University of Reading

Designing italics: Approaches to the design of contemporary secondary text typefaces

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Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

James Victor Gaultney

Abstract

This thesis investigates the design process of contemporary, Latin-script, secondary italic text typefaces. It examines designers' approaches, the technical and cultural factors that influence their design decisions, and the techniques they employ. It reviews the historical italic design process, and explores how it informs current designers' approach to the design of italics.

This research sheds new light on a poorly-documented area of typeface design. It also demonstrates a method of design research that compares historical and contemporary practice and produces a framework for description and discussion.

Examination of the design process begins with an analysis of the varied roles and identities of italic in Latin-script text typography—as a *language feature*, *typographic element*, *historical marker*, *design object*, and *business product*—and how these identities have influenced design. Historical practice is documented and analysed based on a wide range of sources including designer accounts, reviews, journal articles, publications, and type specimens.

Contemporary practice is explored though interviews with a broad sample of currently-active designers regarding their approaches, processes, and techniques. Responses are analysed according to stages in the type design process—*initiating*, *experimenting*, *forming*, *harmonizing*, and *adapting*—with additional sections on *evaluating* and *learning*. These present a comprehensive view of the process and how it relates to historical practice.

This thesis then proposes a decision-based framework for description and discussion of the contemporary italic design process, including a fresh look at historical inspiration. It presents a method of approaching and analysing the design process and introduces two new concepts for describing designer decision-making: *balanced differentiation* and *italic tension*. It gives examples of how the framework might be applied in various contexts and explores how it might be extended to be useful in the analysis of other secondary styles and to scripts other than Latin.

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Notes

The terminology of type can be highly technical and often ambiguous. Technical terms, such as *hinting* and *duplexing*, are defined as needed within the text. Certain general typographic terms, however, can have multiple meanings. For purposes of this thesis, the following terms are used as indicated:

- *fount | font | typeface | type* : Although there may be technical differences in the scope of these terms, this thesis does not make a distinction, and primarily uses *type* to indicate a collection of letterforms, whether physical or digital.
- *roman | upright* : These are used interchangeably to indicate the primary (non-italic) text face for which an italic serves as a secondary style. They do not, however, specify any particular style or design heritage.
- *terminals | serifs* : Although the italic counterpart of upright *serifs* are often referred to as *terminals*, both terms are used for italic without any extra meaning implied.
- *contrast* : This term is used to refer to both *textual contrast* (linguistic or typographic differentiation) and *stroke contrast* (a measure of difference in stroke thickness). Where these uses might be ambiguous, additional description and alternate terms are used to avoid any potential confusion (see section 2.3).

The scale of reproduced images is generally not given unless it is of particular relevance.

Italics are used in this thesis primarily to define important terms (as used above), to highlight significant statements (see 2.2) or conclusions (see 4.8), and to differentiate figure captions from sidenotes.

TYPOGRAPHIC NAVIGATION RUNNING SECTION TITLE

LINGUISTIC REFERENCE PLAY TITLE

TYPOGRAPHIC HIERARCHY SUBSECTION HEADING

LINGUISTIC DEFINITION TERMINOLOGY

Figure 1.1. Italic used for both linguistic (reference, definition) and typographic (navigation, hierarchy) purposes (Bringhurst 1996: 56). The detailed guidance in contemporary style manuals regarding the proper use of italic demonstrates its ongoing typographic relevance and importance.

beginners especially – to use bold roman and italic whether they need them or not.

Bold and semibold faces do have their value. They can be used, for instance, to flag items in a list, to set titles and subheads u&lc in small sizes, to mark the opening of the text on a complex page, or to thicken the texture of lines that will be printed in pale ink or as dropouts (negative images) in a colored field. Sparingly used, they can effectively emphasize numbers or words, such as the headwords, keywords and definition numbers in a diction-ary. They can also be used (as they often are) to shout at readers, putting them on edge and driving them away; or to destroy the historical integrity of a typeface designed before boldface roman was born; or to create unintentional anachronisms, something like adding a steam engine or a fax machine to the stage set for *King Lear*.

3.4.3   *Use sloped romans sparingly and artificially sloped romans more sparingly still.*

It is true that most romans are upright and most italics slope to the right – but flow, not slope, is what really differentiates the two. Italics have a more cursive structure than romans, which is to say that italic is closer to longhand or continuous script. Italic serifs are usually *transitive*; they are direct entry and exit strokes, depicting the pen's arrival from the previous letter and its depar-ture for the next. Roman serifs, by contrast, are generally *reflex-ive*. They show the pen doubling back onto itself, emphasizing the end of the stroke. Italic serifs therefore tend to slope at a nat-ural writing angle, tracing the path from one letter to another. Roman serifs, especially at the baseline, tend to be level, tying the letters not to each other but to an invisible common line.

Some italics are more cursive than others; so are some ro-mans. But any given italic is routinely more cursive than the ro-man with which it is paired.

e *e* l *l* m *m* u *u*

Baskerville roman and italic. Baskerville has less calligraphic flow than most earlier typefaces, but the italic serifs are, like their predecessors, transitive and oblique, showing the path of the pen from letter to letter. The roman serifs are reflexive and level, tying letters to a common line.

Tribal Alliances and Families

56

1 Introduction

Italic typefaces are an integral part of Latin-script typographic culture. Since the first italic type appeared in 1501 the style has been adopted to indicate both linguistic and typographic differentiation—that the italic word, phrase, or passage is different from other text (Figure 1.1). Its importance as a secondary style was firmly established as early as 1600, when most typefounders were distributing italic counterparts for most of their roman types (Carter 2002: 126). The association between the two contrasting styles became so strong that the italic began to incorporate design characteristics from their associated roman (see section 3.2.3).

The expectation that text typeface families contain both roman and italic styles continues to the present day. Type foundries continue to commonly include italics in their typeface families. Style manuals provide guidance about the proper use of italic (also Figure 1.1). Technology is built around the assumed presence of italics. For example, publishing and word processing software applications often provide a user interface to activate the italic counterpart of the currently selected font. People complain when italics are not available because it limits the range of linguistic expression (see 2.1.1). These examples demonstrate that secondary italics have a recognized, ongoing, and important role in contemporary typography.

Type designers are therefore expected to provide these usually-sloped secondary styles alongside their roman designs. However the methods and processes of designing italics remain mostly undocumented. There seems to be no comprehensive record of the decisions a designer faces or what influences them. There is little guidance for type designers, nor any established ways of analysing or discussing italic designs. The small amount of documentation about italic design does not seem to reflect its importance to current type designers.

1.1 Existing resources and need for research

There is a large volume of resources and materials available to inform designers about the design of typefaces. There are more than 20 past and present journals that regularly feature articles on type design. This author's partial list of type design resources includes over 200 books, articles, and web pages.[1] More than 20 of those resources are specifically intended to teach principles of type design.

Few of those resources, however, address issues of italic design.[2] Those that do rarely cover practical issues of contemporary italic design in depth. Existing sources tend to fall into four categories:

- Accounts of the historical development and use of italics and specific italic designs (Carter 2002, Clayton 2013, Knight 2012, Lawson 1990, Vervliet 1998). These are useful in establishing a historical and typographic context, but tend not to discuss the motivation behind specific design details.
- Advice regarding the typographic use of italics (Bringhurst 1996, Ritter and Hart 2002, Steer 1951, Williamson 1983). These provide

1   This number only includes resources that specifically address Latin-script type design, history, or theory. The volume of resources consulted for this research was more than double that amount.

2   Some instructional books on typeface design, such as the 232-page *Designing Type* (Cheng 2006) do not mention italics at all.

some documentation of usage, but are generally prescriptive and do not address the breadth of contemporary usage, such as the relevance of italics in non-print and digital media. They also do not provide any guidance for those designing italic typefaces.

- Theoretical and conceptual treatises that discuss italic design (Gill 1931, Krimpen 1957, Morison 1926, Noordzij 2006). These tend to be dogmatic and establish only general theoretical ideals that rarely reflect actual practice.
- Direct, step-by-step techniques (Briem 2001, Moye 1995). These cookbook-style instructions are limited and are intended for those who have no experience in italic design and want a simple procedure to follow.

The most balanced examples of existing English-language literature on italics are *Letters of credit* (Tracy 1986) and *How to create typefaces* (Henestrosa, Meseguer, and Scaglione 2017), which seek to blend all of these purposes.[3] However, Tracy's section pertaining to italics is only two percent of the book (5 pages out of 219) and focuses heavily on a single, uncommon type of italics—sloped romans. The discussion of italic in *How to create typefaces* is more wide-ranging, but is three percent of the book (4 pages out of 150) and only hints at important design issues.

These existing sources fail to provide detailed accounts that might give designers an understanding of the italic design process. They lack insight into the factors that influence design decisions, particularly in a contemporary type design context. They may, however, provide small pieces of information that could be aggregated and analysed to build a more comprehensive picture.

There remains a need for detailed documentation of contemporary italic design practice that covers the full breadth of the process and could assist designers in planning and creating italic designs. There is also a need for a framework that could be used in the analysis and discussion of both historical and contemporary italics. That framework could encourage well-informed design of Latin-script italics and might stimulate deeper investigation into issues relevant for other scripts.[4]

1.2 Topic and scope

The primary goal of this research is *to describe and document the design process for contemporary, Latin-script, secondary italic text typefaces*. This involves examination of designer activities (techniques), the decisions that drive those activities (motivations), and the factors that affect those decisions (influences). These lead to a set of fundamental research questions:

- How do designers approach the design of italics?
- What influences these designs?
- What creative techniques and processes do they employ?
- How do technical and usage considerations inform design?
- What are the roles of culture and tradition?

The process of answering these questions requires in-depth research into a variety of areas, including:

- *Usage:* The typographic and semantic purpose of italics and how the conventions for use changed over time.

3 Most of the relevant literature in other languages has been translated into English. A notable exception is the German-language *Kursiv* (Weber 2010), which also blends historical, theoretical, and practical purposes and is the most lengthy existing publication focused on italics. Its impact is limited by the lack of any translations.

4 Other scripts may not share European typographic traditions and may have had no historical or cultural precedent for using slanted or calligraphic variants for secondary text. However the globalization of publishing paradigms and technology have increased the expectation that every script should have a secondary 'italic' style. Further investigation is needed to discover the appropriate characteristics of a secondary style for other scripts.

- *Design:* How contemporary italics commonly differ from their upright companions—in proportion, rhythm, weight, and other aspects—and how differentiation is balanced with harmonization within a typeface family.
- *History:* The role of historical designs in informing current practice and to what extent italics reflect the same historical influences as their upright counterparts.
- *Tools:* The influence of the calligraphic tradition on italic design and how non-calligraphic tools or techniques influence design decisions.
- *Technology:* How technology has influenced historical designs and to what extent technology has limited or stimulated contemporary practice.
- *Multiculturalism:* How the use of the Latin script by non-European language communities has affected the design of italics.

The differences between historical and contemporary practice are an important consideration, however the boundary between these two spheres is not clear. For research purposes this thesis makes the following distinction:

- *Historical* refers to designs, processes, and accounts that are described in any established literature or source records, whether those are from 1501 or 2019. These are valuable to provide context and informational material that may inform current design practices.
- *Contemporary* refers to the techniques and experience of currently active designers, even if their narrative describes the processes they used for designs of past decades. Although these may reflect on past practice, that reflection is focused on its relevance for current design practice.

Both of these spheres are important and relevant, and may overlap. The underlying goal is to establish a clear picture of contemporary practice in the context of the historical record.

This thesis does not, however, attempt to provide a comprehensive history of italic designs or designers. Historical designs are considered only when there is evidence of their influence on later practice, or the design illustrates particular designer decisions or influences.

This research focuses primarily on italics used as secondary text styles, as the italics used independently for ornamental or artistic purposes (sometimes called 'script' types)[5] could have different influences and processes. In order to avoid potential confusion, and address the most common type of italics created by designers today, independent or ornamental italics are explored to the extent they may have an influence on the design of secondary text italics.

A further boundary of the scope of this research is its focus on the designer. It does not take into account reader preferences or perspectives except where they influence designer decision-making. For example, general issues of italic readability and legibility are not discussed except where a designer has made specific design choices in order to increase expected reading ease.[6]

5   This thesis avoids using the term *script types* in this way, and uses *script* mainly to refer to calligraphic styles or to separate writing systems (e.g. Latin, Devanagari). A more formal classification of *script types* is described by Morison (1925).

6   Cognitive research regarding the readability and legibility of italics has been done since the early twentieth century. Studies are rare and have not been demonstrated to influence designer desisions. Beier (2012: 138–148) introduces these and related issues, however more direct research is needed.

1.3 Methodology and thesis structure

This research approaches the contemporary italic design process within the context of the historical record. It draws on three general categories of information:

- · Published accounts, articles, promotional material, and reviews
- · Analysis of italic typeface characteristics
- · Interviews with contemporary designers

This thesis begins with an exploration and refinement of the definition of *italic*, and identification of the multiple identities of italic (chapter 2). This is accomplished through analysis of the way in which authors have written about italic and its characteristics. It provides an initial foundation for the analysis of historical and contemporary practice.

The identities of italic, and an analysis of the general type design process, are then used as the basis for the investigation of influences on the italic design process (chapter 3). This draws on a comprehensive range of available historical resources, including primary and secondary published sources. Primary resources include publications printed in significant historical italics as studied and photographed through visits to three libraries. These libraries were chosen for their rich collections of early printed books, ease of access, and generous photography and image use policies:

- · The Newberry Library, Chicago. IL
- · The Houghton Library, Harvard University, Cambridge, MA
- · The Providence Public Library, Providence, RI

This focus on historical designs sheds light on the traditional italic design process and reveals previously undocumented sources, methods, and influences that have shaped the process.

The practice of contemporary italic design is then examined through interviews with currently active designers (chapter 4). The responses of designers are organized and explored according to the stages of the type design process model presented in the preceeding chapter, and compared with historical practice. The detailed responses contain a large volume of previously undocumented techniques, approaches, and methods unique to italic design. Significant themes and influences that emerge from the interviews are discussed and enhance the overall discussion of contemporary italic design.

These analyses of historical and contemporary practice are then used to develop a broad and inclusive framework for approaching, describing, and discussing the italic design process (chapter 5). This framework gives type designers a comprehensive method of planning and approaching italic design that encourages confident exploration of the full range of design tools and techniques. It also provides robust and systematic ways of approaching discussion and critical analysis of existing italics and a foundation for informed evaluation and improvement.

This thesis concludes with a discussion of the potential long-term impact of this research project (chapter 6). This includes the application of conceptual foundations developed in this thesis to research in other areas, such as the design process for other type styles or the development of secondary 'italic' styles for scripts other than Latin. It is hoped that the broader impact of this research will be a renewed interest in italic design, greater understanding of the process and relevant issues, more discussion and analysis of italic designs, and increased creativity and innovation.

2 Defining italic

This chapter establishes a foundation for the exploration of the italic design process. It examines the varied roles and identities of italic in Latin-script text typography and identifies potential influences on its design. It also refines the scope of the research and clarifies terminology. The aim of this discussion is to provide an initial foundation for the analysis of historical (chapter 3) and contemporary (chapter 4) practice based on a wide range of sources.

2.1 The multiple identities of italic

There is little clarity and unity among published sources regarding what makes a type style *italic*. Nor is there consistency in how writers discuss this secondary style. Direct documentation of the process of designing italics is rare. As a result, this research has required consultation and analysis of a wide variety of sources in order to ensure that research results would be sufficiently representative of past and current italic design practice. The following types of published sources were consulted:

- Designer accounts of their experience with specific designs
- Designer descriptions of general design processes and practices
- Promotional material prepared to accompany new product releases
- Type reviews and critiques
- Historical articles about the development of specific types
- Historical articles that document industry attitudes and actions
- Style manuals that discuss the use of italic
- Linguistic analyses of the use of italic in written language

Each of these sources approaches the subject of italics from a different perspective. Some authors write about italics as artefacts that have a place and role in history. Other authors discuss italics as graphic designs. Others write about the usefulness of italics in language or typography. These varied ways of discussing italics also highlight different aspects of their design and use.

A full understanding of italic design, therefore, needs to address these multiple ways of considering and discussing italics. Authors seem to treat italics as having one or more of the following distinct *identities*:

- Italic as a language feature
- Italic as a typographic element
- Italic as a historical marker
- Italic as a design object
- Italic as a business product

These identities each potentially exert influence on the design of italics, so are all relevant to research into the italic design process. Any comprehensive definition of what it means to be *italic* must acknowledge these multiple identities. An integrated, holistic view of the italic design process must consider them as both separate dimensions of the nature of italic and as potentially interrelated influences.

