in the past the cultural system was often taken as equivalent to one culture or society. Yet, for those who define cultural systems more broadly, i.e. who draw their boundaries around a wider geographical area, renewed interest in a more elaborate version of the emic/etic distinction shows promise.

See also: language and linguistics, psychological anthropology

Barnard, A. and BARNARD, A. (2009). Emic and etic. In A. Barnard & J. Spencer (Eds.), *Encyclopedia of social and cultural Anthropology*. (2nd ed.). [Online]. London: Routledge. Available from: http://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Froutencsca%2Femic\_and\_ etic%2F0%3FinstitutionId%3D105

### extralinguistic

In its most general sense, this term refers to anything in the world (other than LANGUAGE) in relation to which language is used – the **extralinguistic situation**. The term **extralinguistic features** is used both generally, to refer to any properties of such situations, and also specifically, to refer to properties of communication which are not clearly analysable in LINGUISTIC terms, e.g. gestures, tones of voice. Some linguists refer to the former class of features as METALINGUISTIC; others refer to the latter class as PARALINGUISTIC.

Extralinguistic. (2008). In D. Crystal, *Language library: A dictionary of linguistics and phonetics*. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc. org/login?qurl=https%3A%2F%2Fsearch.credoreference.

com%2Fcontent%2Fentry%2Fbkdictling%2Fextralinguistic%2F0%3FinstitutionId%3 D105

### feature

A term used in LINGUISTICS and PHONETICS to refer to any typical or noticeable property of spoken or written LANGUAGE. Features are classified in terms of the various LEVELS of linguistic analysis, e.g. 'PHONETIC/PHONOLOGICAL/GRAMMATICAL/SYNTACTIC features' or in terms of dimensions of DESCRIPTION, e.g. 'ACOUSTIC/ARTICULATORY/ AUDITORY features'. At the most general level, features may be classified as linguistic (or 'intralinguistic') as opposed to 'non-linguistic' (EXTRALINGUISTIC or METALINGUISTIC). At the most specific level, certain types of feature may be set up as the minimal UNITS of a theory, as in **distinctive feature** theories of phonology. The term is sometimes abbreviated as **F**, as in some models of NON-LINEAR PHONOLOGY.

In GENERATIVE grammatical analysis, the term has come to be associated with the way in which words are classified in the LEXICON in terms of their grammatical properties, such as [animate], [common], [masculine], [countable]. Such features are usually considered to be BINARY, as were phonological features, and analysed as [+animate], [-animate], etc. SEMANTIC features, likewise, can be handled in binary terms, as in the analysis of spinster as [+human], [+adult], [+never married] and [+female] (or perhaps, [-male]). Non-binary ('unary' and 'multi-valued') features are also recognized. Features are sometimes referred to as COMPONENTS, especially in semantic analysis. In later grammatical theories, especially in PHRASE-STRUCTURE grammars, grammatical CATEGORIES are defined in terms of feature specifications - ordered pairs containing a feature and a feature VALUE - which RULES can access. As part of its method, this approach requires a statement of feature-co-occurrence restrictions (FCRs) and feature-specification defaults. Later semantic theory has also developed the notion of feature in several directions, notably in the use of feature structures which represent TYPES of lexical information organized HIERARCHICALLY. Features (e.g. 'cause', 'change', 'force' as part of the REPRESENTATION of *push*) are here seen as MODAL OPERATORS that label arcs between the NODES in a LATTICE framework. In the MINIMALIST PROGRAMME, features figure prominently, a distinction being drawn between semantic, phonological, and morphosyntactic features, the latter being further divided into 'strong' and 'weak' features, or 'interpretable' and 'uninterpretable' features. The approach also recognizes a distinction between formal and

substantive (i.e. containing semantic content) features. See also CONTEXT, DIACRITIC, DISTINCTIVE FEATURE, SYNTAX.

feature. (2008). In D. Crystal, *Language library: A dictionary of linguistics and phonetics*. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fbkdictling%2Ffeature%2F0%3FinstitutionId%3D105

# figurative language

Grammatical usage that departs from everyday factual, plain, or literal language and is considered poetic, imaginative, or ornamental. Figurative language, especially in literature, uses devices, such as irony, and figures of speech, such as simile, metaphor, and hyperbole. The figurative meaning of a word or phrase contrasts with its literal meaning, which is closer to its standard, dictionary definition.

Figurative language seeks to clarify and accentuate meaning by referencing a word or phrase in terms of something familiar to the audience, usually to achieve special meaning or effect; the use of irony, metaphor, simile, and hyperbole falls into this category. Using the simile 'She ran like the wind', for example, suggests qualities of natural speed, lightness, and unrestrained energy. Using a word's literal meaning relies on the reader's clear understanding and knowledge of its definition.

figurative language. (2018). In Helicon (Ed.), *The Hutchinson unabridged encyclopedia* with atlas and weather guide. [Online]. Abington: Helicon. Available from: http:// arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fheliconhe%2Ffigurative\_ language%2F0%3FinstitutionId%3D105

# figurative language

1. Language that employs figures of speech, especially metaphor.

2. As opposed to literal language, language that is not intended to be taken literally: *see* metaphoric meaning.

3. Language that is more connotative than denotative: *see also* connotation; denotation.

4. Language that is more expressive and/or poetic than referential in its linguistic function. This can include all **literary language** (not just 'poetic language'); however, references to it as literary language or **literary imagery** ignore the fact that such language is ubiquitous in everyday speech. It is also particularly associated with the language of advertising. *See also* expressive function; poetic function; *compare* referential function.

5. Any use of language that is stylistically or semantically marked, deviating from conventional usage or meaning.

6. Language that is perceived as decorative, ornamental, or colourful rather than plain and instrumental; this may lead to connotations of femininity. *See also* cloak theory.

7. For the scientists of the Royal Society in 17th-century England, the kind of language that distorts reality and truth, and which they consequently sought to eliminate in scientific discourse.

8. Language that has been argued to shape thought (*see* linguistic determinism) or *express us* (Barthes) rather than merely expressing preformed thoughts: *see also* mould theory.

9. For critical discourse analysts, language that sheds light on the framing of reality within discourse: *see also* critical discourse analysis.

10. For deconstructionists, the root of all language, which cannot be eliminated in supposedly literal forms

on www.oxfordreference.com

#### font

A set of sorts or glyphs. [...] In the world of digital type, the font is the glyph palette itself or the digital information encoding it.

### font

A set of characters in a typeface of all the same style, i. e. the same size, weight and orientation

COMMENT: Each typeface will be available in many different fonts (Univers, for example, was designed in 21 different fonts) and these will include the different point sizes and weights, such as bold and italic. In metal setting, the font would contain different quantities of each character, according to the frequency of use of the characters. English fonts will contain capitals, small capitals, lower case, punctuation marks, numerals, ligatures and common symbols, making about 150 sorts in all. English fonts contain some accents and special characters, but many accents which are standard in, for example, German or Spanish fonts are not included in English. British fonts contain the pound and the dollar signs, but American fonts are likely not to have the pound sign.

"font." In *Dictionary of Publishing and Printing*, edited by P. H. Collin. 3rd ed. A&C Black, 2006. http://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch. credoreference.

com%2Fcontent%2Fentry%2Facbpublishing%2Ffont%2F0%3FinstitutionId%3D105

# genre (analysis)

Genre is a term in widespread use to indicate an approach to communication which emphasises social function and purpose.

Significant debate surrounds the definition of genre, particularly the extent to which it refers to TEXTS or the activities in which texts are embedded. It is often vaguely defined but several uses of the term can be identified which are illustrated in different types of **genre analysis**. It may refer to:

Different types of literary texts, such as poetry, novels, plays. Genre analysis here often involves a focus on the stylistic features of different 'subgenres', for example the subgenres of poetry include lyric, epic, ballad, sonnet (see STYLISTICS).

Clusters of different types of spoken and written TEXTS grouped according to their function, formal characteristics and/or rhetorical purposes such as jokes, greetings, school essays, advertisements (see discussion in Swales 1990, see also SPEAKING). Genre here is often used in the sense of TEXT TYPE and the term **text genre** is occasionally found. Genres or text types can be analysed in a number of ways. These include analyses which focus on rhetorical purposes alongside a formal or schematic approach. In the field of English for Specific Purposes (ESP), for example, the rhetorical purposes of different parts of a text have been analysed in terms of stages or moves (Swales, 1990; see also, CARS).

Language and communication seen as a social activity or PRACTICE. Genre analysis in this sense involves focusing on language as one of many activities or practices which take place in a particular CONTEXT (see Miller, 1984; see also ACTIVITY THEORY; COMMUNITY OF PRACTICE).

In SYSTEMIC FUNCTIONAL LINGUISTICS the notion of genre is similar to that outlined in (3). It is one of the three levels of analysis of communication (the other two being REGISTER and language or clause level; see LEXICOGRAMMAR). An example of a genre is the activity of a group of school pupils writing an account of a visit to a museum; this in turn can be analysed in terms of three typical functions: an 'orientation' (stating where they went); a 'record of events' (listing what they did and saw); and a 'personal evaluation' (statement of enjoyment). (For this sense, see Martin, 2001.)

Genre is also a key notion in the work of BAKHTIN, who distinguishes between **primary** and **secondary genres**. The former are everyday communication activities, such as greetings, buying bread or writing short notes; the latter are more explicitly contrived, such as literary works, political speeches. These categories have been used in NEW LITERACY STUDIES.

In recent work on MULTIMODALITY, genre is used as a way of exploring the nature of multimodal texts where the term **mixed genres** seems to more accurately indicate the functions of the different modes in any text (see Kress, 2003). Genre analysis here involves developing tools which can deal with the range of modes in a text (see e.g. VECTORS). Genre (analysis). (2004). In J. Swann, A. Deumert, T. Lillis & et. al., *A dictionary* of sociolinguistics. [Online]. Edinburg: Edinburgh University Press. Available from: http://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fedinburghds%2Fgenre\_ analysis%2F0%3FinstitutionId%3D105

# the Goldilocks principle

is named by analogy to the children's story "The Three Bears", in which a young girl named Goldilocks tastes three different bowls of porridge and finds that she prefers porridge that is neither too hot nor too cold, but has just the right temperature.[1] The concept of "just the right amount" is easily understood and applied to a wide range of disciplines, including developmental psychology, biology,[2] astronomy, economics[3] and engineering.

Anon (2021) Goldilocks principle. Wikipedia [Online]. Available from: https://en. wikipedia.org/w/index.php?title=Goldilocks\_principle&oldid=1004666816

# grapheme

"La plus petite unité distinctive et/ou significative de la chaine écrite, composée d'une lettre, d'un groupe de lettres (diagramme, trigramme) d'une lettre accentuée ou pourvue d'un signe auxiliaire, ayant une référence phonique et /ou sémique dans la chaîne parlée" (The smallest distinctive and/or significant unit of the written string, consisting of a letter, a group of letters (diagram, trigram), an accented letter or an auxiliary sign, having a phonic and/or semantic reference in the spoken string)

Catach, N. 1980, 'La ponctuation.' Langue française, pp. 16-27. p. 16

# grapheme, graphemics, graphology, graphetic, etc.

from *A dictionary of stylistics* (Katie Wales, 1989: 212-213) From Greek *graphos* 'written', present-day *LINGUISTICS* has spawned a whole set of terms to do with the study of written language, most by analogy with the study fo speech in PHONETICS and PHONOLOGY.

So, by analogy with PHONOEME (q.v.), a grapheme is the smallest distincy unit in the writing system of a language: popularly known as 'letter' or SYMBOL. In English ORTHOGRAPHY or spelling there is no one-to-one relationship between grapheme and phoneme: so <c> represents /k/, /s/ in *cut*, *ceiling*; and /ʃ/ is symbolized by <sh>, <ch>, <ssi> and <ti>, etc. in *ship*, *charade*, *mission* and *caution*.

Each grapheme is potentially realised as a set of **allographs** or variants, due to variations in typefaces or handwriting. Stylistically, such variations will be associated with **degrees of** FORMALITY: printed graphemes associated with the formal language of published materials, hand-written with personal correspondence, etc.

- The study of such units in a language is called graphemics or graphology. (In popular usage graphology also refers confusingly to the study of handwriting as a means of character analysis.) Graphemics also embraces other features associated with the written or graphic MEDIUM: punctuation; PARAGRAPHING; spacing, etc. Different REGISTERS make particlar use of sch graphological features as: size of print and capitalization in newspaper and advertising lay-outs; different typefaces and sizes in dictionaries such as this one; special line lengths in poetry, etc. (See Crystal & Davy 1969, passim.) Halliday's (1985) term for the particular units of lines and stanzas associated with written poetry is graphometric units. In prose, the term graphic unit refers to pieces of text separtaed by punctuation, e.g. commas and full-stops (Leech & Short 1981). Different texts will have different graphological STYLES according to the density and degree of 'weight' of punctuation.
- **Graphology** can also refer to the writing system of a language, as manifested in handwriting and typography; and to the other related features noted in (2) e.g. capitalization and punctuation.
- In theory, just as phonology is a branch of the wider and more theoretical discipline of phonetics, concerned with universals of sound-making, so **graphetics** is the term needed to describe the study of graphic universals, general features of the written medium influential on all (or many) systems (e.g. shape; size; spacing; material; etc.).
- But **graphetics** is also used for the study of typographical and visual devices in art, **graphicology** being a less confusing alternative term. [...]

# graphetics

is a branch of linguistics concerned with the analysis of the physical properties of shapes used in writing.[1][2]

It is an etic study, meaning that it has an outsider's perspective and is not concerned with any particular writing system. It is contrasted with the related emic field of graphemics, the study of the relation between different shapes in particular writing systems.[1] Graphetics is analogous to phonetics; graphetics is to the study of writing as phonetics is to the study of spoken language. As such, it can be divided into two areas, visual graphetics and mechanical graphetics, which are analogous to auditory and articulatory phonetics, respectively. [2] Both printed and handwritten language can be the subject of graphetic study.[3]

#### References

1. a b Crystal, David (2003). "Graphetics". Dictionary of Linguistics and Phonetics. The Language Library (5th ed.). Malden, MA: Blackwell. ISBN 978-0-631-22663-5.

2. a b Coulmas, Florian, ed. (1999). "Graphetics". The Blackwell Encyclopedia of Writing Systems. Blackwell Reference Online: Blackwell.

3. Hartmann, R. R. K.; James, Gregory (1998). "Graphetics". Dictionary of Lexicography. London, New York: Routledge. ISBN 978-0-415-14143-7.

### graphetics, or typographetics

The study of the visual resources used in writing, all aspects of the materiality of writing, including the choice of typeface or the effect it has on its processing by humans.

"Emojis, a Grapholinguistic approach". In Grafematik 2018 proceedings, p.171.

# graphology

A term used by some LINGUISTS to refer to the writing SYSTEM of a LANGUAGE – on analogy with PHONOLOGY. A **graphological** analysis would be concerned to establish the minimal CONTRASTIVE UNITS of visual language – defined as GRAPHEMES, graphemic FEATURES, or without using EMIC terms – using similar techniques to those used in phonological analysis. Graphology in this sense has nothing to do with the analysis of handwriting to determine the psychological characteristics of the writer – an activity for which the same term is often popularly used.

graphology. (2008). In D. Crystal, *Language library: A dictionary of linguistics and phonetics*. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc. org/login?qurl=https%3A%2F%2Fsearch.credoreference.com%2Fcontent%2Fentry% 2Fbkdictling%2Fgraphology%2F0%3FinstitutionId%3D105.

### justified text

Justified text is spaced so the left and right sides of the text block both have a clean edge. The usual alternative to justified text is left-aligned text, which has a straight left edge and an uneven right edge. Compared to left-aligned text, justification gives text a cleaner, more formal look. Justification works by adding white space between the words in each line so all the lines are the same length. This alters the ideal spacing of the font, but in paragraphs of reasonable width it's usually not distracting.

Butterick, M. (2013) Justified text | *Butterick's Practical Typography*. Available at: https://practicaltypography.com/justified-text.html

### ligature

Typographic term for the connecting link that joins two or three type characters together. By joining the characters space is saved and kerning simplified. Ligatures are commonly used to join fi, ffi, ffl, fl, ff, tt and ct.

ligature. (2012). In A. Livingston & I. Livingston, *The Thames & Hudson dictionary of graphic design and designers*. (3rd ed.). [Online]. London: Thames & Hudson. Available from: http://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch. credoreference.

 $com\% 2 F content\% 2 F entry\% 2 F th graph\% 2 F ligature\% 2 F 0\% 3 F institution Id\% 3 D 105 \ .$ 

# modal (-ity)

**Modality** refers to the ways in which speakers and writers express attitudes to, beliefs about and degress of certainty about what they are saying or writing. In its broadest interpretation, modality encompasses many if not all aspects of a TEXT. In English, it is most frequently identified in relation to a subclass of auxiliary verbs, termed **modal verbs, or modal auxiliaries**, as in 'she *will | may | can | ought to/should* come'. Modal verbs have special properties, for example the absence of inflections such as *-s* or *-ing*. Other modal elements in English include 'modal adverbs', as in 'she will *certainly/probably/definitely* come'.

Modality is also sometimes described as high or low. A statement claiming certainty is said to have **high modality**, such as 'I got the job', as compared with 'I may have got the job', where there is **low modality**. High modality is a common feature in particular kinds of texts, such as newspapers, where truth is presented as clear and categorical as in for example, 'Maggie plans the invasion' (Fairclough, 2001; see also discussions in Fowler, 1991). See also MOOD; TENSE-MODALITY-ASPECT.

modal (-ity). (2004). In J. Swann, A. Deumert, T. Lillis & et. al., *A dictionary of sociolinguistics*. [Online]. Edinburg: Edinburgh University Press. Available from: https://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fedinburghds%2Fmodal\_ ity%2F0%3FinstitutionId%3D105

#### mode: sensory modalities

### from Gale Encyclopedia of Psychology

Sensory modality is the type of stimulus perceived by the sensory system; examples include light, sound, and temperature.

When the brain perceives a stimulus from the outside world, it notes the modality, or nature of the stimulus, its location, intensity, and duration. All of these are needed for the brain to fully interpret the stimulus. Moreover, the individual sensory modalities are not perceived in isolation. Rather, information from different modalities is integrated by specialized multimodal neurons, which allows for more complete identification and interpretation of the complexity of environmental stimuli.