Figure 2.1. Italic used to mimic speech and provide emphasis (Dickens 2000: 14).

> 14   **OLIVER TWIST**
>
> There was a general start. Horror was depicted o
> 'For *more!*' said Mr Limbkins. 'Compose yo
> answer me distinctly. Do I understand that he ask
> had eaten the supper allotted by the dietary?'
> 'He did, sir,' replied Bumble.
> 'That boy will be hung,' said the gentleman in th
> know that boy will be hung.'
> Nobody controverted the prophetic gentlema
> mated discussion took place. Oliver was or

Figure 2.2. Italic used to change the semantic meaning of a word (Crystal 1998: 13–14).

I've lost my red slippers. (I've lost a pair of slippers, which happen to be red)
I've lost my *red* slippers. (i.e. not my blue ones)
I have been reading about America in the paper. (i.e. the country)
I have been reading about *America* in the paper. (i.e. the book by Alistair Cooke)

Figure 2.3. Another example of italic used for a semantic purpose (Milne 1957: 9).

> "What about a story?" said Christopher Robin.
> "*What* about a story?" I said.
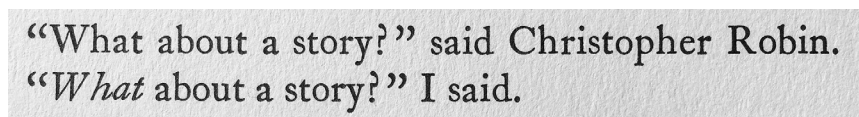
Figure 2.4. A condensed listing of how italic is used for differentiation, primarily for English. The first set lists general uses, ordered by frequency of current use. The second set lists uses by specific disciplines, ordered alphabetically. These observations are based on guidance and examples from a variety of sources: Moxon 1683, Luckombe 1771, Lynch 1859, Chicago 1906, Hart 1907, Simon 1945, Steer 1951, Phillips 1956, Dowding 1966, MLA 1980, Wishart 1988, Vachek 1989, Spiekermann 1993, Crystal 1994, Crystal 1998, Hart 2000, Luna 2000 (referring to Thomas 1550, Johnson 1755, Webster 1828), Ritter 2002, Morgan 2003, Chicago 2010, Delsaerdt 2011 (referring to Estienne 1543), Clayton 2013, MHRA 2013. A more detailed reference is provided in Appendix A.1.

Emphasis	Stress in speech, importance, distinction
Reference	People, ships, books, theatrical/musical/artistic works, periodicals, document content navigation
Definition	Technical terms, examples, words as words
Origin	Foreign words, Latin origin, Pre-decimal currency
Source	Quotations, conversational, editorial
Law	Parties in legal cases
Lexicography	Part of speech markers, alternative language text
Mathematics	Theorems and formal statements, literal symbols, references to items in illustrations
Music	Volume and style indications
Poetry	Rhyme schemes
Ritual	Words spoken by leader, instructions
Science	Latin names, certain chemical prefixes
Theatre	Stage directions

The following sections explore the nature of italic through each of these identities in preparation for in-depth analysis of the influences on italic designs and the italic design process in chapter 3.

2.1.1 Italic as a language feature

Italic has been a linguistic feature of European languages since at least the seventeenth century. Although written language is not simply a transcription of spoken language, italic is used to mimic aspects of speech—surprise, anger, yelling, heartfelt emphasis—in a wide range of literature from Brontë to Sinclair (Crystal 1994, Figure 2.1). It may also carry specific semantic meaning, as noted by Moxon (1683) in his *Mechanick exercises on the whole art of printing* (1962: 216–217). Figures 2.2 and 2.3 demonstrate this use of italic to change the implication or meaning of a word.

Further evidence that italic has a linguistic aspect comes from style manuals and literary analysis. In these publications italicization is often considered an element of textual content, rather than its presentation. *The Oxford guide to style* (Ritter & Hart 2002: 155) considers it a change of content, and if added by anyone but the author, even the editor, requires a note, such as 'emphasis added'. *The MLA handbook for writers of research papers, theses, and dissertations* (Gibaldi & Achtert 1980: 10), a manual written for authors, not editors or typesetters, warns against overuse of italic. In his *Introduction to typography*, Simon (1945: 3) groups use of italic with language, not typographic, knowledge. Literature analysts seem to agree that italics are part of language, and have noted their importance in the works of Wordsworth (Simonsen 2007) and Derrida (Wallen 2013). These confirm that italic is a language feature, at least for English.

Vachek (1989: 45–48) describes the most common linguistic use of italic: *to communicate that the indicated text is somehow different or special*. He refers to it as a demonstration of linguistic marking—a way to separate text for purposes of communicating emotion, emphasis, or complexity. He notes that italic seems to have unique qualities and use patterns that set it apart from other means of typographic marking (such as bolding and capitalization).[1] McAteer (1989: 270–274) demonstrates a measurable difference between italics and capitals in the degree and character of their marking, which validates a general viewpoint amongst typographers that capitals are more emphatic than italics (Williamson 1983: 191). These studies confirm that italic has a unique and specific role in differentiating text.[2]

The use of italic for textual differentiation has some historical precedent. Before the era of humanist roman type, differentiation was indicated through use of colour or space or size, or by writing the text in a contrasting style—a foreshadowing of the roman-italic relationship (Clayton 2013: 231–232). Italic provided a simpler, economical, and efficient way to differentiate text in comparison to other styles. Morison (1937: 11) claims that this may have even contributed to the overall decline of blackletter styles and the 'triumph' of the roman alphabet. This historical use of italic for differentiation is discussed in greater depth in section 3.2.

By the twentieth century the norms for italic use had settled into place, though usage continues to evolve. Figure 2.4 provides a condensed listing of the many ways in which italic is currently used for content differentiation. A more detailed reference is given in Appendix A.1.

1   One of Vachek's observations is that italic type appears to not be able to serve as the 'unmarked' member of the italic/upright pair. Italic type is interpreted as indicating some additional level of meaning in relation to the upright, but switching the two does not communicate a similar type and level of distinction. Although it is common for roman to be used as a secondary type style when the primary style is italic, such use may not be an effective alternative.

2   Other books on typographic design recognize that italic has a particular use separate from other methods of differentiation (e.g. Willberg and Forssman 1997: 122–127, referenced in Unger 2018: 135).

Figure 2.5. Twitter message demonstrating both the need for italic and use of alternate markup (Lord 6, 2015).

Figure 2.6. Italic used to indicate a specific type of metadata—a chapter synopsis—in a print edition (Milne 1957: 121).
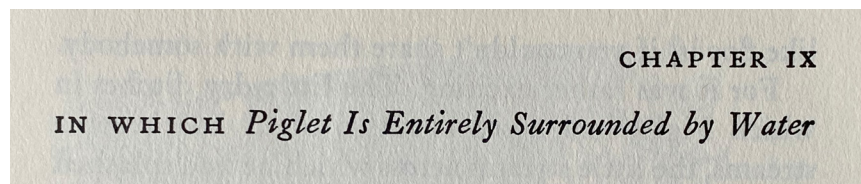
Figure 2.7. Italic used in an electronic edition for linguistic differentiation in text, but not for the chapter synopsis, as seen in the previous figure. Italic is instead used for the chapter title (Milne 2009: 190).
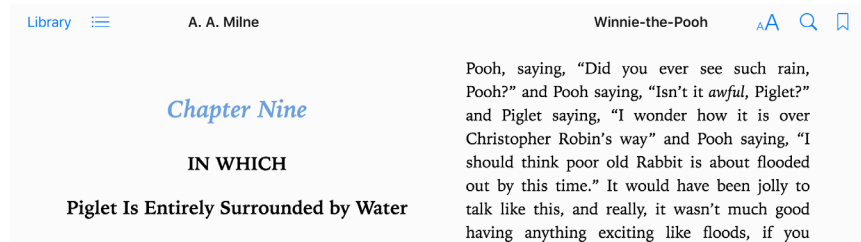
Figure 2.8. Italic used in a style manual for both linguistic (editorial) and typographic (hierarchy) purposes (Hart 1907).
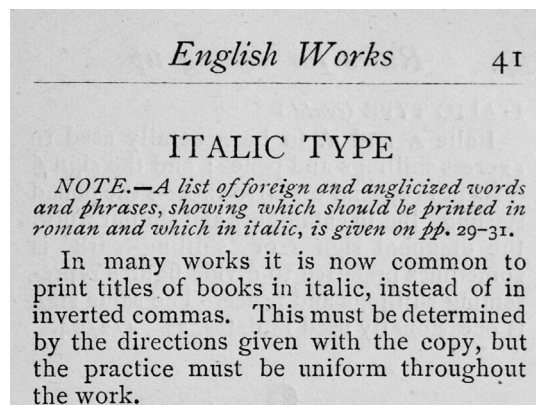
Figure 2.9. A condensed listing of functional, typographic uses of italic. These are recommended or demonstrated in both editorial and style manuals: Luckombe 1771, Chicago 1906, Hart 1907, Simon 1945, Williamson 1983, Black 1990, Bringhurst 1996, Hart 2000, Ritter 2002, Pettersson 2003, Chicago 2010, MHRA 2013. A more detailed reference is in Appendix A.2.

Hierarchy	Section headings, sideheads, sidenotes, numeration in lists
Navigation	Running heads/feet, repeated headings, visual references, directions
Metadata	Publication metadata, chapter synopses

The semantic concept of *italic* seems to have enough linguistic importance to extend beyond traditional print typographic environments. On the web, the HTML5 recommendation (World Wide Web Consortium 2014) makes a distinction between stress (`<em>`) and mood (`<i>`), recommending the latter for text 'in an alternate voice or mood, or otherwise offset from the normal prose in a manner indicating a different quality of text'. Braille includes markers for italic (Simpson 2013), and some text-to-speech technologies note the start and end of italic passages (Apple 2015). These demonstrate that the semantic concept of italic has a linguistic dimension that transcends its visual appearance.

This importance is confirmed by reactions to technologies that do not allow italics, such as text-only messaging and social media. An informal review, completed by the author, of public Twitter messages throughout the first three weeks of November 2015 demonstrates that people still feel the need to use italics to express themselves adequately, and resorted to 40 different methods of marking up text in order to indicate italics (Figure 2.5). A detailed summary of the tweets and the various methods of marking up texts are in Appendix B.[3]

These examples and sources show that italic has a well-established identity as a language feature, used primarily to indicate differentiation—that the italicized words are somehow different from those around them. The influence of this aspect of italic identity is explored in section 3.2.

2.1.2   *Italic as a typographic element*

Italics are also used as an independent element of typographic design for functional and ornamental purposes beyond the content-creator's control. This is explicitly discussed in style manuals. For example, Williamson (1983: 7), in his recommendations about preparing copy, says that the use of underlining to specify italic should be limited to 'words for which italic type is obligatory', and that 'it is for the designer to decide whether italic is to be used for headings'. The *MHRA style guide* (2013: 12) warns authors and editors not to specify italics for headings, as it may conflict with styles chosen for the publication. In these publications a clear distinction is made between linguistic and typographic purposes.

This distinction is demonstrated in comparisons of published editions of the same text, for example, print and electronic editions of *Winnie-the-Pooh*. In a print edition (Figure 2.6), italic is used for the chapter synopsis, a type of metadata. In an electronic edition (Figure 2.7) the synopsis is styled in bold type, not italic, however italic remains in use for linguistic purposes within the text.

Some typographic uses of italic are functional, primarily to help the reader navigate content and understand its structure, and may be mixed with linguistic uses (Figure 2.8). Figure 2.9 provides a condensed listing of these uses. A more detailed reference is given in Appendix A.2.

Italics are also used as a design element, for content enhancement and visual ornament, in ways that are often a matter of current typographic style. Many publications that give guidance for typographers, such as Steer's *Printing design and layout* (1951), demonstrate this use, even in example settings, but do not discuss it. Spiekermann (1993: 79–81) shows use of italics for a magazine article lead-in, a 'safe' look for a magazine of the 1990s. However his only direct reference to italic is as an alternate style for the text of a whole article. There seem to be few functional purposes in these uses other than to communicate a particular typographic style.

3   The informal review of messages—tweets—is based on all those that included the words 'italic' or 'italics' as typographical terms. During the first three weeks of November 2015 there were a total of 959 such tweets, excluding retweets, of which 301 expressed a desire to use italics in text messaging and social media.

Figure 2.10. Examples of italic styles from 1501–1831: Griffo (Dante 1502a) Newberry Library Collection; Arrighi (Trissino 1524) Newberry Library Collection; Granjon (Cousin 1560) Newberry Library Collection; Fournier (1742) Houghton Library Collection; Didot (1831) Providence Public Library.

Figure 2.11. Lutetia Italic, a chancery italic 'in the style of Blado' (Morison 1928).

The ornamental or artistic use of italic may reflect its history as a separate independent style. The initial use of italic type was for long texts, with no reference to a primary upright roman style. Typographers and writers in addition to Spiekermann suggest that such use remained appropriate through the twentieth century (Dowding 1966: 50, Fairbank 1964). Certain styles of italic, such as 'chancery', may be more appropriate for these independent, primary uses (Warde 1933: 9).

The development of italic from an independent style to a secondary style used for functional and ornamental typographic purposes may have influenced its design—an influence that may continue today. This is explored further in section 3.2.

2.1.3   Italic as a historical marker

Italic type is an artefact that has historical associations. Italic designs may follow established historical styles. These designs may be studied and documented, used as reference markers for describing other italics, and may be used as the inspiration for new designs. This historical dimension gives them an identity and purpose in the history of typefounding and the design process.

The word used in English to describe this contrasting type—*italic*—points to this heritage. The first italic type was cut by Griffo in 1501 at the request of Venetian printer Aldus Manutius, only a few years after the first roman type. It was intended to emulate the handwriting style developed by Bracciolini and Niccoli and popularised by Sanvito and others (Clayton 2013: 121). As with roman type, various styles developed over time and are commonly associated with their designers: Arrighi, Granjon, Fournier, and others (Figure 2.10).

Though often linked with related romans, italic types that represent these styles have a separate identity as historic artefacts worthy of academic study (e.g. Vervliet 1998 and 2005). They contribute to the overall history of typefounding and enhance the stories of individual designers and foundries (e.g. Monotype, see Burke 1997 and Carter 1997). Much of the literature produced about italics seems to be related to the history of their production, distribution, and use (e.g. Carter 2002, Cruickshank 2004, Kaufmann 2015, Olocco 2019).

This historical, documentary attitude towards italics has enabled some styles to be identified as markers used to describe other italics. For example, *The Fleuron*'s review (Morison 1928) of Lutetia Italic (Figure 2.11) begins by classifying it as a 'chancery' letter in the style of Blado, and refers to a particular design for comparison. Lutetia Italic is then described according to how it differs from that model, and whether or not that difference is an improvement. To describe Lutetia purely in terms of abstract design properties would take considerably more effort and might not be nearly as effective at communicating its visual appearance.

New italics may reference or be inspired by historical design. When developing an italic a designer may decide to tie that design to a particular historical tradition, and carry certain elements of that tradition into their design. In many cases, the design of a secondary italic may be inspired by the same historic tradition as the primary roman. In some cases, such as Adobe Jenson, there was no secondary italic to emulate, and so the designer had to decide which of the various contemporary italic models was most appropriate and effective and which of its design characteristics to preserve (Baseline 1995: 23).

Figure 2.12. Avenir Medium and
Avenir Medium Oblique. The
secondary italic (oblique) is a
sloped version of the roman.