The sensory modalities are light, sound, temperature, taste, pressure, and smell. The accompanying external stimuli are either forms of energy, such as light waves, or chemical signals, such as odor molecules. An external stimulus is typically composed of more than one modality.

sensory modalities. (2016). In J.L. Longe (Ed.), *Gale Virtual Reference Library: The Gale* encyclopedia of psychology. (3rd ed.). [Online]. Farmington: Gale. Available from: https://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fgalegp%2Fsensory\_ modalities%2F0%3FinstitutionId%3D105

### modernism/postmodernism

### from Encyclopedia of Postmodernism

[...]Jean-François **Lyotard**, in his various readings of the relationship of modernism and postmodernism, proposes that the most prominent feature of modernism is in fact the primacy of a universal or master narrative that embodies and encompasses all other subnarratives, dependent upon a transcendental signifier that imbues the entire system with a univocal meaning (see **univocity**) and assumes that all other ideological modes fall within its boundaries. Ultimately, this metanarrative functions as a universal measure against which everything must be understood.

Modernism, in this regard, is pivotal in any understanding of the postmodern. Even though postmodern discourses exposes many of the central ideas of modernism as false – primarily the fact that systems of meaning are neither transcendent nor self-evident but are the product of socio-historical and ideological forces, and that innovation is in fact merely a re-appropriation of older values – an implicit tension still remains in that the constellation of postmodern values are a direct extension of ideas and concepts put forth by modernist writers and thinkers. Therefore, modernism might best be conceptualized as a field of ideas, styles, and concepts to which the postmodern has returned, carried off, and transformed while simultaneously criticizing what it has chosen to transform and leave behind.

Clippinger, D. and CLIPPINGER, D. (2001). modernism. In V.E. Taylor & C.E. Winquist (Eds.), *Encyclopedia of postmodernism*. [Online]. London: Routledge. Available from: https://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch. credoreference.

com% 2 F content% 2 F entry% 2 F routpostm% 2 F modernism% 2 F 0% 3 F institution Id% 3 D 105

### multimodality

The textual combination of different modes and their integration in terms of structure, discourse semantics and rhetorical function within contexts of social (inter-)action.

Stöckl, H (2019) "Linguistic multimodality – multimodal linguistics: A state-ofthe-art sketch." In: Wildfeuer, J, et al. (eds) *Multimodality: Disciplinary Thoughts and the Challenge of Diversity.* Berlin: De Gruyter, 41–68. p.50.

### multimodal (-ity)

Term particularly associated with the work of Gunther Kress and Theo Van Leeuwen (2001) and their emphasis on the multimodal nature of all communication. In contrast to much work in western applied linguistics and sociolinguistics where the emphasis has been on the verbal mode of communication (spoken and written), Kress and van Leeuwen argue that all communication is multimodal and that there is a need to analyse all modes - sound (e.g. music), visual images, smell - systematically. In developing a systematic approach to the analysis of modes they draw on SYSTEMIC FUNCTIONAL LINGUISTICS.

A key reason they advance for focusing on **multimodality**, and in particular on the visual mode, is the profound change taking place in communication practices, primarily the shift towards greater use of visual images due to the increased availability of information technology. However, it is acknowledged that multi-modality has a much longer history (e.g. medieval manuscripts were highly visual) and considerable cultural diversity (for an example of Brazilian multimodal practices, see Menezes de Souza, 2003). Other frameworks have been used in the analysis of multi-modality: see for instance the anthropologically-influenced approach adopted by Ruth Finnegan (2002). See also DESIGN; NON-VERBAL COMMUNICATION.

multimodal (-ity). (2004). In J. Swann, A. Deumert, T. Lillis & et. al., *A dictionary of sociolinguistics*. [Online]. Edinburg: Edinburgh University Press. Available from: https://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fedinburghds%2Fmultimodal\_ ity%2F0%3FinstitutionId%3D105

### myth

1830, from French *mythe* (1818) and directly from Modern Latin *mythus*, from Greek *mythos* "speech, thought, word, discourse, conversation; story, saga, tale, myth, anything delivered by word of mouth," a word of unknown origin. Beekes finds it "quite possibly Pre-Greek."

Myths are "stories about divine beings, generally arranged in a coherent system; they are revered as true and sacred; they are endorsed by rulers and priests; and closely linked to religion. Once this link is broken, and the actors in the story are not regarded as gods but as human heroes, giants or fairies, it is no longer a myth but a folktale. Where the central actor is divine but the story is trivial ... the result is religious legend, not myth." [J. Simpson & S. Roud, *Dictionary of English Folklore*, Oxford, 2000, p.254]

General sense of "untrue story, rumor, imaginary or fictitious object or individual" is from 1840.

myth | Origin and meaning of myth by Online Etymology Dictionary (no date). Available at: https://www.etymonline.com/word/myth

### myth

The generally accepted meaning of myth is of a fictitious (primitive) tale, usually involving supernatural characters embodying some popular idea concerning natural or historical phenomena, and often symbolizing virtues or other timeless qualities. In everyday parlance, a myth is something invented, not true. For analysts of the communication process, myth has more specific connotations. Myth is an interpretation of the way things are; a justification. For the social scientist Claude Levi-Strauss, myth was a force generated to overcome *contradictions*. Either way, at the heart of myth is ideology, chiefly the value-system of those at the top of society.

The French philosopher Roland Barthes (1915–80) ascribed myth to the second order of signification, that is, connotation, but connotation with a very special task – that of distorting the truth in a particular direction. For Barthes, myth served as a weapon of the bourgeoisie which it uses to regenerate its cultural dominance.

In *Mythologies* (Paladin, 1973), Barthes wrote, 'Myth does not deny things, on the contrary, its function is to talk about them; simply, it purifies them, it makes them innocent, it gives them a natural and eternal justification, it gives them a clarity which is not that of an explanation but that of a statement of fact.'

Myth defines 'eternal verities' that may be neither eternal nor verities. And myths provide economical explanations of human actions: 'It abolishes the complexity of human acts, it gives them the simplicity of essences, it does away with all the dialectics, without any going back beyond what is immediately visible, it organizes a world which is without contradictions because it is without depth, a world wide open and wallowing in the evident, it establishes a blissful clarity: things appear to mean something by themselves.'

According to Richard Cavendish in his introduction to *Mythology: An Illustrated Encyclopaedia* (Little Brown, 1999; Silverdale Books, 2003), myth is a 'charter of authorization for groups, institutions, rituals, social distinctions, laws and customs, moral standards, values and ideas. ... [Myths] authorize the present state of affairs' and their power 'transcends rational argument'. Myth succours and supports the *status quo*; its chief inspiration is *order* and its communication mode is rhetoric.

Myth. (2015). In J. Watson & A. Hill, *Dictionary of media and communication studies*. (9th ed.). [Online]. London: Bloomsbury. Available from: https://arts.idm.oclc.org/ login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fdictmedia%2Fmyth%2F0%3FinstitutionId%3D105

### negative space

what lies between.

The space around and between and inside the letters. Negative spaces are actual shapes that **share edges** with the positive shape.

### negative space

Negative space is the space around two-and three dimensional forms. It is the space within or against which positive forms are defined – the white page around a silhouette or the gap between the arms and torso of a statue. Artists often exploit perceptual ambiguities in the distinction between negative and positive space.Our ability to read visual images depends on being able to distinguish between figure and ground. An oval black blob on a white page will look like a hole (negative), whereas if it has lumps on one side suggesting a forehead, nose, and chin it will resemble a head (positive) surrounded by empty (negative) space. The clear distinction between figure and ground can be deliberately destabilized; this is the basis for simple optical illusions in which shapes continually shift between negative and positive.

Negative space. (2012). In M. Bird, 100 ideas that changed art. [Online]. London: Laurence King. Available from: https://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Flkingaijn%2Fnegative\_ space%2F0%3FinstitutionId%3D105

### neutral

1540s, in alchemy, "composed of contrasting elements which, in proper proportion, neutralize each other," also, of states, rulers, etc., "refraining from taking sides in a fight, not engaged on or interfering with either side" (probably from a similar meaning of *neutralis* in Medieval Latin), from Latin *neutralis*, from *neuter* "neither the one nor the other, neither of two" (see **neuter** (adj.)).

By 1550s of persons. Chemistry sense of "exhibiting neither acid nor alkaline qualities" is from 1660s. From 1711 in the sense of "of or belonging to a power not taking sides in a war or conflict." Of colors, "of low chroma, without positive quality of color," from 1821. *Neutral corner* is from boxing (1908), indicating the two corners of the ring not used between rounds by the fighters and their seconds. Anon (n.d.) neutral | Origin and meaning of neutral by Online Etymology Dictionary . Available from: https://www.etymonline.com/word/neutral

### neutral

1: not engaged on either side; *specif*: not aligned with a political or ideological grouping  $\langle a \sim nation \rangle$  2: of or relating to a neutral state or power  $\langle \sim territory \rangle$  3 a: not decided or pronounced as to characteristics:indifferent b (1): achromatic (2): nearly achromatic c (1): neuter 3 (2): lacking stamens or pistils d: neither acid nor basic e: not electrically charged 4: produced with the tongue in the position it has when at rest  $\langle the \sim vowels of | \hat{e} \cdot \hat{b} \hat{e} v \rangle above \rangle$ 

Neutral 2. (2012). In *Merriam-Webster's collegiate(R) dictionary*. (11th ed.). [Online]. Springfield: Merriam-Webster. Available from: https://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fmwcollegiate%2Fneutral\_ 2%2F0%3FinstitutionId%3D105

### neutral

Describing an inactive or indefinite state, especially an intermediate state in a frame of reference that has two active or definite states

Neutral. (1992). In C.G. Morris (Ed.), *Academic Press Dictionary of Science and Technology*. (4th ed.). [Online]. Oxford: Elsevier Science & Technology. Available from: http://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fapdst%2Fneutral%2F0%3FinstitutionId%3D105

# pareidolia

The tendency for incorrect perception of a stimulus as an object, pattern or meaning known to the observer, such as seeing shapes in clouds, seeing faces in inanimate objects or abstract patterns, or hearing hidden messages in music. Pareidolia can be considered a subcategory of apophenia.