The quick brown fox
jumps over the lazy dog
The quick brown fox
jumps over the lazy dog

Figure 2.13. Harvey's (1975:
48–49) illustrations analyse the
structural elements of the italic
style as they relate to broad-
nibbed pen calligraphy.
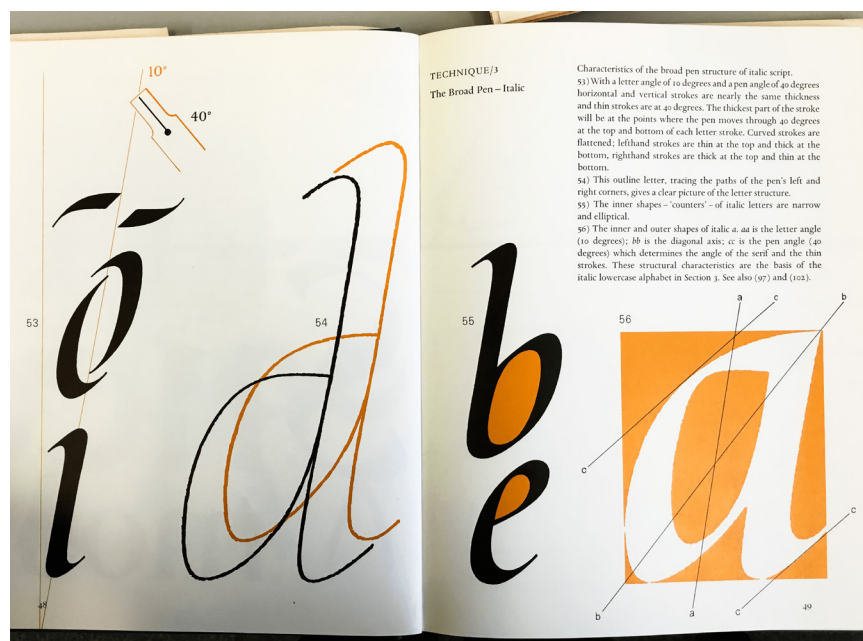
The prevalence of these comparisons and inspirations points out a important factor in italic design: that italics are not designed not in isolation but within the context of 500 years of tradition. This influence of history is a potentially major factor in design decisions made regarding italic—an influence explored in detail in section 3.3.

2.1.4 Italic as a design object

Italics are unique objects of design and have visual characteristics that go beyond any relationship to particular historical designs.[4] Their visual appearance can be described and compared using both objective measurements and subjective qualities. Their appearance may also reflect the tools used to produce individual lettershapes.

There are particular visual characteristics, or properties, that are often associated with italics: a slanted or sloped appearance, narrow forms, lighter strokes, calligraphic terminals, greater curvature, alternate lettershapes. The most commonly mentioned objective property is *slope*— also called 'inclination', 'skew', and 'slant' (Fairbank 1964: 85; Moye 1995: 164; Williamson 1983: 40). The first edition of the *Chicago manual of style* defined italic as 'Type with a sloping face' (1906: 81). If a font has a sloped inclination, it is commonly identified as an italic, and though upright italics exist, few non-designers would likely identify them as italics if seen in isolation. This slope is sometimes the primary and only way an italic differs from its associated roman. Such 'obliques' are common in sans-serif type families (Figure 2.12). As an objective property, slope can be measured and compared. Other properties, such as width and weight, may also be objectively measureable.

An italic may also have subjective qualities that hint at a cursive nature: connection, flow, movement, speed. Authors have described italics with words such as 'crisp' (Bringhurst 1996: 125, 214), 'delightful' (Fairbank 1964: 86), 'dynamic' (Berry 2001: 66, Fairbank 1964: 86), 'fluid' (Bringhurst 1996: 57), and 'wayward' (Monotype 1933: 27). Morison (1926: 105) argued that a useful indicator of a true italic is a 'spontaneous informality'. The German word for italic—*kursiv*—reflects this cursive aspect of italic identity. These subjective qualites may not be measurable, but their characteristics may be able to be described in more visually descriptive terms. These qualities may also be reflected in alternate letterforms (e.g single-storey forms of **a** and **g**) and design features (e.g. triangular arches and counters). Some of these can be seen in Lutetia Italic (Figure 2.11).

An alternate way to analyse the design of italic, and one even Morison acknowledged, is to study its relationship to the tools used to produce the lettershapes, as demonstrated by Harvey (Figure 2.13). The heritage of italic is in broad-nibbed pen calligraphy, and many italic designs exhibit a close affinity to the shapes made by that tool under the influence of pen angle, speed, and stroke-to-nib width ratio. Other designs are inspired by traditional roundhand forms produced using a flexible pen, or by specific techniques such as continuous vs. interrupted writing (Noordzij 2000, 2006). These physical writing tools may have an influence on the shapes, structures, and features of italic designs.

Pens are not, however, the only tools involved in producing italics. The graver, knife, and French curve have all been used in forming italic letters. The digital tools available in modern type design software, such as Bézier curves and mathematical transforms, are the current means of shaping italics. These tools may all have an effect on the shape of letterforms.

4 These characteristics could, however, be used to describe individual historical types. Specific historical styles could be discussed as pre-configured sets of design characteristics.

Figure 2.14. A portion of the promotional specimen for Monotype Van Dyck 203 (1937a), featuring its 'narrow and graceful' italic.

IT IS WELL KNOWN that William Caslon I closely followed Dutch type designs in his famous old face. At the time that he began to work there was probably more Dutch than English type used in England. Joseph Moxon, the doyen of English writers on the craft extolled the qualities of Dutch types and says "I like their *Letter* so well, and especially those that were cut by *Christopher van Dijck of Amsterdam.*"

Figure 2.15. Literata Italic, an unusual upright italic developed for Google Play Books and used to promote both the whole Literata family and the larger Google Play Books brand. Text from TypeTogether (2015).

The secondary style is an upright italic, meaning the lettershapes have an italicised construction and no slant to speak of.

The identity of italic as a design object has the potential to affect its design, particulary with regard to the tools and technology used to produce letterforms. These influences are discussed in section 3.4.

2.1.5 Italic as a business product

Italic is not only a historic artefact or an object of design—it is a product for sale. It is used to promote typeface families and related products, sell books, promote changes to typographic culture, strengthen the reputation of foundries, and demonstrate the virtuosity and skill of designers.

Typefoundries have used italic family members to promote and sell typeface families. Because of the greater creative range available to the designer, an italic can add uniqueness and character to a family. For example, Monotype promoted Monotype Van Dyck 203 (Figure 2.14) by contrasting its 'narrow and graceful' italic with the 'distressing irregularity' of Caslon's design.

The value of italic for wider branding purposes and promotional intent is demonstrated by TypeTogether's Literata font family, developed for Google Play Books, and including a unique upright italic (Figure 2.15). In their description of the project (TypeTogether 2015), the designers highlighted how the upright design addressed the technical needs of display devices, however there were also promotional considerations that contributed to the design choice:

> Moreover the resulting unusual italic adds high branding value to Literata making it unique, recognisable and easy to remember.

The use of italic to sell books began with the first italic type in 1501. Griffo's italic for Aldus was intended for a production of a new series of books that would be attractive to scholars due to their use of the italic style. This new type and subsequent imitations were used to establish a humanistic typographical culture that grew to challenge the dominance of roman in the sixteenth century (Carter 2002: 73–75, Johnson 1966: 117).

Monotype and other foundries even used their italic designs to further establish the historical validity and significance—and value—of their organization, to proclaim their own technical advances, and to promote other products (Monotype 1950). For example, the Monotype machine was praised by its creators for its italic capabilities (1929: 7):

> As the result of this new ability to interpret every subtle variation in width and setting, it has been possible to reproduce even the most wayward old-style italic without cramping or distorting any of the graceful kerned or tied letters.

Italic has also been used to demonstrate and promote the virtuosity and skill of designers. An early example of this is Trissino's praise of Vincentino's new italic design (1524, quoted in translation by Morison 1927: 12):

> Having recently invented this more beautiful method of doing in print all that was formerly done with the pen, in his beautiful types he has gone beyond all other printers.

Although in some of these cases the goal was to sell a typeface, in most cases the purpose of the italic was to sell or promote something else. These widely ranging business and promotional considerations add a further dimension to the identity and purpose of italics. The influence of these pressures on the design of italics, and on the structure of type families, is explored in section 3.5.

The design direction I took with Garamond Premier reflects my concerns for maintaining a high degree of historical accuracy, while making a family that feels at home in today's more precise print and digital display environments. I wanted to uncover the mystery of Garamond's and Granjon's vision and present it to a contemporary audience as a well-balanced and versatile digital type family. It was this quest for ideals of form and function in text type that I found appealing.

There is only one possible position:—to regard currency in italic as desirable and defensible only when and in so far as it exists in the roman. In other words, a fount consists not of one roman and one italic but of two romans, a perpendicular and an inclined. The perfect italic is therefore a slanted roman.

We are now perhaps in a position to state the following theses:

1. The only function of a secondary type (italic) is to complement and support the body letter (roman).

2. The secondary type can only do this if it possesses sufficient differential indications.

3. But since harmony of both primary and secondary forms can only be attained by the conservation of similarity, the differentia of the secondary must be kept to the minimum.

4. Should the secondary type be upright, it needs to be either (*a*) *smaller* than the body type, (*b*) *smaller and heavier*, (*c*) *larger*, (*d*) *larger and heavier*, or (*e*) the same size and character printed *in a second colour*—all of which are undesirable because they disturb the page by excessive differentiation.

5. The only alternative is a sloped type sufficiently inclined to be differentiated from the primary type, yet following its design as closely as possible.

6. Therefore our need is for a secondary letter agreeing in all essentials of design with the text type and free from all informality and currency.

7. In sum, we require an upright roman for our text and a slanted roman as a secondary type.

2.2 Implications of complementary identities

Each of these five identities has a potential influence on italic designs and the italic design process, however these identities and influences do not seem to function independently. Designers of italic type seem to rarely speak of them as separate influences. A designer must consider them all, and typographers—customers in the eyes of type designers—may see them as unified. This complementary view can be seen in the review of Lutetia Italic (Figure 2.11) in *The Fleuron* (Morison 1928). The review informs a typographic audience of a new product, gives it a historic context, analyses its design and unique qualities, and gives guidance for its use. These purposes are mixed and reflect the complementary identities of the typeface.

A design may have complementary influences that come from multiple identities, as demonstrated with Literata (Figure 2.15), whose design reflects both its use as a screen font and for product branding. These influences may also compete. For example, Slimbach (2005: 17) describes the process of designing Garamond Premier (Figure 2.16) as a 'balancing act' between historical accuracy and practical use as a product for a digital context. A holistic view of the design process needs to recognize that multiple identities may result in complementary—or competing—requirements.

The recognition that italic has multiple, complementary identities has two particular implications for how it is analysed and discussed.

A formal classification system of italic types may not be practical or useful. Attempts at the formal classification of italic types are either highly simplified (Johnson 1966: 92) or generally follow roman models, though the associated characteristics differ, and no model covers the full range of italic faces. Any assumption that classification systems for roman types apply equally well to italics may not be valid.

Dixon's descriptive framework and later reflections (2002, 2008, 2018) may provide the most useful conceptual model for classification, with its acknowledgement of the multiple descriptors of *sources* and *attributes*. However Dixon's framework considers the identity of italic primarily as a design object, with only partial reference to historical influences. It does not, for example, take into account any classification by purpose or usage. Extending the system to include these additional dimensions would add layers and bulk to an already complex and intricate model, and would limit its practical usefulness.

There may be no 'ideal italic'. In 'Towards an ideal italic' (1926), Morison argues that a basic 'slanted roman' is the ideal secondary style (Figure 2.17), even for seriffed romans. He prefers to use the term *italic* only to refer to stand-alone designs based on early Venetian fonts. In practice, types based on this ideal failed in their most important use—to clearly identify marked text. The letterforms were not sufficiently different from the roman. Carter (1950: 12) notes that Morison himself later admitted that his argument 'appeared, in the light of greater experience, to have been pressed too far; and the italic of "*The Times* New Roman" owes more to Didot than dogma'.

Morison's argument does, however, recognize two key factors in the success of an italic: *similarity* and *difference*. The tension between these factors is a recurring theme in italic design, and is explored throughout the rest of this thesis.

Although Morison's 'ideal italic' was a failure in practice, the question remains whether there can be an ideal italic. The multiple identities—and related influences—of italic would require an ideal italic to be ideal in every

dimension: ideal for all linguistic and typographic uses, ideal with regard to historical style, ideal in its design characteristics, and ideal as a business product. Given the diverse requirements that each identity could place on a design, this is clearly not possible.

The conclusion that there can be no ideal italic has further relevance to analysis of the italic design process. *If there can be no single ideal italic, can there be a single ideal italic design process?* The following chapters examine to what extent it is possible to model the process in a generally applicable way and whether there are common processes and approaches in contemporary italic design practice.

2.3   Describing italic

The nature of italic as having multiple identities also has considerations for how italic is defined and described. It may not be sufficient to define what it means to be *italic* based solely on a single identity, such as its visual characteristics as a design object. However a comprehensive definition is needed to establish the boundaries of this research.

The following working definition of *italic* acknowledges the multiple identities of italic, and is used to define the scope of this research:

A secondary italic is a typeface that exhibits most of these characteristics:

- *It is used to indicate linguistic differentiation or typographic function*
- *Its design refers to established italic historical styles*
- *It has characteristics, properties, structures, and features commonly associated with italic*
- *It is distributed as the italic member of a typeface family*

This definition avoids using any single test to determine whether a design is italic (e.g. sloped forms, historical style). It is inclusive of italics that may be unusual in form but function as secondary textual elements.

Visual characteristics are, however, an important factor in the discussion of italic, and this research needs clear language for describing them. As noted in 2.1.4, the language used by authors to describe italic is inconsistent and a mix between subjective and objective terms. Analysis of these varied descriptions indicate that there are four different categories of visual characteristics that are useful for description purposes:

- *Style characteristics*—subjective descriptions of the qualities of an italic that are difficult to measure or compare with other designs. Examples of these are informality, cursiveness, liveliness, speed, texture, character, creativity, originality, personal quality, and aesthetic value.
- *Design properties*—objective, measurable aspects of an italic design, such as slope, width, weight, contrast, and height.
- *Letterform structures*—the construction and form of italic letterforms in contrast with the roman, which can apply to the whole design (as in the presence of serifs), to a subset of letters (capitals), or to individual letters (such as a single- vs. two-storey **a** and other alternate forms).
- *Features* and *motifs*[5]—design elements repeated throughout a collection of letterforms to provide unity or achieve a particular effect. For example, a motif may be an elliptical ball on certain terminals (**a c f j r s y**). A feature may be strongly triangular counters within arching letters (**h m n**).

5   The term *motif* is borrowed from the study of music and is a 'short musical idea, melodic, harmonic, rhythmic, or any combination of these three' (Drabkin 2001) that is repeated to give unity and coherence to a composition (Schoenberg 1967: 8). An example is the four-note sequence (short-short-short-long) that begins Beethoven's *Symphony No. 5* and is echoed throughout the composition.

For clarity, this thesis uses these four categories and related terminology when describing visual characteristics.

The language used by authors for describing italic design properties, in particular, is also inconsistent. As these are objective, measurable properties it is useful to have clear terms and definitions that can be used for description and comparison. The following definitions are used in this thesis and are based on how the terms seem to be most commonly used and understood:

· The *slope* or *slant* of an italic can be defined as *the amount the italic seems to tilt away from the vertical as expressed in angular degrees*. It is an optical rather than mathematical measurement.

· The *width* or *narrowness* or *compression* of an italic can be measured *as the length of the lowercase alphabet as a percentage of the roman*. It is a combination of two factors: the width of the letterforms and the spacing between them.

· The *weight* of an italic can be described as *the change in perceived colour, or grey value, compared with the roman*.

· The *contrast* of an italic can be defined as *the ratio of the thickness of the thinnest strokes to the thickest strokes*, and can be compared to the contrast of the roman.[6]

· The *height* of an italic can be defined as *the percentage of the x-height compared with the roman*.

These definitions, along with the analysis of the five identities of italic and its implications, form a foundation for research into the historical and contemporary italic design process. The following chapter explores historical influences on italic design as they have arisen from these multiple, complementary identities.

6   The term *contrast* is also used in this thesis to refer to textual differentiation, although care is taken to avoid possible confusion.

3 Influences on the italic design process

This chapter examines the historical italic design process and the factors that influenced design decisions. It draws on a variety of primary and secondary source material, broader in scope than those consulted for chapter 2, including:

- Designer accounts and descriptions of their practices
- Promotional materials and reviews
- Articles that document industry attitudes and actions
- Articles about the development of specific types
- Publications printed in significant historical italics
- Type specimens
- Published digital fonts

This analysis of historical practice begins with a clarification of the end product of the process, the design and production processes that contribute to its creation, and the specific role of the *designer*. It continues with an examination of the general type design process, leading to a proposed model for the design process, and reflection on its application to italics.