Anon (2020) Pareidolia. Wikipedia [online]. Available from: https://en.wikipedia. org/w/index.php?title=Pareidolia&oldid=985783657.

### pareidolia

the tendency to perceive a specific, often meaningful, image in a random or ambiguous visual pattern <The human brain is optimized to recognize faces, which could also explain why we are so good at picking out meaningful shapes in random patterns. This phenomenon, *pareidolia*, could be responsible for a host of otherwise unexplained sightings, such as the face of the Virgin Mary on a toasted cheese sandwich. -New *Scientist*, 24 Dec. 2011> compare APOPHENIA
pareidolia. (2016). In Merriam-Webster (Ed.), *Merriam Webster's Medical Dictionary*. [Online]. Springfield: Merriam-Webster. Available from: http://arts.idm.oclc.org/ login?qurl=https%3A%2F%2Fsearch.credoreference.

 $com\% 2 F content\% 2 F entry\% 2 F mwmedical desk\% 2 F pareidolia\% 2 F 0\% 3 F institution I d\% 3 D 105 \ .$ 

## Peirce on abduction

The term "abduction" was coined by Charles Sanders Peirce in his work on the logic of science. He introduced it to denote a type of non-deductive inference that was different from the already familiar inductive type. It is a common complaint that no coherent picture emerges from Peirce's writings on abduction. (Though perhaps this is not surprising, given that he worked on abduction throughout his career, which spanned a period of more than fifty years. For a concise yet thorough account of the development of Peirce's thoughts about abduction, see Fann 1970.) Yet it is clear that, as Peirce understood the term, "abduction" did not quite mean what it is currently taken to mean (see Campos 2011 and McAuliffe 2015). One main difference between his conception and the modern one is that, whereas according to the latter, abduction belongs to what the logical empiricists called the "context of justification" – the stage of scientific inquiry in which we are concerned with the assessment of theories - for Peirce abduction had its proper place in the context of discovery, the stage of inquiry in which we try to generate theories which may then later be assessed. As he says, "[a]bduction is the process of forming explanatory hypotheses. It is the only logical operation which introduces any new idea" (CP 5.172); elsewhere he says that abduction encompasses "all the operations by which theories and conceptions are engendered" (CP 5.590). Deduction and induction, then, come into play at the later stage of theory assessment: deduction helps to derive testable consequences from the explanatory hypotheses that abduction has helped us to conceive, and induction finally helps us to reach a verdict on the hypotheses, where the nature of the verdict is dependent on the number of testable consequences that have been verified.

Abduction > Peirce on Abduction (Stanford Encyclopedia of Philosophy). Available at: https://plato.stanford.edu/entries/abduction/peirce.html

## perlocutionary (effect)

A term used in the theory of SPEECH ACTS to refer to an act performed by making an UTTERANCE which intrinsically involves an effect on the behaviour, beliefs, feelings, etc., of a listener. Examples of **perlocutionary acts** include frightening, insulting and persuading. A distinction may be drawn between the intended and the actual **perlocutionary effect** of an utterance (e.g. a speaker may intend to persuade X to do Y, but instead succeed in getting X to do Z). Perlocutionary acts are distinguished from LOCUTIONARY acts (which are mere acts of saying, or uttering words with sense and reference), as well as from ILLOCUTIONARY acts (which are defined without intrinsic reference to their effect on a listener), although a single utterance might involve all three kinds of act.

Perlocutionary. (2008). In D. Crystal, *Language library: A dictionary of linguistics and phonetics*. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc. org/login?qurl=https%3A%2F%2Fsearch.credoreference.

com%2Fcontent%2Fentry%2Fbkdictling%2Fperlocutionary%2F0%3FinstitutionId%3 D105 .

## punch cutting

the process of making a punch by cutting the design on it.

punch cutting. (2006). In P.H. Collin (Ed.), *Dictionary of publishing and printing*. (3rd ed.). [Online]. London: A&C Black. Available from: https://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Facbpublishing%2Fpunch\_ cutting%2F0%3FinstitutionId%3D105

## qualia (singular: quale),

those properties of mental states or events, in particular of sensations and perceptual states, that determine "what it is like" to have them. Sometimes 'phenomenal properties' and 'qualitative features' are used with the same meaning. The felt difference between pains and itches is said to reside in differences in their "qualitative character," i.e. their qualia. For those who accept an "act-object" conception of perceptual experience, qualia may include such properties as "phenomenal redness" and "phenomenal roundness," thought of as properties of sense-data, "phenomenal objects," or portions of the visual field. But those who reject this conception do not thereby reject qualia; a proponent of the adverbial analysis of perceptual experience can hold that an experience of "sensing redly" is so in virtue of, in part, what qualia it has, while denying that there is any sense in which the experience itself is red. Qualia are thought of as non-intentional, i.e. non-representational, features of the states that have them. So in a case of "spectrum inversion," where one person's experiences of green are "qualitatively" just like another person's experiences of red, and vice versa, the visual experiences the two have when viewing a ripe tomato would be alike in their intentional features (both would be of a red, round, bulgy surface), but would have different qualia.

Critics of physicalist and functionalist accounts of mind have argued from the possibility of spectrum inversion and other kinds of "qualia inversion," and from such facts as that no physical or functional description will tell one "what it is like" to smell coffee, that such accounts cannot accommodate qualia. Defenders of such accounts are divided between those who claim that their accounts can accommodate qualia and those who claim that qualia are a philosophical myth and thus that there are none to accommodate.

Shoemaker, Sydney. "qualia (singular: quale)," In *Cambridge Dictionary of Philosophy*, edited by Robert Audi. 3rd ed. Cambridge University Press, 2015. http://arts.idm. oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fcupdphil%2Fqualia\_singular\_ quale%2F0%3FinstitutionId%3D105

#### quantophrenia

1. Excessive reliance on or use of facts and figures that can be derived using statistical or mathematical procedures.

2. The inappropriate application of such processes, especially in anthropology and sociology.

The term 'quantophrenia' was coined by Pitrim Sorokin in his critique of Fads and Foibles in Sociology. It is not an attack on measurement per se. It refers to the cult founded on the belief that quantification is the most, or indeed the only, valid form of knowledge. This usually results from an uncritical extension of methods developed in the natural sciences to the study of social life.

Anon (n.d.) *quantophrenia* - *Wiktionary* [Online]. Available from: https://en. wiktionary.org/wiki/quantophrenia .

#### representativeness heuristic

We often evaluate the similarity between two things on the basis of their superficial resemblance to each other. Psychologists call this phenomenon the representativeness heuristic (Tversky & Kahneman, 1974), because we use the extent to which two things are "representative" of each other to estimate how similar they are.

Lilienfeld, S. O. et al. (2011) Google-Books-ID: 8DIS0gfO\_QUC. 50 Great Myths of Popular Psychology: Shattering Widespread Misconceptions about Human Behavior. John Wiley & Sons. p.15.

#### rhetoric

Traditionally, the theory and practice of eloquence, whether spoken or written; the use of language so as to persuade others. The word is almost always used today as a term of criticism: rhetoric is the style in which bare-faced persuasion – politicking – is used. It is emotive; it belongs to speeches; and while it is very often resounding, it is rarely eloquent because it trades in empty phrases and endless repetitions. It is essentially redundant in that it tells supporters what they already know and antagonists what they know and do not want to hear. Rhetoric is the stock-in-trade of the press, and of the popular press in particular. Practically every front-page headline is rhetorical in that it is soaked-through with the ideological attitudes of the newspaper, not least with beliefs about what sells newspapers, what commands attention and what readers want to be told. Indeed it might be said that one of the prime functions the popular press sets itself is to translate actuality into rhetoric: complex issues are translated into the simplifying mode of myth, of wedom, theydom, militant and moderate, order and disorder, black and white, management and unions, dries and wets. See news values; other. See also *topic guide* under language/discourse/ narrative.