The chapter then explores four influences on the italic design process based on the identities of italic established in chapter 2:

- *Usage* (3.2) describes the evolution of italic as a language feature and typographic element and its influence on design
- *History* (3.3) examines how designers have looked to italic as a historical marker as they made design decisions
- *Tools and technology* (3.4) identifies the influence of rendering technology and tools used to create italic design objects
- *Business* (3.5) traces the influence that italic as a business product has had on its design

These analyses provide a comprehensive historical context for the examination of contemporary italic design practice (chapter 4).

3.1 Defining the type design process

Research into the influences on the italic design process requires a clear understanding of the general type design process. Any description of that process needs to be sufficiently adaptable to five centuries of change in design and production techniques. This section offers a general analysis of the process, based on historical sources, beginning with a clarification of the relationship between *designer*, *design object*, and *type product*. It distinguishes between *design decisions* and *production actions* in a way that applies to all eras of type creation and may be useful in establishing an overall context for type design research.[1]

Analysis of these design and production activities seems to indicate that there are five overall stages to the design process (Figure 3.1). This section explores these stages and illustrates the usefulness of the proposed model to the study of the type design process, including italics.[2]

1   An alternate model of the type design process is offered by Harkins (2018), however his model is based purely on analysis of contemporary interviews and does not account for historical practice. Practical application of his model is also limited by abstract concepts and complex terminology that seem only distantly representative of designer decisions. Further comparison of approaches and conclusions is provided in section 6.3.

2   Although many of the given examples illustrate the design of italic types, this model is intended to be equally applicable to upright roman type design.

OBJECTS & PRODUCTS OF EACH ERA		STAGES OF THE TYPE DESIGN PROCESS	
Design objects *These defines the letterforms and their relation to one another*	**Type products** *These are the end products used by publishing technology*	**Stage 1: Initiating** *Starting a font project*	**Stage 2: Experimenting** *Discovering the basic characteristics, parameters, and details*

HAND-CUT METAL 15TH–21ST C.

Copper matrices, formed from a hand-cut steel punch and justified	Lead type, cast by pouring lead into a mould containing a matrix	Accepting a commission or assignment Solving a problem Pursuing an idea Expressing an artistic inspiration Allocating resources to the project	Sketching lettershapes and features Writing with pens and other tools Reviewing design inspirations Experimenting with files and gravers Cutting counterpunches

MACHINE-CUT METAL 19TH–20TH C.

Wood or metal patterns cut directly or based on designer drawing	Lead type, cast by pouring lead into a mould containing a matrix formed from a pattern using mechanical means, often using a punch as a transfer medium	(as with hand-cut)	Sketching lettershapes and features Writing with pens and other tools Reviewing design inspirations

HOT METAL 19TH–20TH C.

Wood or metal patterns based on designer drawing	Matrices produced from patterns using mechanical or chemical techniques	(as with hand-cut, but most often at the request of technology manufacturers)	(as with machine-cut)

PHOTOCOMPOSITION (PRE-DIGITAL) 20TH C.

Large-scale drawings	Photomatrices produced by photographic reduction of drawings	(as with hand-cut, but most often at the request of technology manufacturers)	(as with machine-cut)

DIGITAL (INCLUDING PHOTO) 20TH–21ST C.

Various digital formats (bitmap, vector, outline)	Fonts in various formats and for different machine types (photo, screen, laser) based on source data (bitmap, PostScript, TrueType)	(as with hand-cut)	(as with machine-cut) *Scanning drawings as draft models*

Figure 3.1. An analysis of the design decisions (regular) and production actions (italic) involved in creating type throughout eras of type technology. These tasks are grouped into five general stages of development. The lists are only illustrative, not exhaustive, and demonstrate common practice rather than the full scope of technical possibilities. Based on Carter 1930, Carter 2002, Smeijers 1996, Southall 1997, Southall 2005.

STAGES OF THE TYPE DESIGN PROCESS

Stage 3: Forming
Determining the shape of individual letterforms

Stage 4: Harmonizing
Making the letterforms work well together

Stage 5: Adapting
Adjusting the design for specific technologies

HAND-CUT METAL 15TH–21ST C.

Cutting punches
Striking punches into matrices

Justifying matrices
Harmonizing position and rotation

Casting individual pieces of type

MACHINE-CUT METAL 19TH–20TH C.

Creating refined drawings
Cutting and adjusting patterns
Adjusting designs for optical sizes
Cutting punches based on patterns
Creating matrices from punches

Specifying letter widths
Harmonizing stroke widths
Regularizing curves

Casting type from matrices

HOT METAL 19TH–20TH C.

(as with machine-cut)
Making scaled patterns from drawings

(as with machine-cut)
Fitting letter widths into unit systems
Adjusting letterforms for unit systems

Adjusting machine-specific versions
Cutting punches based on patterns
Creating matrices from punches
Duplicating matrices

PHOTOCOMPOSITION (PRE-DIGITAL) 20TH C.

Creating refined drawings
Adjusting shapes for photo technology
Photographing drawings

(as with machine-cut)

Adjusting machine-specific versions
Assembling composite photomatrices

DIGITAL (INCLUDING PHOTO) 20TH–21ST C.

Drawing Bézier curve outlines
Defining bitmaps
Refining scanned drawings into shapes
Converting shape source data format

Hinting outlines for specific sizes
Writing OpenType code
Positioning diacritics
Converting metrics source data format

Hinting for specific technologies
Changing font format for display
Exporting data into font formats
Converting between font formats

Figure 3.2. A proposed model for type design, production, and use, based on an analysis of type creation processes (Figure 3.1). The type design process includes five stages that may be separate and follow in sequence, but may also overlap (see 3.1.3). The length of the stages, and the amount of overlap, differs between technological eras. It may also vary from designer to designer and even between individual types. The thick blue line indicates one possible path from the initial idea for a design to a final published page. Diagram by the author.

Design Object
copper matrix
wood pattern
metal pattern
large drawing
digital source
and others

Type Product
lead type
photomatrix
bitmap font
digital font file
(.ttf, .otf)
and others

Type on a Medium
ink on cloth
toner on paper
e-ink on tablet
pixel on screen
metal on wall
and others

Initiating

Experimenting

Forming

Harmonizing

Adapting

Generalized path
from idea to publication

Design decisions

Production actions

Publishing processes

3.1.1 Introduction and definitions

The end purpose for type is a series of letterforms displayed on a medium. These forms may consist of ink on cotton-based paper, or e-ink on a digital display, or even large metal objects affixed to the side of a building. As such, they are the product of not only traditional typefounding processes but possibly paper manufacturing, ink formulation, digital rasterization software, and many other factors not often associated with typeface design. Unlike calligraphy or sculpture, these letterforms are shaped by a pre-produced *type product* or *font*[3] and rendered on the medium by way of publishing technology and processes—technical systems that provide repeatable, consistent, and predictable results.

This *type product* embodies all the technical details necessary to accurately and reliably reproduce the letterforms according to the designer's intentions. It is the end result of the type design and production process and is the product most commonly offered for sale by type manufacturers.

In order to study how type products are created, it can be useful to make a distinction between *design decisions* and *production actions*, and between the *design object* and the final *type product*. The meaning and interpretation of these terms can vary widely, so this chapter proposes the following new definitions, based on the analysis of type creation activities (Figure 3.1). The intent is to enable discussion of the design of type apart from its production and in a way that is not tied to a particular technology or era.

- The *design object* is the set of drawings, patterns, matrices, or digital files that completely define the shape of the letterforms and their relation to one another.[4]
- The design object is the result of many *design decisions*—any decision that intentionally affects the form and alignment of the final letterforms.
- A *designer* is anyone who participates in making design decisions, however minor their role may be.
- The *type product* is the physical or digital font based on the design object and created through a series of *production actions*. The intent of these actions is not to further alter the shape of the letterforms or their relation to one another but rather to faithfully represent the design in whatever manner is appropriate for the technology in use.

Figure 3.2 illustrates the relationship between the design object, the type product, and the final letterforms displayed on a medium—and the roles of design decisions, production actions, and publishing processes.

Drawing on these definitions, the *type design process* can be understood to include any decision or task involved in defining design objects. Production actions, as defined here, are not used to directly influence design objects, so they are excluded in this definition of the type design process and are part of a separate, but parallel, *type production process*. This historical type manufacturing and production process is discussed in many publications, including Carter 1930, Carter 2002, Moxon 1962, Smeijers 1996, Southall 1997, and Southall 2005. These cover the topic well, but tend to focus on the mechanics of production rather than documenting the decision-making design process. This thesis avoids further discussion of the type production process in order to focus on the design process.

3   Southall (1997: 32) refers to type products as 'sets of image carriers', but prefers the more general term *fonts*. Although the term *font* has many uses and meanings, this chapter uses it exclusively to refer to type products rather than other artefacts of the type production process.

4   Southall (1997: 32) refers to this as the 'set of character masters', although his definition does not explicitly include information on how the character shapes relate to one another, such as kerning and other contextual behaviour.

Figure 3.3. The first italic type, commissioned by Venetian publisher Aldus Manutius for a series of portable books of classical literature, and cut by Griffo (Virgil 1501). Newberry Library Collection. Shown at approx. 180% actual size.

Figure 3.4. Garamond revivals by Jannon and Slimbach. Petit-canon (Richelieu 1642) Newberry Library Collection; Adobe Garamond Premier Pro Italic Display (Slimbach 2005). These revivals are a mix of careful attention to original design details and adjustments for contemporary use. Note the disappearance of the long s and shorter ascenders in Slimbach's version.

Figure 3.5. Twin (Letterror). This technically clever design won the competition for a new typeface for the Twin Cities (Littlejohn 2003). It includes many variants of each letter, which are combined using computer programs to give the typeface a wide variety of personalities. The technical virtuosity was a significant factor in its success. Image courtesy Erik van Blokland (Letterror).

DESIGNING ITALICS

3.1.2 Stages in the type design process

The type design process involves a series of decisions that determine the shape of the letterforms and their relation to one another. Analysis of the nature of these design decisions across multiple technological eras (Figure 3.1) reveals that they can be grouped into five stages (Figure 3.2):

- *Initiating*—starting a new project
- *Experimenting*—making initial decisions about the design
- *Forming*—creating provisional letterforms
- *Harmonizing*—balancing letterform weight, spacing, positioning
- *Adapting*—adjusting the design for specific technologies

These stages are applicable to type design across all eras and technologies. They include the decisions of everyone involved in designing type—from the person who sketches prototype shapes to the one who prepares the product for sale. The following sections discuss each stage in detail.

Stage 1: Initiating

Every project begins with an idea—the *initiating* stage. It may be a visual concept that springs from the mind of a designer[5], but more often it is the result of a request or assignment, possibly from a publisher or foundry, and the nature of the request inspires the design. The designer must decide whether to accept the assignment, and proceed with exploring the design possibilities. In the case of speculative design, where there is no initial request, a designer must decide how much time they can dedicate to the idea. These are the first decisions in the design process, and are best described through examples.

Many new typefaces are initiated to meet specific business needs. A company may seek a unique visual identity for its communication. A publisher may look for an exclusive design that would enable them to expand their publishing repertoire, attract new book-buying customers, or lay claim to a particular market, as was the case for Aldus Manutius in 1501 (Figure 3.3) (Carter 2002: 73–74). This practice of commissioning types for specific presses or series continued in later centuries (Dreyfus 1966).

Technology vendors commission new types to demonstrate and promote their technologies, or to show that their technology is capable of meeting client requirements (see 2.1.5). Foundries seek to expand their market by creating new fonts to meet a need[6] or follow a fashion. For example, the ongoing popularity of Garamond's style of types inspired many revivals, from Jannon to Slimbach (Figure 3.4). Each revival claims to interpret the design in a new and special way that will appeal to customers.

New designs also emerge from design competitions (Figure 3.5) and academic programmes.[7] These situations encourage and reward novelty and experiment, and allow designers to show off their skill and creativity.

Some new typefaces begin in the minds of designers without any specific commission or external request. Goudy's University of California Old Style was inspired by his encounter with the Fell Types on a visit to the University of Oxford long before he was approached by the University of California (Goudy 1940: 50). Large font clearinghouses, such as MyFonts, encourage speculative design by enabling individuals to directly submit works. A new typeface can be created and presented for sale to the public without a corporate commission and with only a minimal approval process.

Many fonts are created to be copies—both legal and not—of other popular fonts. The motivation is economic. A copy of a font might cost very

5   For example, Unger (2007: 109) suggests that a typeface might be inspired by a particular typographic *colour*—the average shade of black in a body of typeset text.

6   A limited supply of printing materials due to post-war shortages led Mergenthaler Linotype to develop types that were compact yet legible (Mergenthaler Linotype 1953).

7   Typefaces Athelas (Scaglione, TypeTogether 2008), Ingeborg (Hochleitner, Typejockeys 2010), and Malabar (Reynolds, Linotype 2009) began as academic projects at the University of Reading and later became commercial products.

little to produce, and so the profit could be high even if sold at a lower price. It could enable a company to compete in an otherwise exclusive market. Even the earliest italic design by Griffo (Figure 3.3) was quickly copied and spread throughout Europe's printing centres (Carter 2002: 74).

In each of these examples, the motivation to create a new design, and the basis for design decisions, seems to be functional, creative, or a combination of the two. Southall (1997: 32) argues that type design is a primarily functional problem-solving, rather than creative, activity, and that any artistic value is secondary to its purpose. Other designers give a more balanced view, arguing that creative, artistic features, such as beauty, should also be considered. Goudy (1940: 69, 77) writes that:

> The real ends of type design are utility, fitness, and pleasing readability [...] I feel that the proper standard of beauty in types resides, first of all, in their utility, but I believe also that there are secondary esthetic attributes which may be included in their design with no sacrifice of life and vigor and legibility.

Zapf (1987: 19) promotes this combined point of view. He writes that 'A new type, besides having beauty and legibility, must satisfy [...] modern technical demands'. These dual motivations—functional and creative—seem to drive the decisions a designer faces at the initiation of a project.

These examples demonstrate that the decision to create a new design can be influenced by a wide range of factors and motivations, from business product development to artistic expression.

Stage 2: Experimenting

The next step towards a new typeface is often a series of experiments that test tentative decisions about the basic characteristics of the face. The goal of this *experimenting* stage is to discover the style characteristics that will determine the basic look of the face, and experiment with properties, structures, and features that give it a distinctive character (see 2.1.2). These are judged by how they might help the typeface fulfil its intended purpose.

These experiments may involve pencil sketches, or shapes made by particular writing tools, such as the brush or broad-nibbed pen. For his Falcon typeface, Dwiggins used an unusual technique: he cut stencils for various recurring parts of letters, then combined the parts to form complete letters (Dwiggins 1940).

Inspiration may come from existing letterforms: those found in manuscripts (Southall 1997: 39–40), or existing type designs and genres[8], or 'memories of beautiful things that at some time have deeply stirred our admiration' (Goudy 1940: 37). Gill (1931: 30) describes letter-making as 'making existing forms and not inventing new ones'.

A new face may be inspired by a single idea or letter shape, from which the rest of the alphabet is derived. Goudy (1940: 81) writes:

> I usually begin a new type with some definite thought of its final appearance, though it may be no more than the shape or position of the dot of the lower-case i, a peculiar movement or swell of a curve, or the shape or proportion of a single capital. From such humble beginnings I progress step by step, working back and forth from one letter to another as new subtleties arise, new ideas to incorporate, which may suggest themselves as the form develop, until finally the whole alphabet seems in harmony—each letter the kin of every other and of all.

8   In his biography of Renner, Burke (1998: 194) comments on the designer's relationship with historical designs: 'Sketches for unproduced typefaces among Renner's papers exhibit many unresolved attempts at novel genres of typeface, mixing styles and rationalizing letterforms. This is not uncommon for type designers, who are obviously anxious to make an innovation, but usually have to accept that they can only produce modifications of existing genres.' See also section 3.3.3.

Figure 3.6. *The unsuccessful sloped roman of the* romain du roi (*reprinted in Jammes 1965 as plates IV and IX*).

Figure 3.7. *Trio of drawings by Van Krimpen that illustrate the differences between rough pencil sketches, hard pencil outlines, and fully inked letters. He notes that the first sketch most clearly shows the designer's intent, and that by the final one the design has 'lost most of its interest' (Van Krimpen 1972: 92).*

Sorry—image redacted due to lack of reproduction permission

A theoretical idea may inspire experimentation. For example, in 1692, a group formed to specify a set of letter designs that would become known as the *romain du roi* (Figure 3.6). Initial drawings included an italic that was a middleground between roman and italic—essentially a roman that had been mathematically sloped to the right with only few further adjustments. However it was judged to be too close to both roman and italic to be useful with either (Mosley 1997: 8).

The experiment stage is not limited to theory or abstract ideas. It is used to test design ideas within specific technical processes and constraints. Dwiggins (1940) describes how he would have experimental drawings for a few letters made into actual type masters, and have tests produced at real size. This would continue for a number of iterations until he was satisfied with the results. Digital type designers seem to use a similar process. They may experiment with ideas by producing fonts with only a limited set of characters (such as **a d h e s i o n**) and testing them in publishing applications using only words that can be formed from those letters (Souza 2017).

Products of the experimenting stage seem to be ephemeral. Many are unsuccessful, and are destroyed or set aside. However rejected ideas may resurface. For example, Mosley (1997: 9) notes that certain features of the *romain du roi*'s failed experiments with sloped romans can be seen in French types created decades later.

Stage 3: Forming

The *forming* stage begins when the initial characteristics of a typeface have been decided, and concepts and experiments begin to take shape as provisional letterforms—shapes that may last. Ideas are formed into working models. These shapes may still change prior to release, but the goal of this stage is to provide a reasonably complete set of letterforms that are consistent with the parameters and characteristics of the chosen style. Some experimentation continues, but it is focused on how to make a shape fit the chosen style rather than to discover the basic style itself.

In traditional typefounding, this is the stage in which the full set of punches is cut—when the overall design decisions of a designer are implemented by a punchcutter.[9] In mechanical punchcutting and phototypesetting, this is when sketches become carefully realized drawings and master patterns are produced. In digital type, this is when bitmaps or Bézier curves are refined and optimized. Scanned physical drawings may be used as guides.

Although the result of the forming stage may be a set of master shapes in production-ready media, the stage does not always involve the use of precise drawings or patterns. Some designers feel they are not necessary. As a modern designer-punchcutter, Smeijers (1996: 132) feels that only a 'quick and loose sketch' is needed, and primarily to capture 'the mood or feeling of the letters'. Southall (1997: 40) confirms this as normal practice in his analysis of production methods:

> The designer's drawings are to provide information to the punchcutter about the desired appearance of the finished typeface, not to serve as exact descriptions of the final character shapes. The drawings are guides for the punch cutter to study, not patterns for him to follow.

There is evidence that precise drawings can even be a hindrance to good design, and restrict the designer's freedom. When Johnston submitted his

9   From the first types of the fifteenth century until the development of the mechanical punchcutting machine in 1885, type was created by a punchcutter who used files and gravers to 'cut' pieces of steel into punches that formed letter shapes at actual type size— which might be very small. These punches were then driven into enduring copper *matrices*, and those matrices inserted into a *mould*, into which molten lead was poured to form individual pieces of type. This process is well-documented in Fournier's *Manuel Typographique* of 1764– 1766 (Carter 1930), Smeijers (1996), Southall (1997), and Carter (2002).

Sorry—image redacted due to lack of reproduction permission

Figure 3.8. Walter Tracy's method of spacing (1986: 75) begins with setting the spacing of **n** *and* **o**, *then setting the sidebearings of other letters in proportion. The process is the same for italics.*

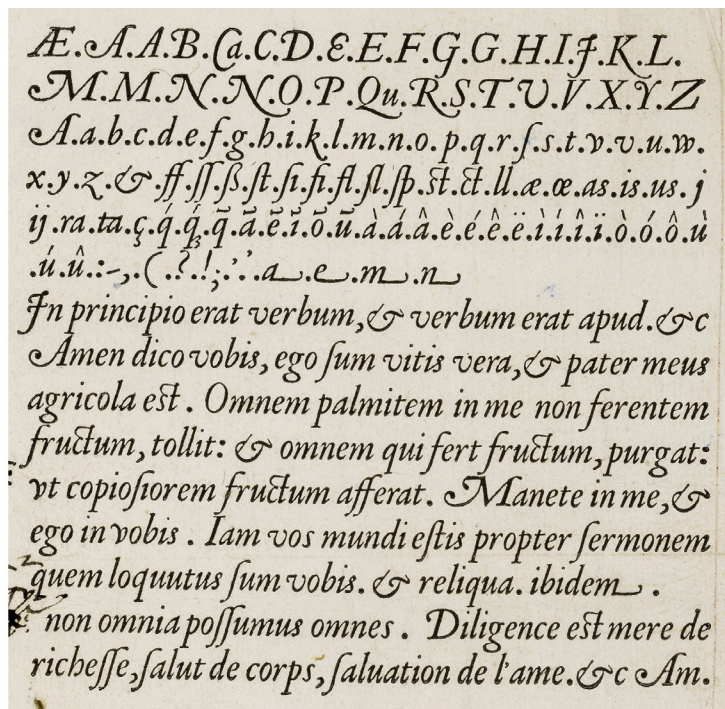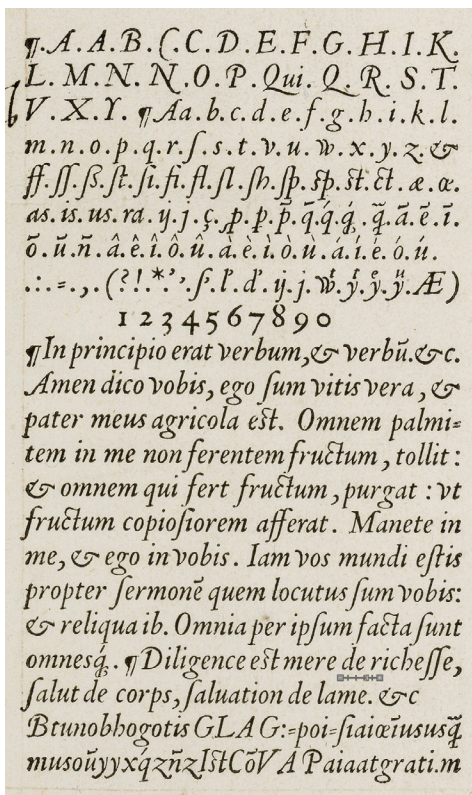*Figure 3.9. Guyot's Great Primer and Double Pica italics from an anonymous type specimen (Guyot 1565). The capital serifs point upward rather than being horizontal and aligned on the baseline. For this particular type the typefounder may have rotated the capitals to be more upright than originally cut. This provided increased harmony with the lowercase by matching the slope. Folger Shakespeare Library CC BY-SA 4.0.*

sketches for the Cranach Press italic, he warned strongly that they were not to be considered as exact sources for weight, slant, or proportion, and that attempts to give them the precision of a punchcutter 'would have spoilt his freedom' (Dreyfus 1966: 22). Van Krimpen (1972: 29–34) claims that increased precision can result in a loss of character (Figure 3.7).

The forming process is risky, as the process of turning nuanced sketches into precise production media can diminish character, particularly when more than one person (such as a designer and punchcutter pair) is making design decisions.

Stage 4: Harmonizing

The next stage—*harmonizing*—involves bringing the letter shapes into visual harmony with each other. Designers describe harmony as a subjective sense of unity and balance. It is judged by looking at paragraphs of text and evaluating how well the letter shapes fit together to form an effective typographic whole. Tracy (1986: 71–78) writes about 'regularity of texture' and its equal importance to individual letter shapes. He describes this as the letters having a 'balanced relationship, without unsightly gaps or congestion'. Goudy (1940: 43) summarizes this sense of visual connectedness:

> When a type design is good it is not because each individual letter of the alphabet is perfect in form, but because there is a feeling of harmony and unbroken rhythm that runs through the whole design, each letter kin to every other and to all.

There seem to be three distinct types of harmonization:

- *Balancing heights, weights, and width.* This involves changing letter shapes, stroke weights, and curves to lessen the differences between characters or adjust their slope (Smeijers 1996: 12; Does 2013: 18).[10] These may also apply to numbers, punctuation, and diacritics.

- *Setting horizontal, vertical, and rotational positioning.* This affects the positioning of letters in relation to one another. The most common position adjustment is horizontal letter spacing. Each letter is given a specific amount of whitespace to the left and right (*sidebearings*), which determines how far apart the letters appear. Tracy (1986: 72–77) describes one method of letter spacing (Figure 3.8), though most digital designers seem to start spacing earlier, when forming draft letter shapes. This process, also called *fitting* or *justification*, traditionally involves setting the width of a letter and its position within that width (Southall 1997: 34), including its rotation or alignment. Guyot's italics (Figure 3.9) may demonstrate an intentional effort by a typefounder to use rotation to improve the design of the capitals and increase harmony with the lowercase.

- *Adjusting letterforms and positions for certain contexts.* Specific letter combinations may require adjustments to spacing and letter shapes to preserve visual harmony. *Kerning*—increasing or decreasing the space between specific letter pairs—is a common technique to make spacing more uniform. Some situations may require changes to the letterforms themselves. The designer may provide alternative letterforms for such situations, or ligatures that combine two letters into a single symbol or piece of type (Luckombe 1771: 237).

10 For example, Harvey (1975: 113) suggests that flattening the curved strokes of some letters can bring greater unity with square characters. Carter (1930: 95) describes how certain letters should be justified to look well balanced—some (such as **d f p r**) should slope to the left, and some (**b h i l q t**) to the right. These adjustments may not be universally applicable, but illustrate the types of shape changes needed in the harmonization process.

Figure 3.10. Three versions of Sabon-Antiqua italic, issued for three different technologies: Linotype hot-metal, Monotype hot-metal, Stempel hand-set type. Tiny differences can be seen in the **h***, where the ball shapes differ, and the arches are slightly heavier in the Monotype version. Two versions of each letter are provided (Linotype c. 1967).*
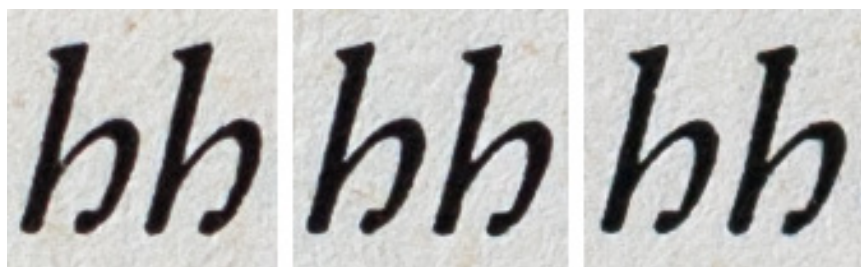
These harmonization decisions may be of equal importance to forming, as they can have a significant effect on the readability of type and the reader's experience. This harmonizing stage may even be more extensive than previous stages.

The harmonization stage can make a well-formed set of letters into a balanced, rhythmic whole. However it can also dampen a design's dynamic qualities. The effort to rationalize and bring uniformity to a design can make letters too similar, and remove or diminish unique characteristic elements. Rogers laments (1971, quoted in Van Krimpen 1972: 37):

> Our modern types all look too professional—too skilfully made. When we have seen the details of one letter, we know what similar details of all the other letters will be. Whereas in a really fine type there are perpetual variations, within narrow limits it is true, but still enough to give a living quality to the type when combined into words.

Stage 5: Adapting

Prior to the *adapting* stage, the letterforms, their spacing, and all other contextual adjustments are set. Adapting involves turning the completed and harmonized designs into type well-suited for a specific technology. According to the definition of the design process proposed in this chapter, most of the technical work in finishing a font would be considered *production actions* and not part of the design process. The following examples demonstrate, however, that some of these technical steps do have a bearing on the final letterforms, and so should be considered part of the design process.

The process of adapting type for hot metal and phototypesetting machines required specific adjustments unique to the machine and its particular technology.[11] This resulted in different renderings of the same typeface, though they may be produced from the same master design. Even when great effort was put into making identical multiple-technology fonts, small differences remained, as seen in the versions of Sabon-Antiqua produced and released together by Linotype, Monotype and Stempel in 1967 (Figure 3.10). These adjustments are design decisions, even though they may be made by an engineer rather than the primary designer.

For digital type, adapting seems to mainly involve controlling and adjusting how the design object—the digital font data—is interpreted and processed. The basic technical steps in building digital fonts and packaging them up into installable software products have little impact on the letterforms. The precision of modern digital type allows the final product to be very close to this master design, but there remains a layer of interpretation. Applications and operating systems interpret and render digital font data in different ways. As a result, the same digital font file may produce slightly different results on a mobile phone, a portable tablet, a desktop monitor, and a laser printer.

The digital designer may employ techniques to adjust the rendered image, much like the engineer of earlier technologies adjusted designs to match the machine. A designer may change the format of the font data— for example from Postscript to TrueType—in order to activate a different rendering process, or make the design work in a new environment.[12] Another digital example is *hinting*—adjusting how mathematical curves are rasterized into bitmap images for print or screen. The purpose is to harmonize the number of pixels used for stroke widths and letter heights at specific sizes to give a more uniform appearance. *Hints* and *instructions* are

11 Southall (1997; 2005) describes such adjustments in detail for hot metal and phototypesetting technologies.

12 Postscript and TrueType font formats use different mathematical methods to define the lines and curves of a letter, and the two methods (cubic and quadratic formulae) remain separately available in the OpenType font format. Because of the differences in algorithms used to interpret these two methods, the same master design, when produced in the two formats, can look different when rasterized.

parameters and routines that can be adjusted to finely control this process. Although this might normally sound like a task for the harmonizing stage, it is usually used to improve and adapt a design for a particular device or operating system.

3.1.3   Iterative and overlapping stages

The five stages of the design process are separate and distinguishable, however that does not imply that they are strictly sequential or linear. Southall (1997: 36) describes processes that are iterative, involving multiple loops of testing and modification. A design decision is made, then tested in a context that would give the designer some indication of the effects of that decision, leading to possible further changes. This can happen within any stage, and does not necessarily require completion of a full production process.

Rapid-cycle testing within a stage gives the designer immediate feedback on a shape, and allows for adjustment in small increments. Shape revisions are easily made in digital type, where the results can be immediately seen on the screen, and easily undone. However, if too much metal is filed off a steel punch it cannot be repaired. In these material technologies, a cycle of tiny changes, each tested in turn, can minimize risk.[13]

In some cases, it may be necessary to return to the beginning of a stage and start over. Fully formed letters are often destroyed and remade, not due to mistakes but because new, improved forms are created (Mosley 1997: 10). Dwiggins (1940) suggested: 'If the result is a dud [...] start over again'.

These iterative processes can also cross over between stages. Designers use preset frames or standards to test spacing and harmonization, such as **HaHbHcH**, **OOAOBOCO**, **nnanbncn**, or **hxoxbxoxnxoxp** (Tracy 1986: 77). They also test with real texts in typographically designed settings (Southall 1997: 35; Morison 1924: 60; Goudy 1940: 69). This testing may reveal the necessity to make changes in multiple stages—both forming and harmonizing—in parallel with one another. Discoveries made in the forming stage may question decisions made in the experimentation stage. Harmonization may begin even in early experiments.
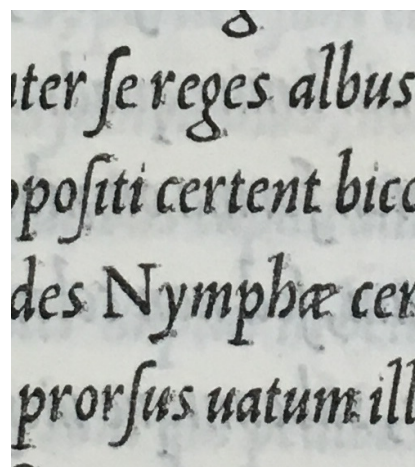
Technological factors can also create iterative loops in the design process. If a type is designed for a particular technology, then the corresponding limitations are often accommodated in each stage. If an existing design, however, is delivered on a different platform, the changes can be considerable, and extend beyond the normal limits of the adapting stage.

The amount of iteration between stages can vary widely, even to the extent that stages effectively overlap. When technical processes allow for rapid-cycle testing and modification between the experimenting, forming, and harmonizing stages, then those stages can happen almost in parallel. This is the case for contemporary digital type, but could also occur in other eras when the number of people involved was small—or only a single person. In the hot-metal era, a letter designer commonly produced a drawing that was then passed through a large team of people before it could be tested. Goudy (1940: 96), however, working as a solo designer, reduced his cycle-time considerably by manufacturing his own patterns and punches. This gave him the ability to rapidly switch back and forth between stages and allow for considerable overlap.