Rhetoric. (2015). In J. Watson & A. Hill, *Dictionary of media and communication studies*. (9th ed.). [Online]. London: Bloomsbury. Available from: https://arts.idm. oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fdictmedia%2Frhetoric%2F0%3FinstitutionId%3D105

## salience

Salience refers to the perceptual prominence of an object relative to its background. The word 'salience' derives from roots connoting an assault or sally, in this case upon the senses, and it implies a quality of leaping or springing forth from the stimulus. The salience of a visual target is determined by the degree to which the features of the target differ from those of the surroundings. However, it is not completely understood which "features" of the stimulus are relevant for the visual system. Measurement of salience requires a quantitative scale for assessing differences in features, sometimes across several dimensions. A red circle in a field of green squares is nominally salient, but is it more or less salient than a fast-moving dot among slow-moving dots? From an ecological perspective, animals must be rapid and reliable at detecting certain types of targets – an object directed at one's head is salient regardless of its texture. Essential targets - food, predators - must induce rapidly discriminable patterns of neural activation. An understanding of salience thus provides a glimpse into how the brain prioritizes the world. The salience of a target can be evaluated by preattentive processes, or operations that are carried out rapidly without apparent conscious effort, and is often measured by "pop-out," the degree to which the target can be detected in brief presentations. However, salience is also closely related to attentional processes; for example, search targets can be found more easily if subjects are provided with instructions relevant to the task. The mechanisms by which salience is generated in the nervous system thus involve the integration of both bottom-up and top-down influences.

Yen, Shih-Cheng, SHIH-CHENG YEN, and LEIF H. FINKEL. 'Salience.' In *Encyclopedia of the Human Brain*, by V. S. Ramachandran. Elsevier Science & Technology, 2002. http://arts.idm.oclc.org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Festhumanbrain%2Fsalience%2F0%3FinstitutionId%3D105

## scriptor

From the latin scribo. Writer, author, or scribe.

### semasiography and glottography

in semasiology within the field of linguistics.

Sampson draws a distinction between semasiography and glottography

- 1. semasiography, relating visible marks to meaning directly without reference to any specific spoken language
- 2. glottography, using visible marks to represent forms of a spoken language

#### semasiography

(from Greek: σημασία (semasia) "signification, meaning" and Greek: γραφία (graphia) "writing") is "writing with signs", a nonphonetic based technique to "communicate information without the necessary intercession of forms of speech." It means written symbols and languages that are not based on spoken words. It predated the advent of the creation of the language-based writing system[1] and is used contemporarily in computer icons, musical notation, emoji, Blissymbols[2] and mathematical notation. It is studied

Powell, Barry B. (2012). Writing: Theory and History of the Technology of Civilization. Wiley-Blackwell. Via Wikipedia on 01/10/2020

## semiosis

A term borrowed from Charles Sanders Peirce, is expanded by Eco to designate the process by which a culture produces signs and/or attributes meaning to signs. Although for Eco meaning production or semiosis is a social activity, he allows that subjective factors are involved in each individual act of semiosis. The notion then might be pertinent to the two main emphases of current, or poststructuralist, semiotic theory. One is a semiotics focused on the subjective aspects of signification and strongly influenced by Lacanian psychoanalysis, where meaning is construed as a subject-effect (the subject being an effect of the signifier). The other is a semiotics concerned to stress the social aspect of signification, its practical, aesthetic, or ideological use in interpersonal communication; there, meaning is construed as semantic value produced through culturally shared codes. (de Lauretis 1984, 167)

Chandler, D. (2017) *Semiotics for Beginners: Introduction* [Online]. Available from: http://visual-memory.co.uk/daniel/Documents/S4B/sem01.html

### semiotic resources

are the actions, materials and artifacts we use for communicative purposes, whether produced physiologically – for example, with our vocal apparatus, the muscles we use to make facial expressions and gestures – or technologically – for example, with pen and ink, or computer hardware and software – together with the ways in which these resources can be organized. Semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime.

(Van Leeuwen, 2004: 285).

### semiosphere

Term coined by Youri Mikhailovich Lotman in 1984. Lotman was the leading theoretician in the Moscow-Tartu group of semioticians who apply structural-semiotic analysis to the study of the arts (especially literature) and to culture in general. Although criticized by doctrinaire Marxist-Leninists in their homeland before the breakup of the Soviet Union, the group's work has attracted much interest in Europe and America, particularly among literary theorists.

Lotman, viewing the natural languages as 'modelling systems' – structures of signs whose meanings 'model' the world they refer to – argues that art, like myth and religion, is a 'secondary modelling system', or more complex language superimposed upon natural language. A work of art, then, is a text with multiple levels and orders of meanings – a communicative structure joining artist and public through the shared languages of a particular culture.

In his later years Lotman and his colleagues broadened their focus from the fields of literature and the other arts to the structural-semiotic study of the broader cultural context of communication. In his last theoretical monograph, *Universe of the Mind* (1990), he introduced the term '**semiosphere'** as a name for the highly complex and dynamic but at the same time unified semiotic universe of a culture. Semiosphere is the sphere of semiosis in which sign processes operate in the set of all interconnected Umwelten.

Scanlan, J. and SCANLAN, J. (2002). Lotman, Lurii Mikhailovich. In S.C. Brown, D. Collinson & R. Wilkinson (Eds.), *Biographical dictionary of 20th century philosophers*. [Online]. London: Routledge. Available from: http://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Froutphil%2Flotman\_lurii\_ mikhailovich%2F0%3FinstitutionId%3D105

#### somatic

The somatic nervous system (SNS) is a division of the peripheral nervous system (PNS). The SNS controls voluntary activities, such as movement of skeletal muscles and includes both sensory and motor nerves. Sensory nerves convey nerve impulses from the sense organs to the central nervous system (CNS), whereas motor nerves convey nerve impulses from the CNS to skeletal muscles.

Laberge, M. and Cataldo, L.J. (2017). Nervous system, somatic. In T. Moy (Ed.), *Gale virtual reference library: The Gale encyclopedia of fitness*. (2nd ed.). [Online]. Farmington: Gale. Available from: http://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fgalefit%2Fnervous\_system\_ somatic%2F0%3FinstitutionId%3D105.

## SuperFont™

(extract from 26 by Underware Type Foundry)

The year 2016 marked a turning point in the history of writing and of our understanding of letterforms, including how they are designed, produced, distributed and used. The introduction of the OpenType Variable Font format confronted type designers with a new concept of letterforms, pointing to new possibilities which weren't previously possible. Instead of wrapping old ideas into new technologies, new technologies require new ideas.

But to come up with new ideas, we first need to understand the new technology. A trick to achieve this, and one which is often used in physics, is to look at the edges of a phenomenon. While trying to apply this approach for Variable Fonts, we ended up with the most variable font possible: the SuperFont<sup>™</sup> (which was firstly publicly shown at the conference TypoLabs 2017 in Berlin). Because it is the most variable font possible, it contains all other variable fonts which can be built with this technology. It also contains every static font, because any static font can be converted into a variable font. This actually means that the SuperFont<sup>™</sup> contains any font which can be designed with the current technology, including not only all the fonts which have been designed already, but also all the fonts that will be designed in the future. In short, every font that is possible is included. Although this is already hard to imagine, it becomes even harder once we recognize that we are not yet aware what those possibilities might be.

We could also consider the SuperFont<sup>™</sup> as a typographic analogy to *The Library of Babel* by Jorge Luis Borges. In this short story, Borges describes a library in which every book consists of 410 pages, every page has 40 lines, and each line has 80 letters. The books in this imaginary library contain any possible letter combination. For ex-ample, the first book reads "aaaaaa...", the second book "baaaaa...", the third "caaaaa...". Continue this method until you've created every possible combination of let-ters, and the result is a massive amount of books of which the vast majority is useless. However, and this is the interesting part, any literary masterpiece which has even been written in the past, is also automatically included.

Further, any future literary masterpiece is also already present in this library. Just realize that any future masterpiece is already written, it just needs to be discovered within the Library of Babel. The job of an author within such a gigantic library is no longer to write a book, but to discover that book within the massive collection.

In the same way the SuperFont<sup>™</sup> contains all fonts which will be made in the coming years, although the vast majority of fonts within the SuperFont<sup>™</sup>M universe are useless (at least from our current understanding of letterforms). Nevertheless, the SuperFont<sup>™</sup> puts us in the apparently ridiculous situation that any font which can be made by any type designer, in the whole world, in any script, has already been made, even if those scripts do not yet exist.

Underware: Helmling, A., Jacobs, B. and Kortemäki, S. (2018) 26. Den Haag. Available at: https://underware.nl/publications/26/, central spread (no page number).

## synchronic

One of the two main temporal dimensions of LINGUISTICS investigation introduced by Ferdinand de Saussure (see SAUSSUREAN), the other being DIACHRONIC. In **synchronic linguistics**, languages are studied at a theoretical point in time: one describes a 'state' of the language, disregarding whatever changes might be taking place. For example, one could carry out a synchronic description of the language of Chaucer, or of the sixteenth century, or of modern-day English. Most synchronic descriptions are of contemporary language states, but their importance as a preliminary to diachronic study has been stressed since Saussure. Linguistic investigations, unless specified to the contrary, are assumed to be synchronic; they display **synchronicity**.

Synchronic. (2008). In D. Crystal, *Language library: A dictionary of linguistics and phonetics*. (6th ed.). [Online]. Hoboken: Wiley. Available from: http://arts.idm.oclc. org/login?qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fbkdictling%2Fsynchronic%2F0%3FinstitutionId%3D105

#### syntagm

An orderly combination of interacting signifiers which forms a meaningful whole (sometimes called a 'chain'). In language, a sentence, for instance, is a syntagm of words.

Oxfordreference.com

#### to read

Look at and comprehend the meaning of (written or printed matter) by interpreting the characters or symbols of which it is composed.