13   An example of this is the use of 'smoke proofs' by punchcutters as they shape a piece of type. The punch is held above a flame in order to gather a coating of soot, then pressed onto paper to produce a test image. Following further adjustment, the process is repeated again and again (Carter 1930: 36–37). This avoids completing the full type production process (creating a matrix, justification, casting) prior to testing.

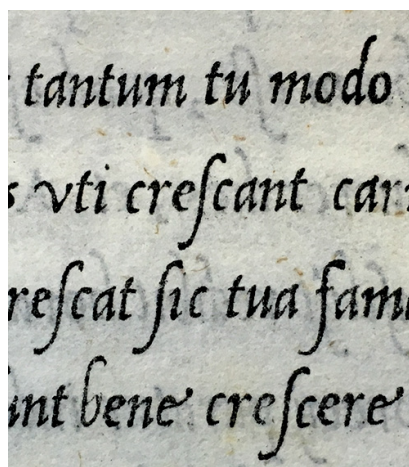*Figure 3.11. Two of Arrighi's types, illustrating his lively early style (left, Palladio 1524) and more restrained later style (right, Vida 1527). The earlier has stronger angles and more natural curves. Shown at equal size (approx. 200%). Newberry Library Collection.*

This iterative and overlapping nature of the design process is reflected in the diagram of the process at the beginning of this section (Figure 3.2).

3.1.4 *Separating design and production*

Throughout the later stages of the design process there is an increasing amount of related production actions that can influence design decisions and prompt iterative cycles. As a result, the distinction between design and production can become blurred. Traditional distinctions between design and production are vague and often linked to particular technologies.

The definition of the design process in this chapter attempts to clarify this distinction by restricting the process to *those decisions or tasks that define the design object and intentionally affect the shape of the letterforms or their relation to one another*. This defines the design process in a way that is applicable to all historic eras of type manufacture. It also isolates the design process as a separate discipline for study and analysis. This new definition, however, is significantly different from commonly accepted models. The rest of this section describes the rationale for this new perspective.

The more common view regarding the boundaries of design and production is based on traditional models of type manufacture. Southall (1997: 32) writes:

> The characteristics of a typeface are conceived by a *designer*. These characteristics are embodied by the *producer* of the typeface, after a process of *development* of the design, in a set of *character masters* [...]

This definition includes the concept of type development, in which a conceptual idea of a typeface, from the mind and hands of a designer, is given to a producer for realization. Johnston, in a letter quoted by Dreyfus (1966: 40–41) described the designer as 'guessing at an ideal' and the punchcutter as 'giving it material shapes'. Both designer and producer are making decisions that affect the final rendered letterforms, and in some cases one person filled both roles.

This designer/punchcutter distinction does have some historical precedent. Although the first italic types by Griffo were solo efforts, the highly-technical process of creating type required great manual skill and careful judgement, and not all those who had a vision for a particular type style had the skills, experience, or motivation to create the type themselves. Arrighi, whose types of the 1520s established the 'chancery' style of italic, relied upon others to cut his types based upon his instructions.

Punchcutting, however, was not a neutral effort, and could substantially affect the final letterforms. For example, Arrighi's later types (Figure 3.11) are more restrained, and Carter (2002: 120) credits the difference to a change in punchcutters. The amount that the punchcutter influenced the resulting design varied. Tracy (1986: 35) describes three kinds of punchcutters: the 'artisan' who was only concerned with accurately executing the designer's instructions, the 'interpretive punch-cutter' who tried to capture the designer's intent, and the 'designer' who directly cut types from his imagination or other reference designs.

In these cases it becomes difficult to identify where the process of design ends and production begins. If the process of production includes actions that affect the final appearance of the letterforms, then the producer is effectively a co-designer, sharing in design decisions.[14]

14 Some designers question whether any true separation between design and production is even possible. Proponents of the English Arts and Crafts movement, and those they inspired, such as Johnston, challenged this separation at a philosophical level (Dreyfus 1966: 28).

The blurring of design and production continues throughout accounts from all type manufacturing eras. Mosley (1997: 5) says that the beginnings of type design as a process independent from production began with the *romain du roi* (Figure 3.6). He writes that it was the first process 'in which the form of the alphabet for a printing type is determined independently of its means of production'. Although that may have been the intent, types produced from those designs were changed significantly when manufactured into type. Design decisions were not completely independent from production.[15]

Tracy (1986: 37) offers an alternative opinion. He claims instead that the invention of mechanical punchcutting, almost 200 years later, was the true revolution in type design—when finished designs could exist primarily on paper and be executed through precision engineering. However this was rarely the case in common industry practice. Master patterns created this way from designer drawings often changed the basic character of the design (Van Krimpen 1972). Interpretive punchcutters of earlier eras may have been more successful at producing types that reflected the designer's intent.

Current digital technologies may seem to all but eliminate separate production processes by reducing them to a single command in a font design application. This implies that it is once again possible—even normal—for the designer to be fully responsible for producing type within a unified design and production process. However the complexities of digital type make that rarely the case.[16]

Each of these examples, from Griffo to modern digital type, illustrates how traditional designer/producer models fail to provide an effective method of segregating design from production. Without a clear distinction, the study of the design process can easily become yet another investigation into font production methods.

The alternative model, as proposed in this chapter, effectively focuses the design process on *the sequence of decisions that affect the final letterforms and their relation to one another.* A *designer* is then anyone who is involved in making those decisions, even if that person is doing a task (such as kerning or hinting) that is traditionally considered to be a production activity.

16 Smeijers (2003: 23–27) credits this for liberating type design from the hands of the manufacturers and enabling a single person to be 'designer, planner, and executor'. He also claims that 'the type designer does not depend on technicians any more'. This is, however, not a valid conclusion. The complexity of current digital type creation often calls for skilled technical help. Many designers still depend on font engineers at a digital foundry to fix and build their fonts, and these processes, such as autohinting, can affect the appearance of the type. Even independent designers depend on the automatic systems built into font design programs to produce well-functioning fonts. Such systems can limit a designer's creative palette, and indirectly prescribe design. For example, the Glyphs font design application provides automatic OpenType code generation. To take advantage of this feature, however, the glyphs in the font must be named according to particular patterns, and those patterns assume a model for contextual glyph processing that is more limited than what the OpenType technology itself provides.

With this model, research into the type design process becomes an investigation into the decisions made by the designer. It encourages deeper enquiry into the factors that influence design, the motives and inspiration behind those decisions, and the development of creative design techniques.

3.1.5 *Differences between roman and italic*

From published accounts of the italic design process, the process of designing an italic font appears to be only marginally different than designing a roman one. This is certainly true of independent italics that have no roman counterpart. When roman and italic processes differ, it seems to be primarily in the areas of timing and technique.

Italics that are intended for use as contrast to a roman font are usually designed after the roman is completed. This allows for testing in context. Individual words and phrases in italic may be set within paragraphs of roman text to test if the italic provides sufficient distinction while preserving design harmony. It also allows for incorporation of design elements from the roman that give the italic some visual connection to the roman. However, the two styles can also be designed in parallel, or with the italic only slightly behind the roman.

Figure 3.12. FF Strada Light, Light Italic, Semibold; Italic, Regular Small Caps (Ramsey & Pinggera 2004). An example of a type family that began with the italic.

La Strada (1954) is Fe
Fellini's moving mas
ce that explores the
eternal *conflict* betw
the heart and mind.
Zampano (Anthony
is a cruel, traveling c

LA STRADA (1954) *is*
Federico Fellini's mou
masterpiece that exp
the soul's eternal cor
between the heart ai
mind. ZAMPANO *(An*
Quinn) is a cruel, trau
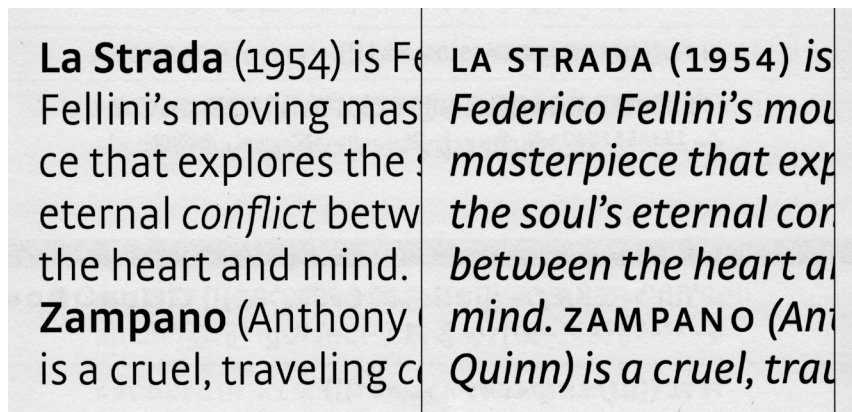
Some italics are designed long after the roman—even years later. For example, Goudy completed most of his italics after the corresponding romans (Bruckner 1990), but sometimes discussed them with clients at the very beginning (Goudy 1940: 51). Designers may plan for italic members of a font family before designing the roman, but for priority or economic reasons delay the design and production until later. Oblique (slanted) versions of Futura were not prepared until two years after initial release, and then only because the trade demanded something that provided a separate distinction from bold (Burke 1998: 107–108). Italic may be an afterthought, or a later client request.

In rare cases an italic may be designed first, before the roman, and serve as the inspiration for a whole family. Some examples: Noordzij's Ruse grew from a single italic to a family of 154 roman and italic fonts (Middendorp 2004: 155). Pinggera's FF Strada Italic (Figure 3.12) was designed without the requirement to match a roman, which gave it 'a certain strength of character often lacking in italics of large, modern families'. The 'voluptuous, undulating aspect' of Verheul's Versa bold italic headline face was carried into the roman, along with other characteristics (Middendorp 2004: 231).

Even when the roman is a clearly distinct design, its basic parameters may be set with italic in mind. In 1951, Hartz was faced with creating a roman and italic (Juliana, see Figure 3.40) based upon the same matrix widths—a requirement of Linotype machines. He had seen many italics that were overly wide and unattractive, with widths forced upon them by the roman, so he instead chose a different strategy: 'Of course, you have to do it the other way around: to start with the difficulty of the italic, and adapt the roman afterwards.' (quoted in Lommen 1987: 39–40).

Because a set of roman letters often precedes the design of an italic, those letters can be used as a source for italic forms, broadening the set of techniques used in the experimenting and forming stages. The inspiration may be limited to small elements, or the roman letters may be optically or mathematically transformed as a beginning point for the italic. This technique is an efficient way to produce italics that match roman widths, and is more common with modern sans serif designs. Uppercase italic capitals are often intentionally close to, or directly based on, the roman designs. This can add stability, and give greater 'visual convergence' with the roman (Linotype 2012: 6).

These issues of timing and technique seem to be the primary ways in which the design process for italic differs from that for roman. However clearly documented accounts of the italic process are limited and may not provide a complete perspective of its unique aspects. Chapter 4 investigates this process in more depth based on the experience of contemporary designers.

The five-stage model of the type design process proposed in this chapter provides the context for a thorough investigation into the influences on italic design. Unique issues of timing and technique can have a strong influence on the design process. Many other factors, however, seem to have an equal or greater influence, even though they may not significantly alter the general stages of the design process. These influences—of usage, history, technology, and business—are rooted in the multiple identities of italic.

Figure 3.13. The neo-caroline humanistic cursive of Niccoli (Celsus 1427: fol. 3v). Collection of the Biblioteca Medicea Laurenziana, Firenze CC BY-NC-SA 3.0. Though it is doubtful that other styles were directly influenced by Niccoli, his writing is the earliest example of the italic style.

Figure 3.14. Comparison of typeset and handwritten pages in the copy of Aldus' Dante (1502a) held in the Newberry Library Collection. The style of type used in this edition is so similar to manuscript styles that a single missing page in the Newberry Library's copy was able to be replaced with a handwritten page that resembles the printed pages. The handwriting is traditionally attributed to Sanvito, one of the most revered renaissance writing masters. Shown at approx. 120% of actual size.

Figure 3.15. Arrighi's early italic style, used to set contemporary books of poetry (Trissino 1524). The style is notably different from Griffo's italics, with narrower proportions and longer ascenders and descenders. Newberry Library Collection. Shown at approx. 130% actual size.

3.2 The influence of usage

Italic type has been used as both as a language feature and a typographic element (see section 2.1). This usage changed over time, particularly from the sixteenth to eighteenth centuries. Originally intended as an independent style, for specific types of documents, italic later became a standard means of differentiation within a wide variety of publications. This section examines the influence that this evolution of usage has had on its design. It takes a historical approach, as the influence can most easily be illustrated through an analysis of changes in usage over time.

3.2.1 Used as an alternate style for specific document types

Italic was initially used as an alternate style rather than a secondary style related to a particular roman. During this era of independent use the basic characteristics of the style—letterform shapes and proportions—were set. These characteristics were then adjusted in order to meet the requirements of the intended publication.

Prior to its use as a secondary style to roman, and prior to its casting into type, italic was an alternative calligraphic style used for specific types of documents. During the pontificate of Eugenius IV (1431–1447), the Holy See sought a means to differentiate legal briefs from the more important papal bulls, and an alternative writing style was chosen—the neo-caroline humanistic cursive first seen in the writing of Niccoli (Figure 3.13). It was initially reserved exclusively for these specific legal documents (Morison 1927: 10). Bulls continued to be written in a formal gothic *bastarda* script, and this humanistic cursive provided sufficient contrast to identify briefs as a separate type of document (Johnson 1966: 92).

The primary considerations in this choice were speed and simplicity. The increasing volume of legal briefs required an efficient and readable writing style, avoiding the highly complex and less readable gothic script (Thurston 1908). The cursive italic could be written quickly, and it was this aspect that gave the style its characteristic features: an inclined slope, connected strokes, compact letterforms, and a fluid rhythm based around rapid pen movements. Later variant styles of italic, such as the cursive hand of Sanvito, share a common heritage as a humanistic script written quickly (Fairbank 1964: 85–86). By the end of the fifteenth century this italic style had become favoured by wealthy and educated classes (Clayton 2013: 133).

When the Venetian publisher Aldus chose a style for his new portable editions of classical literature (Figure 3.14), he chose to commission a type from a punchcutter, Griffo, based on this fluid cursive. The decision was not due to any technical constraints, but rather to associate his new publications with this scholarly tradition (Carter 2002: 73–74). It was intended as a direct counterpart to—and substitute for—a handwritten manuscript.

Analysis of this first italic type (from 1501–1502) shows a strong similarity with popular handwritten styles. It shares many of the same cursive characteristics: a right-leaning slope, broad-nibbed-pen thick and thin stroke contrast, and entry and exit terminals rather than roman-style serifs. Letters are shaped to resemble handwritten forms and to have similar general proportions. Ligatures are used to emulate connected letterforms. The type (approx. 10–12 pt in size) also has ascenders and descenders that extend less than the x-height, enabling lines to be set tightly.