Old English rædan, of Germanic origin; raten 'advise, guess'. Early usage included 'advise' and 'interpret' (a riddle or dream).

http://forreadingaddicts.co.uk/reading/etymology-so-thats-where-it-comes-from#letterR

## typeface

from The Thames & Hudson Dictionary of Art Terms Any of the thousands of letter-forms, often very subtly differentiated, that are used in printing. Each typeface is available in a number of sizes;

typeface In *The Thames & Hudson Dictionary of Art Terms*, by Edward Lucie-Smith. 2nd ed. Thames & Hudson, 2003. http://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference. com%2Fcontent%2Fentry%2Fthat%2Ftypeface%2F0%3FinstitutionId%3D105

## typification

Typfication is the process of organizing things in terms of typical features. Social actors and sociologists organize their social world by categorizing events, people or things in terms of typical features. This concept is a cornerstone of the influential work of Alfred Shutz, a social theorist, in *The Phenomenology of the Social World* (1932). Shutz, a social phenomenonist, believed that everyday actors make sense out of their lives by organizing everyday occurrences and actions and creating common sense knowledges. Shutz and ethnomethodologists believe there is no difference between "conventional academic sociology" and "practical sociology." "Practical sociology" refers to the process undertaken by everyday actors in their day-to-day lives. From this perspective, individuals are seen as active agents who make sense out of their everyday lives and thereby create social reality.

Typification. (2001). In J.M. Palmisano (Ed.), *World of sociology, Gale*. [Online]. Farmington: Gale. Available from: https://arts.idm.oclc.org/login? qurl=https%3A%2F%2Fsearch.credoreference.

com% 2 F content% 2 F world socs% 2 F typification% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F institution Id% 3 D 105 m s and 10% 2 F 0% 3 F

## ultracrepidarian

First recorded in 1800–20; from Latin *ultrā crepidam* (also *suprā crepidam*) "above the sole, beyond the sole," from adverb and preposition *ultrā* (see origin at ultra-) + Latin *crepidam* (accusative singular of *crepida*) "sole of a shoe, shoe, sandal" (re-formed from Greek *krēpîd*-, stem of *krēpís* "man's high boot, half boot, shoe") + *-arian*; in allusion to Pliny the Elder's

adaptation of the retort that the Greek painter Apelles (360?–315? b.c.) made to a cobbler who was critiquing Apelles' work, *nē suprā crepidam sūtor jūdicāre* "let the cobbler not judge above the sandal"; cf. the English proverb "let the cobbler stick to his last".

Pertaining to a person who judges, comments or gives advice outside their area of expertise: The play provides a classic, simplistic portrayal of an ultracrepidarian boss.

https://www.dictionary.com/browse/ultracrepidarian

## unicode

Unicode is a character encoding standard that is used to represent written language in digital form. It provides a way to encode and represent the characters of all major writing systems, including those used in Latin, Cyrillic, Arabic, Chinese, Japanese, and many other languages. The unicode standard assigns a unique numeric code point to each character, which allows it to be represented consistently across different devices and software applications. This means that text can be exchanged between different systems and devices without losing its meaning or appearing as gibberish. It currently includes over 143,000 characters: letters, symbols, and punctuation marks. It also includes a range of control codes and formatting characters that allow for the display of text in different fonts, styles, and sizes.

www.unicode.org

## visual rhetoric

Visual rhetoric, as it is employed in the discipline of rhetoric, has two meanings. One refers to visual images themselves–visual communication that constitutes the object of study. The second meaning references a perspective or approach rhetorical scholars adopt as they study visual rhetoric. Together, these two senses of the term point to the need to understand how the visual operates rhetorically in contemporary culture. Visual rhetoric, as communication data to be studied and as an approach to those data, suggests the need to expand understanding of the multivarious ways in which symbols inform and define human experience and constitutes a call to expand rhetorical theory, making it more inclusive in its encompassing of visual as well as verbal symbols.

Foss, S. 2005 'Theory of Visual Rhetoric.' In *Handbook of Visual Communication: Theory, Methods, and Media.* Ed. Ken Smith, Sandra Moriarty, Gretchen Barbatsis, and Keith Kenney. Mahwah, New Jersey: Lawrence Erlbaum, pp. 150-51.

## x-height

The height of the lowercase letter 'x' of a font. It is and important determinant of the apparent size of a font, according to its proportional relationship to the extenders.

Henestrosa, C., Meseguer, L. and Scaglione, J. (2017) *How to create typefaces: from sketch to screen.* Madrid. p 145.



## **Appendix B: ChatGPT**

A [unedited] conversation with chat.openai.com in February 2023

## What difference does it make to the reader to read the same text typeset in Ubuntu or in Times New Roman?

The difference between reading the same text typeset in Ubuntu or Times New Roman is mainly related to the visual appearance and style of the text.

Times New Roman is a serif typeface that has been a standard font for books, newspapers, and academic papers for many years. It is characterized by its classic and traditional appearance, with serifs (the small lines at the ends of letters) that give it a more formal and traditional look. Times New Roman is often associated with print media and is considered a safe and conservative choice for formal documents.

Ubuntu, on the other hand, is a sans-serif typeface with a more modern and streamlined appearance. It is designed to be easy to read on screens and has a slightly more organic and humanist feel than Times New Roman. Ubuntu is often used in digital media, web design, and user interfaces.

In terms of readability, both typefaces are highly legible and well-suited for use in body text. However, some studies have suggested that sans-serif fonts like Ubuntu may be slightly easier to read on screens than serif fonts like Times New Roman. This is because the absence of serifs can make the letters appear clearer and more distinct at smaller sizes. Ultimately, the choice between Ubuntu and Times New Roman (or any other font) depends on the context in which the text will be used and the preferences of the reader. Some readers may find one font more visually appealing or easier to read than the other, while others may not notice much of a difference.

## Pretend you are a typeface designer from Dalton Maag who designed Ubuntu. How do you argue for its superiority over Times New Roman?

As a typeface designer who designed Ubuntu, I would argue for its superiority over Times New Roman by emphasizing its modern and streamlined design, which makes it more suitable for use in digital media and user interfaces.

Firstly, Ubuntu is a modern typeface that reflects the changing needs of typography in the digital age. Its clean, simple lines and sans-serif design make it highly legible and easy on the eye, particularly on digital screens. In contrast, Times New Roman's more ornate design may be less legible and less suited to digital media.

Secondly, Ubuntu's versatility is one of its greatest strengths. It can be used in a wide range of contexts, from web design to branding to print media, without losing its distinctive character. Its design is highly adaptable, making it a versatile and practical choice for designers who need a typeface that can work across multiple platforms.

Thirdly, Ubuntu's accessibility is another key advantage. Its open source design means that it can be used by anyone, anywhere in the world, without cost or restriction. This accessibility makes it a more democratic choice than Times New Roman, which may be less accessible to designers and readers in certain parts of the world.

Finally, Ubuntu's fresh and modern design makes it a more contemporary and stylish choice than Times New Roman. Its use of geometric shapes and clean lines reflects a design aesthetic that is highly sought after in modern branding and advertising. It also reflects a commitment to inclusivity and diversity, reflecting the values of the global community. In conclusion, the superiority of Ubuntu over Times New Roman lies in its modern, versatile, and accessible design. Its adaptability, accessibility, and contemporary aesthetic make it a practical and stylish choice for designers and readers in the digital age.

Now pretend you are Stanley Morison who commissioned the design of Times New Roman and argue for its superiority over Ubuntu

As Stanley Morison, the typographer who commissioned the design of Times New Roman, I would argue for its superiority over Ubuntu by emphasizing its historical significance, classic design, and legibility in print media.

Firstly, Times New Roman is a typeface of unparalleled historical significance. Its creation in 1931 marked a watershed moment in the history of typography, representing a pinnacle of refinement and legibility in type design. Its subsequent use in some of the world's most famous publications, from newspapers to academic journals, has cemented its status as a classic and iconic typeface.

Secondly, the design of Times New Roman is meticulously crafted to achieve optimal legibility and readability. Its serifs, proportions, and spacing are carefully calibrated to create a typeface that is both authoritative and easy on the eye. This attention to detail is a hallmark of British design and typographic tradition, reflecting a commitment to excellence and refinement that cannot be matched by more modern, utilitarian typefaces like Ubuntu.

Thirdly, the classic design of Times New Roman imbues it with a sense of formality and tradition that is essential in many professional and academic contexts. Whether in a legal contract or a doctoral thesis, the use of Times New Roman signals a seriousness of intent and a respect for established conventions. In contrast, the more casual and informal design of Ubuntu may be seen as inappropriate or unprofessional in these settings.

Finally, the enduring popularity of Times New Roman speaks to its superiority over more modern typefaces like Ubuntu. While Ubuntu may be fashionable at present, it lacks the timeless quality and universal appeal of a classic like Times New Roman. For centuries to come, Times New Roman will continue to be a typeface of choice for those who value refinement, legibility, and tradition.

In conclusion, the superiority of Times New Roman over Ubuntu lies in its historical significance, meticulously crafted design, formality, and timeless appeal. Its enduring popularity among typographers and designers reflects its superiority as a typeface that embodies the best of British design and typography.