Arrighi's italics, from two decades later (Figure 3.11, Figure 3.15), show a distinct difference in style. The type is larger, approx. 16 pt in size.
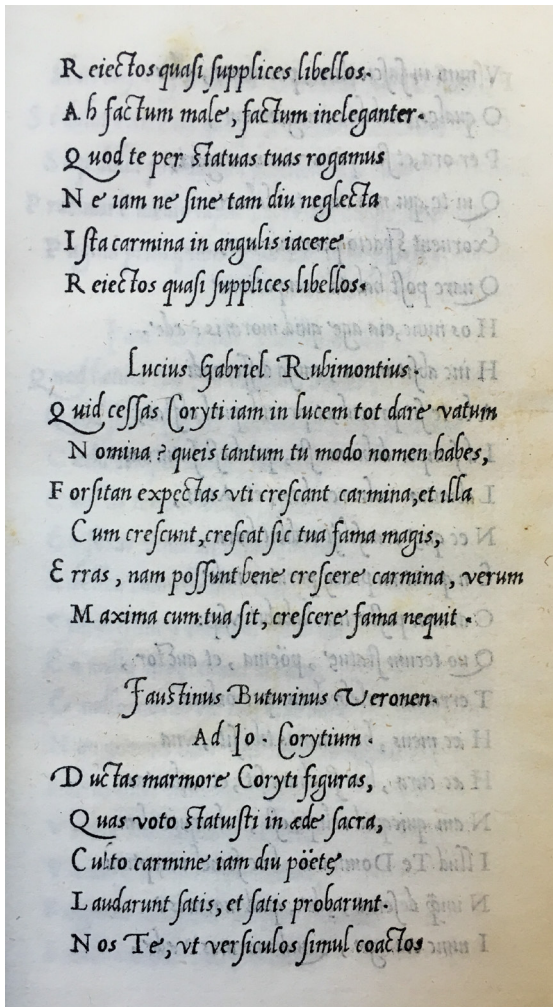
Figure 3.16. Swash capitals and lowercase alternates in Arrighi's second italic (Palladio 1524). Shown at approx. actual size. Newberry Library Collection.
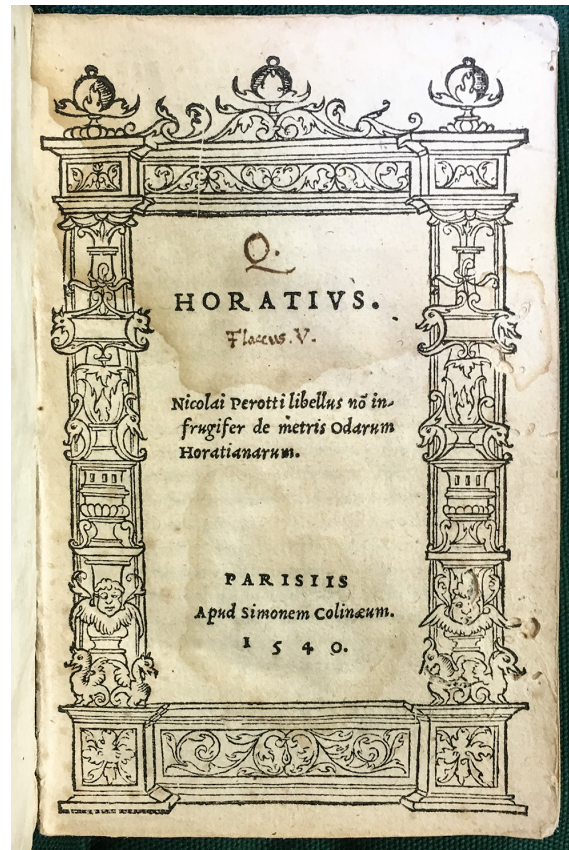
Figure 3.17. Title page showing the early use of italic for decorative and ornamental purposes (Horace 1540). Newberry Library Collection. Shown actual size.

Figure 3.18. Early example of italic used for marginal notes alongside a roman text (Tyrius 1519: 59). Collection of the Biblioteca Nazionale Centrale, Firenze CC BY-NC-SA 3.0 The use of italic provided more contrast than that provided by size difference alone.
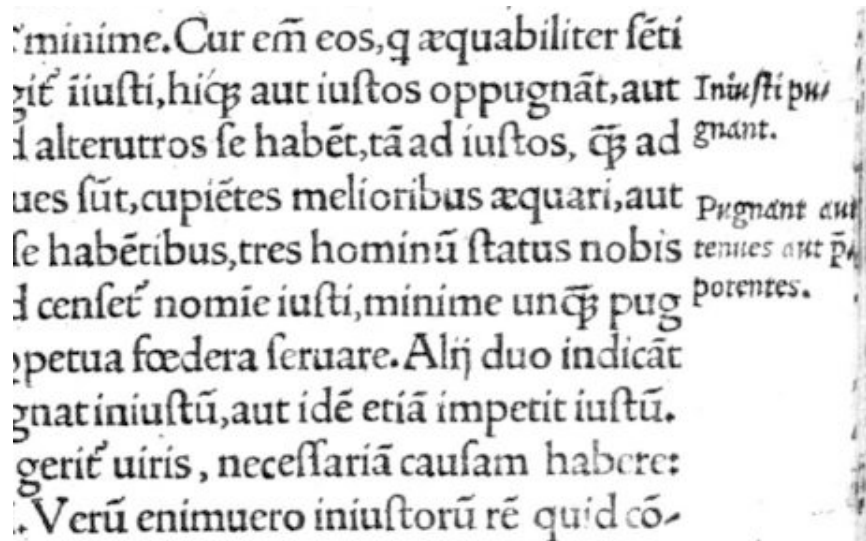
Ascenders and descenders are longer. Proportions are generally narrower, with smaller counters. Terminals are less angular and more curved and rounded, resembling the ornate writing styles of the period (Morison 1927: 11, Johnson 1966: 100, Carter 2002: 119). This particular style is similar to Arrighi's own writing style (as seen in Arrighi 1522) and representative of the style known as *chancery*.

These chancery types were used to set elegant, luxury editions of contemporary works of poetry. Compared to an edition of Dante, these were much shorter works. Economy of space was much less of a concern than with pocket editions. There was more room for flourishes and calligraphic features.

The differences between Griffo's and Arrighi's italics are likely related to differences in the handwriting styles each is intended to emulate. However, the type of document seems to have had some influence in the choice of style. The extra space available in brief luxury editions allowed them to be set using type that was larger and had generous ascenders/descenders. This also gave the designer/punchcutter more freedom to match Arrighi's florid writing style, which had become popular at the time. By the 1520s, copies of Griffo's type were circulating widely throughout Europe (Johnson 1966: 96), so they would have likely been available for typesetting these editions. However for this use, a new style, with new characteristics, was created.

Some of the italics used for luxury editions also contain additional alternate letter designs—*swash alternates*. Ornamental capitals had long been a feature of fine manuscripts, but the earliest italic type was matched with basic upright roman capitals. Arrighi's second italic pioneered the use of an alternate set of capitals that remained upright but were more calligraphic and ornate (Figure 3.16). These would not replace all the capitals in a document, but were used for individual words when a more ornate design seemed appropriate.

Within a decade, others had produced sloped swash capitals, and they became well established in the italic tradition by the latter part of the sixteenth century (Argetsinger 1991: 78–80). Swash forms were also occasionally added to upright roman fonts, but were predominantly featured in italics, and not limited to capitals. This innovation was initially driven by the needs of luxury editions, but became a more broadly accepted style characteristic.

The increased ornamental vocabulary in italic type, and its established use for fine printed materials, was accompanied by greater use for primarily decorative purposes, such as title pages (Figure 3.17). It took over many of the functions of red ink and blackletter styles (Carter 2002: 125). This further strengthened its identity as a more florid counterpart to roman type.

Although early italics were inspired by popular writing styles, their characteristics were also influenced by their use for particular types of documents. This change in purpose, from tightly-set portable editions to luxury volumes of poetry, enabled and encouraged the style of the type to change, and drove stylistic innovation. This usage affected letterform shape, proportions, curvature, and structure.

3.2.2 *Used for typographic differentiation*

Within twenty years of its inception, and in parallel to its use for ornamentation, italic began to be used to indicate specific types of content within complex pages. However the two main styles—roman and italic—remained independent and unrelated. This early use for typographic

Figure 3.21. Guyot's Double Pica roman and italic, detail from full specimen (Guyot 1565) (Figure 3.22). Folger Shakespeare Library CC BY-SA 4.0.

differentiation does not seem to have initially influenced changes in design, but may have prepared the way for later changes.

An early example of italic used for typographic differentiation was the use of italic for marginal notes. In the manuscript tradition these notes were often added much later, in a smaller size, and in a cursive, less formal style (Clayton 2013: 82). Printed books continued this tradition for marginal notes, but initially only varied the size, pairing roman with roman and italic with italic. Soon publishers recognized that using italic for marginal notes alongside roman text provided more contrast, much like the style differences in manuscript practice (Figure 3.18). In some books this was reversed, with a roman used for marginal notes next to an italic text (Carter 2002: 118–119, Kaufmann 2015: 34).

Italic was also used to differentiate between languages, often indicating secondary language content. Though italic was initially used mainly for Latin-language text, by the 1540s printers were using it to indicate alternative vernacular text, such as French language definitions in Latin-French dictionaries (Figure 3.19). This practice was eventually extended to other types of publications. Texts that did not typographically indicate any difference between languages were later published in new editions that used italic for second-language text—a clear indication of a growing trend.[17]

There is little evidence that this new use—differentiating separate types of textual content—directly influenced the design of italics in the early sixteenth century. However this change in typographic usage did begin to establish a precedent for using italic for ancillary or secondary content, and combined italic and roman type on the same line for the first time.

3.2.3 *Used as secondary style for linguistic differentiation*

The most significant, though gradual, changes to italic over time came partially as a result of its increased use as a style used for linguistic differentiation. As roman and italic began to be mixed within blocks of text, differentiation of style remained important. However this usage also increased the need for consistency with the roman in design properties (e.g. weight, height) and eventually letterforms and features, leading to italics that were mainly sloped versions of the roman.

The first use of italic as a linguistic, semantic feature has not been identified, but it was used for emphasis in the margins of Haultin's *Pseaumes* (1567), and for book titles in La Croix's *Premier volume de la Bibliothèque du sieur de La Croix Du Maine* (1584) (Figure 3.20). It is highly unlikely that this latter italic was designed specifically to match the roman. The letters are shorter than the roman, and the baseline is shifted slightly higher. Had they been designed to match, these inconsistencies could easily have been remedied.

The use of italics within roman text posed a technical challenge. To avoid an uneven pattern of line spacing, italic type would need to be cast on the same size body as the roman, or on a smaller size with extra spacing added with leading. Evidence of the recasting of italics on roman body sizes can be seen in other fonts of that era. Some of Granjon's italics that were presented as separate fonts on Plantin's specimen of 1567 reappeared on the Berner specimen of 1592 alongside suggested roman counterparts by Garamond and were cast on the same size body (Johnson 1966: 121). In addition to eliminating the extra effort of adding leading, recasting allowed the typefounder to align the baselines of the two fonts. Recasting did not alter the letterforms themselves, however it did involve design decisions

17 The second edition of Tory's Champ Fleury (1549) used italic to indicate Latin phrases within the main French text—a notable change from the original 1529 edition (Carter 2002: 126).

Figure 3.22. The full specimen of 1565 showing Guyot's Great Primer and Double Pica italics and related romans (Guyot 1565). Folger Shakespeare Library CC BY-SA 4.0.
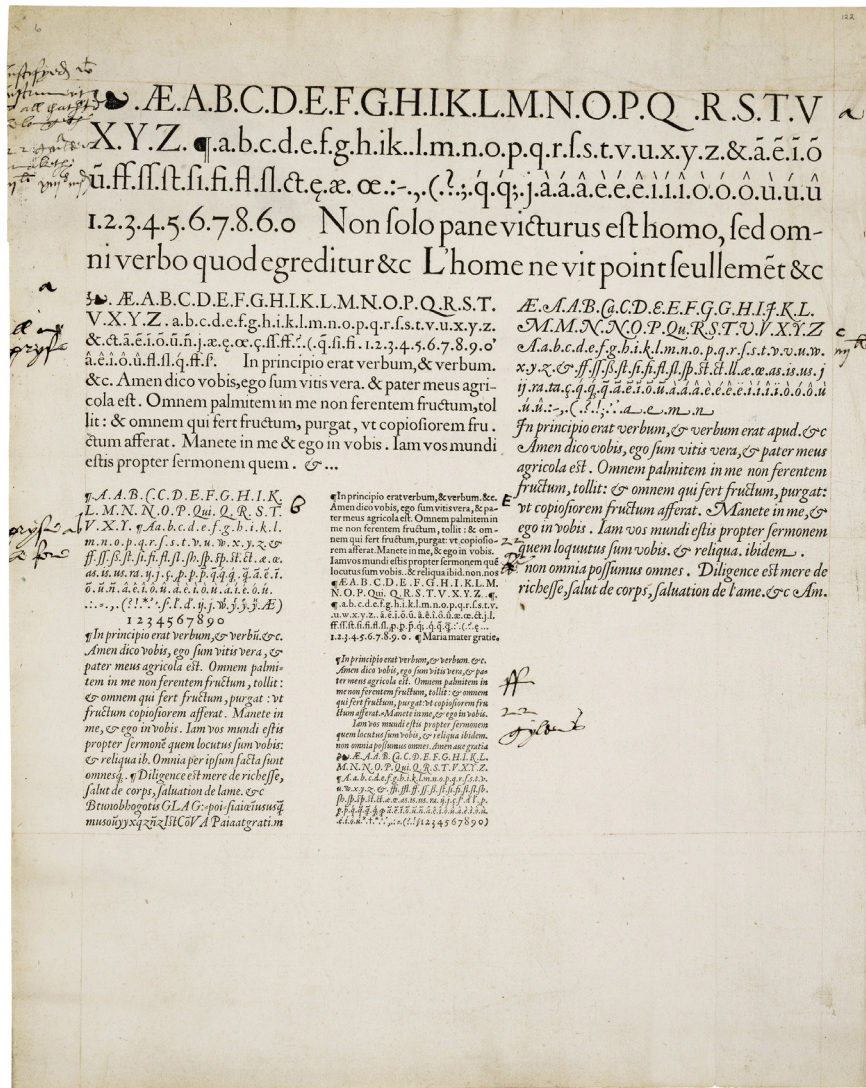
Figure 3.23. Jannon's 1615 type in the Garamond style (Richelieu 1642). Newberry Library Collection. The italic has little relation to the roman but is effective in indicating contrast. The small italic type in the margin notes is equally effective, even though it is more closely harmonized with the roman. A significant factor in this may be an increased slope angle. Shown at approx. 70% actual size.
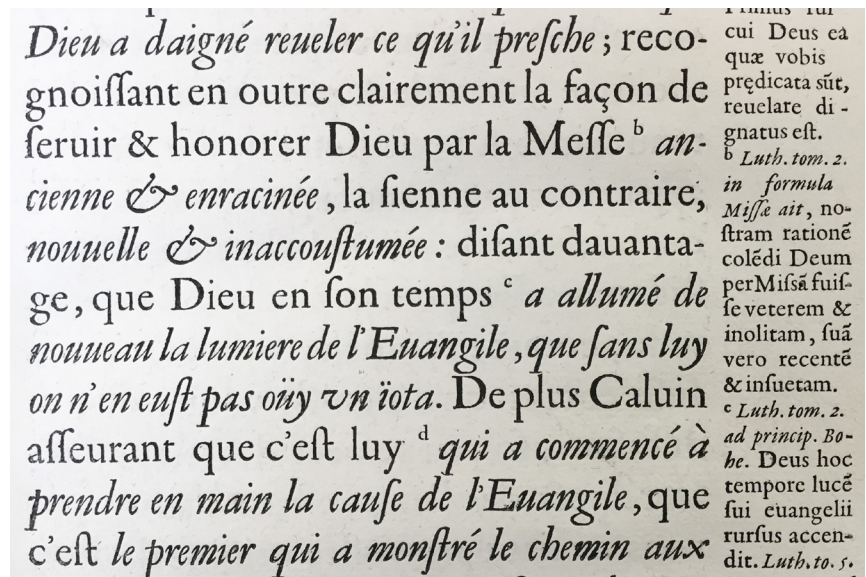
about spacing, alignment, and rotation. These could substantially affect the overall appearance of a printed page.

The need to harmonize roman and italic grew, and moved beyond recasting. Italics emerged that seem to have been designed specifically to match a particular roman. The earliest example of these is Guyot's Double Pica italic (Figure 3.9, Figure 3.22), a font whose 'sobriety, width, and rotundity' shows the effect of a close relationship with the roman (Carter 2002: 125). A comparison of Guyot's italic and roman (Figure 3.21) demonstrates this relationship.

Guyot's fonts are the first example of the sharing of design properties between roman and italic—a very significant point in the history of italic design. Unlike most other fonts of the time, even those cast on identical body sizes, vertical proportions—x-height, ascender height, descender depth—are harmonized between roman and italic. Lowercase letters are consistent in height and alignment to match the visual line of the roman. Letters also have a much more consistent slope than other common italics, with less curvature and stroke weight change in long strokes, and a more open appearance, all aspects that tie it more closely to the roman. Stroke weights between roman and italic are similar, giving a balanced colour. The serif design on descenders is almost identical in thickness. These characteristics point towards an intentional effort to make the italic match the roman.

The expectation that roman and italic would be used together became widespread, as did the assumption that the two styles would be visually compatible. By 1600, it was standard for punchcutters to provide an italic for every roman face (Carter 2002: 126). In his 1683 description of the outfitting of a 'Printing-House', Moxon (1962: 16) included an equal number of cases for holding 'Romain' and 'Italica'. Pairing roman and italic became commonplace, although that did not imply that the two faces shared specific characteristics, only that they were recommended to be used together.