## What kind of mood can a typeface create? And how?

Typefaces can create various moods and emotions, as they are an essential element of visual communication. Here are some examples of moods that different typefaces can create:

- Bold and thick typefaces, such as Impact or Arial Black, can create a sense of strength and power, as well as a feeling of urgency.
- Script typefaces, such as Brush Script or Edwardian Script, can create a sense of elegance and sophistication, as well as a feeling of romance.
- Serif typefaces, such as Times New Roman or Georgia, can create a sense of tradition and authority, as well as a feeling of formality.
- 4. Sans-serif typefaces, such as Helvetica or Arial, can create a sense of modernity and simplicity, as well as a feeling of cleanliness.

The way typefaces create these moods is through their various design elements, such as their weight, style, and shape. For example, the thickness and boldness of a typeface can convey strength, while the fluidity and cursive nature of a script typeface can convey elegance. Similarly, the presence or absence of serifs can convey a sense of tradition and formality or modernity and simplicity, respectively.

Overall, the choice of typeface is an essential aspect of design, as it can greatly impact the message and emotions conveyed to the audience.

## How do I know what mood a typeface conveys?

The mood conveyed by a typeface can be subjective and depend on the context in which it is used. However, there are some general guidelines that can help you understand what mood a typeface might convey:

- Serif vs Sans-serif: Serif typefaces, such as Times New Roman, have small lines at the ends of letters, while sansserif typefaces, such as Helvetica, do not. Serif typefaces are often associated with tradition, formality, and readability, while sans-serif typefaces are often associated with modernity, simplicity, and clarity.
- 2. Weight: The weight of a typeface refers to the thickness of the strokes in the letters. A heavier weight can convey a sense of boldness or importance, while a lighter weight can convey a sense of delicacy or playfulness.
- Proportion: The proportion of a typeface refers to the relative height and width of the letters. A typeface with wide letters can convey a sense of stability or strength, while a typeface with narrow letters can convey a sense of elegance or sophistication.
- 4. Style: The style of a typeface can also convey a specific mood or feeling. For example, a typeface with ornate or decorative elements can convey a sense of luxury or opulence, while a typeface with a handwritten or script-like style can convey a sense of informality or creativity.

Ultimately, the best way to determine the mood conveyed by a typeface is to experiment with different options and see which one feels most appropriate for the context and intended audience.

## How does stroke modulation of the typeface affect the mood of a text?

Stroke modulation refers to the variation in the thickness of the strokes in a typeface. When a typeface has stroke modulation, the strokes in the letters vary in width, creating a sense of contrast and movement.

The mood conveyed by stroke modulation can vary depending on the specific typeface and the context in which it is used. However, here are some general guidelines for how stroke modulation can affect the mood of a text:

- Boldness: A typeface with a lot of stroke modulation can convey a sense of boldness and confidence. The variation in stroke thickness can make the letters appear more dynamic and attention-grabbing.
- Playfulness: Stroke modulation can also create a sense of playfulness or whimsy. The varying stroke widths can create a sense of movement and energy, which can be appropriate for designs or texts that are intended to be fun or lighthearted.
- 3. Elegance: In some cases, stroke modulation can convey a sense of elegance or sophistication. A typeface with carefully controlled variation in stroke thickness can create a sense of refinement and artistry.
- 4. Distinction: Stroke modulation can also be used to create a sense of distinction or individuality. When a typeface has a unique and recognizable stroke modulation pattern, it can help set the text apart and make it stand out in the reader's mind.

Overall, stroke modulation can be a powerful tool for conveying mood and meaning through typography. By experimenting with different levels of modulation, designers can create typefaces that are tailored to the specific needs of their audience and the context in which they will be used.

# How does the x-height of the typeface affect the mood of a text?

The x-height of a typeface refers to the height of the lowercase letters relative to the uppercase letters. In general, a typeface with a larger x-height will have taller lowercase letters, while a typeface with a smaller x-height will have shorter lowercase letters.

The x-height of a typeface can affect the mood of a text in a number of ways. Here are a few examples:

 Legibility: A typeface with a larger x-height can be easier to read, especially at smaller sizes. This is because the larger letters are more distinct and have more space between them. This can create a more approachable and userfriendly mood in the text.

- Confidence: A typeface with a larger x-height can also convey a sense of confidence and assertiveness. The larger letters can create a bold and powerful impression, which may be appropriate for designs or texts that are intended to be strong and impactful.
- Informality: A typeface with a smaller x-height can create a more informal or casual mood in the text. This is because the smaller letters can appear more friendly and approachable, and may be associated with personal communication, such as handwritten notes or casual emails.
- 4. Elegance: A typeface with a smaller x-height can also convey a sense of elegance or refinement. This is because the smaller letters can create a more delicate and intricate appearance, which may be associated with luxury or sophistication.

Overall, the x-height of a typeface can be an important factor in creating the right mood and tone for a text. By choosing a typeface with the appropriate x-height, designers can help ensure that the text is both legible and visually engaging, while also conveying the desired mood and personality.

# Whose Confidence, Informality and Elegance are you talking about?

I apologize for any confusion. When I referred to "confidence," "informality," and "elegance" in my previous answer, I was referring to the moods or feelings that can be conveyed by the x-height of a typeface, not to the personality traits of any specific person.

The mood of a text is the emotional tone or atmosphere that it creates, while the personality of a person is their individual characteristics, traits, and behaviors. A typeface can convey different moods or feelings depending on its design, including confidence, informality, and elegance, but these moods are not related to any specific person.

## Is it possible to design a typeface to convey friendliness?

Yes, it is definitely possible to design a typeface that conveys friendliness. The overall design of a typeface, including its shape, weight, and spacing, can all contribute to the perceived mood or feeling of the text.

Here are some design features that can contribute to a typeface's perceived friendliness:

- Rounded shapes: Typefaces with rounded shapes, such as circular or elliptical letterforms, can convey a sense of softness and approachability. These shapes can be more welcoming and less intimidating than sharp or angular letterforms.
- Looser spacing: Increasing the spacing between letters and words can create a more relaxed and open appearance. This can make the text appear less cramped and more inviting, which can contribute to a friendly mood.
- Soft edges: Typefaces with soft edges or slightly blurred outlines can create a more organic and natural appearance. This can be more approachable and less formal than typefaces with sharp, precise edges.
- 4. Warm colors: Choosing warm colors, such as red, orange, or yellow, for the typeface can also contribute to a friendly mood. These colors can evoke feelings of warmth, happiness, and friendliness.

Overall, by paying attention to the design features of a typeface, designers can create a typeface that conveys a friendly mood and personality. By using soft, rounded shapes, looser spacing, and warm colors, designers can make the text feel more welcoming and approachable, which can help to create a friendly impression on the reader.

## How to design a typeface to convey trustworthiness?

Designing a typeface that conveys trustworthiness involves creating a visual impression that is reliable, credible, and stable. Here are some design features that can help to convey trustworthiness in a typeface:

- Symmetry: Symmetrical letterforms can create a sense of balance and stability, which can convey a feeling of trustworthiness. This can be achieved by ensuring that each letterform is visually consistent and aligned.
- 2. Straight lines: Straight lines and edges can create a sense of precision and stability, which can also contribute to the perception of trustworthiness. Straight lines can also create a sense of structure and organization, which can be reassuring to readers.
- Consistency: Consistency in letterform design can also convey trustworthiness. By ensuring that each letterform is visually consistent and uniform in weight and style, the typeface can create a sense of order and reliability.
- 4. Neutral colors: Using neutral colors, such as black or gray, can also contribute to a feeling of trustworthiness. Neutral colors are often associated with stability and reliability, and can be perceived as more trustworthy than brighter or more vivid colors.
- Legibility: Legibility is an important factor in creating a trustworthy typeface. The typeface should be easy to read and clear, with ample spacing between letters and words. This can help to create a sense of clarity and transparency, which can be important in conveying trustworthiness

Overall, by using design features that convey stability, reliability, and consistency, designers can create a typeface that conveys trustworthiness. By using symmetrical letterforms, straight lines, consistent design, neutral colors, and legibility, designers can create a typeface that inspires confidence and trust in the reader.

# Can we design a typeface for both warmth and competence simultaneously?

Yes, it is possible to design a typeface that conveys both warmth and competence simultaneously. However, it can be a challenging task because these two moods may seem contradictory at first. Warmth conveys friendliness, approachability, and softness, while competence conveys professionalism, reliability, and precision. Here are some design features that can help to achieve both warmth and competence in a typeface:

- Rounded shapes: Typefaces with rounded shapes can convey warmth and friendliness, while also conveying a sense of softness and approachability. However, rounded shapes should be used in moderation, as too many curves can detract from the sense of competence.
- Straight lines: Straight lines and edges can convey competence and professionalism, while also creating a sense of stability and reliability. Straight lines can also be perceived as precise and organized.
- 3. Warm colors: Warm colors, such as red, orange, or yellow, can convey a sense of warmth and friendliness, while also being bold and attention-grabbing. Warm colors can also be used in moderation, as too much brightness can detract from the sense of competence.
- 4. Legibility: A typeface that is easy to read and clear can convey competence and reliability. It is important to ensure that the spacing between letters and words is ample, which can create a sense of clarity and transparency.

Balanced design: A balanced design can convey both warmth and competence simultaneously. A typeface that has a balance of rounded shapes and straight lines, as well as warm and neutral colors, can create a sense of approachability and professionalism.

Overall, by using a combination of design features, designers can create a typeface that conveys both warmth and competence simultaneously. By balancing rounded shapes with straight lines, warm colors with neutral colors, and ensuring legibility and clarity, designers can create a typeface that is both friendly and professional, conveying both warmth and competence.

## How to design typefaces for remorse?

Designing typefaces for remorse is a unique and challenging task, as the concept of remorse is complex and multifaceted. However, here are some tips that can help you create typefaces that convey remorse:

- Consider the emotions and feelings associated with remorse: Remorse is often associated with feelings of regret, sorrow, and guilt. Consider how you can incorporate these emotions into the design of your typeface, such as through the use of subtle curves or shapes that suggest sadness or heaviness.
- 2. Use a muted color palette: Colors can also convey emotions and moods, so consider using muted or desaturated colors for your typeface to create a sense of sadness or regret.
- 3. Use a somber and subdued design: A typeface for remorse should have a somber and subdued design. Consider using a serif typeface with thin and elegant lines, or a sans-serif typeface with a simple and understated design.
- 4. Focus on clarity and legibility: While the design of your typeface is important, it's essential to ensure that the typeface is legible and easy to read. Focus on creating a typeface that is clear and easy to read, with appropriate spacing and kerning.
- 5. Experiment with different design elements: There are no hard and fast rules when it comes to designing a typeface for remorse, so don't be afraid to experiment with different design elements. Play around with different shapes, line weights, and textures to create a typeface that effectively conveys the emotions and feelings of remorse.

Overall, designing a typeface for remorse is a challenging but rewarding task that requires careful consideration of the emotions and feelings associated with remorse, as well as the design elements that can effectively convey those emotions.

## Appendix C: Sur la route d'Aix-les-Bains

# Victor Hugo's alphabetical musings, in French (Hugo 1839/1897: 28)

En sortant du lac de Genève, le Rhône rencontre la longue muraille du Jura qui le rejette en Savoie jusqu'au lac du Bourget. Là, il trouve une issue et se précipite en France. En deux bonds il est à Lyon.

Au loin sur les croupes âpres et vertes du Jura les lits jaunes des torrents desséchés dessinaient de toutes parts des Y.

Avez-vous remarqué combien l'Y est une lettre pittoresque qui a des significations sans nombre ? – L'arbre est un Y ; l'embranchement de deux routes est un Y ; le confluent de deux rivières est un Y ; une tête d'âne ou de bœuf est un Y ; un verre sur son pied est un Y ; un lys sur sa tige est un Y ; un suppliant qui lève les bras au ciel est un Y.

Au reste cette observation peut s'étendre à tout ce qui constitue élémentairement l'écriture humaine. Tout ce qui est dans la langue démotique y a été versé par la langue hiératique. L'hiéroglyphe est la racine nécessaire du caractère. Toutes les lettres ont d'abord été des signes et tous les signes ont d'abord été des images. La société humaine, le monde, l'homme tout entier est dans l'alphabet. La maçonnerie, l'astronomie, la philosophie, toutes les sciences ont là leur point de départ, imperceptible, mais réel ; et cela doit être. L'alphabet est une source.

A, c'est le toit, le pignon avec sa traverse, l'arche, arx ; ou c'est l'accolade de deux amis qui s'embrassent et qui se serrent la main ; D, c'est le dos ; B, c'est le D sur le D, le dos sur le dos, la brosse ; C, c'est le croissant, c'est la lune ; E, c'est le soubassement, le pied-droit, la console et l'architrave, toute l'architecture à plafond dans une seule lettre ; F, c'est la potence, la fourche, furca ; G, c'est le cor ; H, c'est la façade de l'édifice avec ses deux tours ; I, c'est la machine de guerre lançant le projectile ; J, c'est le soc et c'est la corne d'abondance ; K, c'est l'angle de réflexion égal à l'angle d'incidence, une des clefs de la géométrie ; L, c'est la jambe et le pied ; M, c'est la montagne, ou c'est le camp, les tentes accouplées ; N, c'est la porte fermée avec sa barre diagonale ; O, c'est le soleil ; P, c'est le portefaix debout avec sa charge sur le dos ; Q, c'est la croupe avec sa queue ; R, c'est le repos, le portefaix appuyé sur son bâton ; S, c'est le serpent ; T, c'est le marteau ; U, c'est l'urne ; V, c'est le vase (de là vient qu'on les confond souvent) ; je viens de dire ce qu'est l'Y ; X, ce sont les épées croisées, c'est le combat ; qui sera vainqueur ? on l'ignore ; aussi les hermétiques ont-ils pris X pour le signe du destin, les algébristes pour le signe de l'inconnu ; Z, c'est l'éclair, c'est Dieu.

Ainsi, d'abord la maison de l'homme et son architecture, puis le corps de l'homme, et sa structure et ses difformités ; puis la justice, la musique, l'église ; la guerre, la moisson, la géométrie ; la montagne, la vie nomade, la vie cloîtrée ; l'astronomie ; le travail et le repos ; le cheval et le serpent ; le marteau et l'urne, qu'on renverse et qu'on accouple et dont on fait la cloche ; les arbres, les fleuves, les chemins ; enfin le destin et Dieu, - voilà ce que contient l'alphabet.

## Deepl translation into English

As it leaves Lake Geneva, the Rhone meets the long wall of the Jura, which pushes it back into Savoy to Lake Bourget. There, it finds an exit and rushes into France. In two jumps it is in Lyon.

In the distance, on the harsh and green slopes of the Jura, the yellow beds of the dried-up torrents drew Ys on all sides.

Have you noticed how the Y is a picturesque letter that has countless meanings? - The tree is a Y; the junction of two roads is a Y; the confluence of two rivers is a Y; a donkey's or an ox's head is a Y; a glass on its foot is a Y; a lily on its stem is a Y; a supplicant raising his arms to heaven is a Y.

Moreover, this observation can be extended to everything that constitutes human writing. All that is in the demotic language has been poured into it by the hieratic language. The hieroglyph is the necessary root of the character. All letters were first signs and all signs were first images.

The human society, the world, the whole man is in the alphabet. Masonry, astronomy, philosophy, all the sciences have there their starting point, imperceptible, but real; and that must be. The alphabet is a source.

A is the roof, the gable with its crosspiece, the arch, arx; or it is the embrace of two friends who embrace and shake hands; D is the back; B is the D on the D, the back on the back, the brush; C is the crescent, it is the moon ; E is the base, the right foot, the console and the architrave, all the architecture with a ceiling in one letter; F is the gallows, the fork, furca; G is the horn; H is the façade of the building with its two towers; I is the war machine launching the projectile; J is the ploughshare and the cornucopia; K, it is the angle of reflection equal to the angle of incidence, one of the keys of geometry; L, it is the leg and the foot; M, it is the mountain, or it is the camp, the tents coupled; N, it is the portmanteau standing with his load on his back; Q, it is the rump with its tail; R, it is the rest, the portmanteau leaning on his stick; S, it is the snake; T, it is the hammer; U, it is the urn; V, it is the vase (from there comes that one often confuses them); I have just said what is the Y; X, it is the crossed swords, it is the combat; who will be victorious? It is not known; also the hermetics took X for the sign of the destiny, the algebraists for the sign of the unknown; Z, it is the flash, it is God.

Thus, first the house of man and its architecture, then the body of man, and its structure and deformities; then justice, music, the church; war, harvest, geometry; the mountain, nomadic life, cloistered life; astronomy; work and rest; the horse and the snake; the hammer and the urn, which are overturned and coupled and of which a bell is made; trees, rivers, paths; finally, destiny and God, - this is what the alphabet contains.

Victor Hugo, 'Sur la route d'Aix-les-Bains' in *En voyage. Alpes et Pyrénées* (1839/1897: 28).

## Appendix D: Celestial Emporium of Benevolent Knowledge

## John Hudson's version

(Hudson 2005) According to 'a certain Chinese Encyclopaedia', *The Celestial Emporium of Benevolent Knowledge*, typefaces are divided into the following categories:

- 1. those used to-typeset the words of the Emperor,
- 2. no-longer available ones,
- 3. those that are good for 'the small print',
- 4. the ones you used last week,
- 5. those that remind you of former lovers,
- 6. fabulous ones,
- 7. those in unknown formats,
- 8. those included in the present classification,
- 9. those you have forgotten,
- 10. innumerable ones,
- 11. those that are too-light to be used for the present job,
- 12. others,
- 13. those in which the g: 'just looks wrong',
- 14. those that will be used to typeset this list.

## Jorge Luis Borges's version

Borges (1999: 231 describes 'a certain Chinese Encyclopedia,' *The Celestial Emporium of Benevolent Knowledge*, in which it is written that animals are divided into:

- 1. those that belong to the Emperor,
- 2. embalmed ones,
- 3. those that are trained,
- 4. suckling pigs,
- 5. mermaids,
- 6. fabulous ones,
- 7. stray dogs,
- 8. those included in the present classification,
- 9. those that tremble as if they were mad,
- 10. innumerable ones,
- 11. those drawn with a very fine camelhair brush,
- 12. others,
- 13. those that have just broken a flower vase,
- 14. those that from a long way off look like flies.

This classification has been used by many writers. It 'shattered all the familiar landmarks of his thought' for Michel Foucault. Anthropologists and ethnographers, German teachers, postmodern feminists, Australian museum curators, and artists quote it. The list of people influenced by the list has the same heterogeneous character as the list itself. (Geoff Dyer 2005)

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