For the next 100 years, there seems to have been only modest further movement towards greater style harmonization beyond Guyot's efforts. The publishing trade was dominated by romans in the style of Garamond, matched with italics in the style of Granjon. Jannon's 1615 Garamond revival (Figure 3.4, Figure 3.23) was a particularly rough attempt to carry on this style. Its design, however, lacks even the most basic features of harmonization with the roman. Although cast on the same body size, the baseline is lower than the roman. Stroke weights are much lighter and lack the consistency of the roman. Slope angle is wildly varied, and letter heights and alignment are inconsistent. The long-term popularity of this type, mistaken for decades as a Garamond original, shows that the lack of style harmonization was not a barrier to use.

The lack of close harmonization may have had a beneficial side effect: strong typographic contrast. Words or phrases in a Granjon-style italic stood out strongly within a text in a Garamond-style roman. This was successful at preserving semantic differentiation. An example is the use of Jannon's italic in Richelieu's strident defence of the Catholic faith (1642)(Figure 3.23). Here the italic is particularly effective at emphasizing key points of the argument. A more harmonized design that provided less differentiation may have been less effective.

From 1570–1770, the ways in which italic was used for differentiation grew, such as for proper names and place names, even to the point of overuse. Luckombe (1771: 35) complained about the publishing culture's

Couplets chantés par une des éléves
C'est Minerve, c'est la prudence:

Whoever comes to shroud me, do not harm
    Nor question much
That subtle wreath of hair, which crowns my arm;
The mystery, the sign you must not touch,
    For 'tis my outward soul,
Viceroy to that, which then to heaven being gone,
    Will leave this to control,
And keep these limbs, her provinces, from dissolution.

obsessive use of italic within roman as 'parading so very promiscuously', and argued for a return to the time when italic was used more independently to indicate different types of content rather than semantic differentiation. The main purpose of italic had, in fact, become textual differentiation.

By the end of the seventeenth century, attempts to harmonize traditional italic styles with corresponding romans had stalled, yet the amount of mixed roman and italic text was still increasing, and would do so for at least another century. Further harmonization was needed, but would require radical changes in style, and fresh, innovative approaches.

The most radical of these new approaches was the idea that an italic could be derived directly from the roman, rather than by modifying a traditional form. The first such approach was the *romain du roi*'s creative experiment with sloped romans beginning in 1692 (Figure 3.6). Harmonization was a natural consequence of this nearly-algorithmic method. This experiment, however, failed in its most important use—to clearly differentiate marked text—and was abandoned in favour of more traditional forms. The letterforms were not sufficiently different from the roman (Mosley 1997: 8). Attempts at harmonization impaired its primary use.

The alternate, and ultimately more enduring, approach was to create italics that echoed the design properties of the roman (relative letter widths, stroke weights, contrast values) but contained structures and features unique to italics. This gave them a distinct and contrasting character, but retained a strong connection to the roman. One example of this is an early modern-face italic produced by Pierre Didot and exhibited in his 1819 type specimen (Figure 3.24). Other than the **o**, **c**, and **s**, the letterforms are notably different from the roman, and bear many cursive features of the roundhand, flexible-pen style of the time. However the overall effect is similar, preserving the relative letter widths of the roman and its axis and range of contrast. This blend of similarity and difference supports its use as a linguistic secondary face.

As italics became a common linguistic element in European writing systems, it faced two competing pressures: to work in greater harmony with roman, and to provide clear semantic differentiation. This change from *alongside* to *within*, and from *alternate* to *secondary*, forced italics into closer proportional and style relationships with their dominant roman counterparts. However the strong ongoing need for typographic differentiation restrained efforts to harmonize roman and italic, and in particular, the idea that an italic could be based directly on roman forms. Preserving differentiation was more important than harmonization.

3.2.4   *Continued use as an independent style*

Despite two centuries of gradual relegation to a secondary role, italics continued to be used independently. Italics released as secondary fonts were used for alternate types of content, such as prefaces and quotations.

Designers seemed to recognize and encourage this use of their designs, particularly in the twentieth century. Gill felt strongly that italic was best used for separate bodies of text, from quotations to whole books, and that it had a more 'proper' purpose as a stand-alone style (1931: 64–65). He designed the italic of Joanna (Figure 3.25) to be used primarily for independent texts (1931: 38), even though the result was an italic that might work poorly alongside the roman. Goudy set the preface for *Typologia* in the italic of his University of California Old Style (Figure 3.26), even

Figure 3.26. Goudy's University of California Old Style italic (1940: ix). The design draws heavily on the chancery style established by Arrighi (Figure 3.11): slightly inclined; ascending **p**; extended crossbar on **e**; diagonal joins in **n** and **m**; angular exit and entry strokes; narrow **g**. These are features common in italics designed to be used independently.

TYPOLOGIA presents more or less graphically my work in type design and describes my own methods of type production. Of course it does more than that; for who, once having begun a book, can resist its own invitations—to quote, to comment, to ponder and amplify? My intention, then, must be not only to say my own say, but also to bring together from widely separated sources the suggestions or statements of others, and to weave them, with the conclusions reached by my own study and experience, into a new fabric.

Figure 3.27. Ligatures and special characters used by Arrighi in setting the Italian-language letters of Trissino (1524a). Newberry Library Collection.

Che chi ben mira, da che vulse Idio
Col prwprio sangue liberare il mondo,
E pwi lasciare un suo vicario in terra,
Vedrà, ch'a maggior huwm non diede il pondo
Di governare il greggie amato, ε pio,
Mentre, che la mondana mandra il serra.
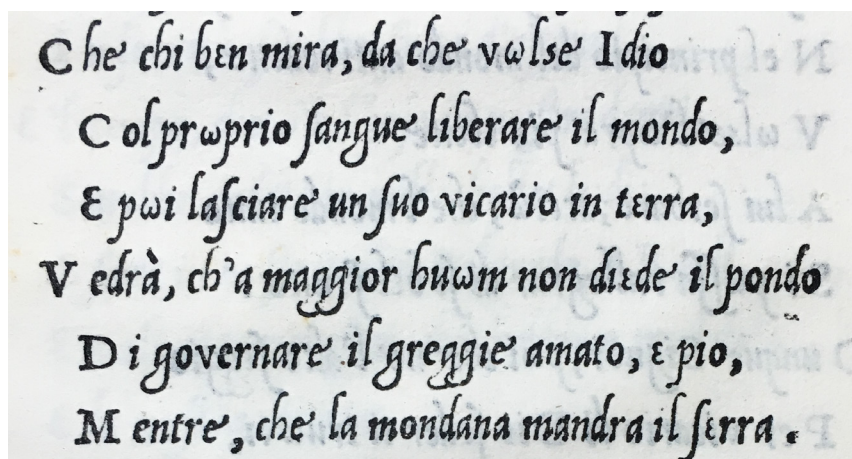
Figure 3.28. Extensions to Monotype Garamond 156, as prepared for the revised version of the Practical Orthography for African Languages (International Institute 1930). Note the need to depart from the traditional roman and italic form relationships for **f** in order to accommodate languages that use contrasting upright forms.

Roman.	Italic.	Written Forms.	Roman.	Italic.	Written Forms.
a A	a A	a a	l L	l L	l L
b B	b B	b ß	m M	m M	m M
ɓ Ƃ	ɓ Ƃ	ɓ ƕ	n N	n N	n n
c C	c C	c C	ŋ Ŋ	ŋ Ŋ	ŋ ŋ
d D	d D	d ᴅ	o O	o O	o o
ɖ Đ	ɖ Đ	ɖ or ɗ ᴅ	ɔ Ɔ	ɔ Ɔ	ɔ 2
e E	e E	e e	p P	p P	p p
ɛ Ɛ	ɛ Ɛ	ɛ ℰ	r R	r R	r or ɾ ℛ
ə Ə	ə ə	ə ə	s S	s S	s or ʃ ℐ
f F	f F	f ℱ	ʃ Σ	ʃ Σ	ʃ ℐ
ƒ Ƒ	ƒ Ƒ	ƒ ℱ	t T	t T	t ℐ
g G	g G	g ɣ	u U	u U	u u
ɣ Ɣ	ɣ Ɣ	ɣ ɣ	v V	v V	v V or ʋ ℐ
h H	h H	h H	ʋ Ʊ	ʋ Ʊ	ɤ or ʋ ℐ
x X	x X	x x	w W	w W	w W
i I	i I	i ℐ	y Y	y Y	y ℐ
j J	j J	j ℐ	z Z	z Z	z ℐ
k K	k K	k ℋ	ʒ Ʒ	ʒ Ʒ	ʒ ℐ

though he admitted that italic was rarely used for longer texts (1940: 77). These examples demonstrate that designers continued to see italic as a style that could, and should, be used independently.

There are also particular characteristics of these two designs that show that the designers may have been influenced by this independent use. Both designs incorporate characteristics of the *chancery* tradition established by Arrighi prior to the relegation of italic to a secondary role (Figure 3.15, Figure 3.16). Interest in this tradition had been dormant for a long time, but books and articles by outspoken chancery advocates, such as Morison (1924a), fuelled a general resurgence in interest in chancery and its independent use. Gill's Joanna incorporates chancery's narrow, barely-sloping character but applies it to letterforms that are in some cases sloped romans. Goudy's University of California Old Style has more slope, but uses many traditional chancery letterforms and spaces them tightly, giving it a chancery quality. Although these types were also used as secondary italics, they demonstrate the influence of their intended use as independent designs.

3.2.5 *Used to support the world's languages*
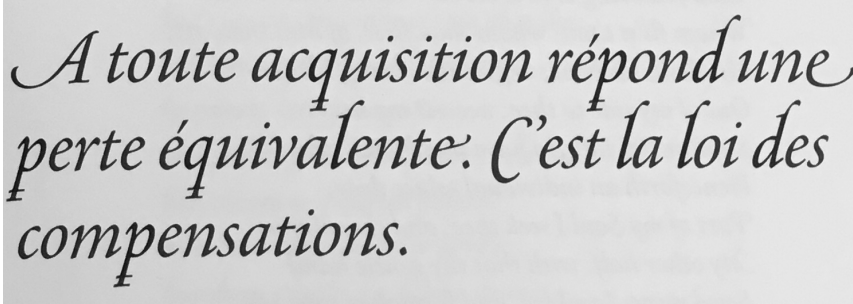
A further influence on the design of italics was its use for thousands of languages with extended Latin character sets. If a font was to be used to support many languages, then the designer was strongly motivated to limit its reliance on ligatures to optimize text rhythm and colour, as the potential set of letter combinations grew. Early italics relied heavily on sets of ligatures—such as *fi fl ſp*—to handle particular letter combinations and emulate handwritten styles. As long as the language was Latin, the extent of ligatures needed was known and manageable.

As italic began to be used for vernacular languages, new ligatures were needed (Figure 3.27), but every additional language added new combinations (Argetsinger 1991: 77). Designers quickly sought to limit the number of additional ligatures needed. Those who copied Griffo's first italics left out many ligatures as they began to set vernacular texts, and in later years designers continued to simplify their processes and further reduce their number (Johnson 1966: 96, Clayton 2013: 150). This attitude persisted into the twentieth century, with Morison's (1926: 111) argument that ligatures had become historical artefacts and should be abandoned altogether.

Supporting varied writing systems also increased the number of letters that needed to be designed. To set the works of Trissino, an early spelling reformer, Arrighi had to borrow the *epsilon* and *omega* from Greek (Figure 3.27). Character sets expanded further in later centuries with European colonization, eliminating the practicality of borrowing letters, and requiring new types to be cut for each new character. To fully support the Practical Orthography of African Languages (POAL), Monotype cut both roman and italic additions to Monotype Garamond 156 (Figure 3.28), demonstrating that these new letters could look like natural additions to the script.

The linguistic variety of languages also required adjustments to standard italic forms. The POAL includes both traditional italic and slanted italic forms of **f** in order to support languages that use contrasting upright forms, where the forms with and without a descender represent two different sounds in the same language.

*A toute acquisition répond une
perte équivalente. C'est la loi des
compensations.*

In his 2018 interview, Martin Majoor discusses the inspiration for his
work on a cursive variant of FF Seria, whose normal italics are upright:

*[Obalk] said to me, 'Martin, I'm working on this book on Marcel Duchamp,
and I have a problem. There is a radio [transcript]. This should be all in italic.
In this radio interview he is saying things that should be italicised. So can
you make an extra italic for Scala?' 'Well, no I can't—that's not possible.'
'Why?' 'Well, because Scala italic is slanted already. I cannot make it even
more slanted. What I can do is make an upright version of Scala italic.' That
was OK. But when I started—slowly—it was not a real commission—he
had already worked on the book and didn't need it anymore. But I was sort of
intrigued by this idea of two italics. By this time I had already sketches for Seria,
and thought, 'I'm going to make an upright italic for Seria, and a cursive one.'*

Seria Cursive was never published as part of the FF Seria family, but was
revised and released as part of the Nexus family.

3.2.6 The continuing influence of usage

It appears that the influence of usage on design continued throughout the twentieth century and may continue to have an influence. The following examples demonstrate that these uses have had an ongoing influence on italic design.

Used for specific document types (see 3.2.1)

In 2012, Veljović designed Agmena Pro with additional letter alternatives specifically for setting poetry (Figure 3.29). Like Arrighi's italics, these alternates have long ascenders and descenders, with quill-formed terminals. Swash capitals and alternative line- and word-final versions of **e** echo Arrighi's use of italic for publishing poetry (Figure 3.16). Agmena, however, is a design completely unrelated to Arrighi's chancery style.

Used for typographic differentiation (see 3.2.2)

The early use of italic for typographic differentiation did not seem to significantly influence its design. Contemporary designs, however, have been designed to support complex content hierarchies—or flatten them.

FF Strada (Figure 3.12) was designed to provide 'an italic distinct in letter form but equal in contrast and volume' such that 'the eye immediately differentiates between [roman and italic] without favoring one above the other' (Ramsey & Pinggera 2004). This is particularly useful for multilingual texts where there should be no perceived dominance of one language over another, but where the distinction between languages remains important. The result is an italic that is equal in weight to the roman, with open counters and high readability that enable its independent use for long texts.

For his FF Seria family, Majoor designed two separate italics, with the intention that they could be used to set deep hierarchies, such as quotes within quotes (Middendorp 2004: 252). Figure 3.30 gives an example of their use for a multi-level hierarchy, with italics that vary in slope and cursiveness.

Used for linguistic differentiation (see 3.2.3)

Although the linking of specific romans and italics was common by 1600, it is not clear to what extent that linking put pressure on designers of the time to produce italic counterparts for all their roman types. There are, however, more recent examples of the need for a linguistic secondary style influencing the design and structure of type families.

The second release of Renner's Futura series (1928) included two oblique (slanted) versions. These were not in the original design, but were prepared due to demands of compositors for a way to differentiate text that did not involve alternate weights such as bold (Burke 1998: 107–108). Typejockeys' Ingeborg family (2010) did not originally include an italic counterpart to the Heavy weight, but a later web release added one. In both of these cases, the need for an italic for every roman—to support use as a linguistic secondary—pressured the designer to produce them. These are discussed further in the context of business influences (see 3.5).

In the twentieth century, the need for linguistic secondary italics inspired a return to the idea of sloped romans that had first been tried in the *romain du roi*. As discussed in section 2.2, Morison proposed that sloped romans were the *only* appropriate secondary style, as they were clearly linked to the roman in style and design—a necessary correspondence for use as a linguistic secondary.

Suddenly the situation seemed complex. It was midnight,
and a moonless chill whispered his bones freezin'. Buildings
were closed off, restaurants did not serve anymore, and Harold
was ready for a snack. On his back he had his sick grandaddy,
who sighed: "where is mommy?". It all seemed to be running out of
hand, but along came a steel-plated rescue. It was a taxi.

AUTO 1 ITALIC IS FORMAL – AN ITALIC WHICH YOU CAN TRUST AT THE SPEED OF 240 KM/H

Suddenly the situation seemed complex. It was midnight,
and a moonless chill whispered his bones freezin'. Buildings
were closed off, restaurants did not serve anymore, and Harold
was ready for a snack. On his back he had his sick grandaddy,
who sighed: "where is mommy?". It all seemed to be running out of
hand, but along came a steel-plated rescue. It was a taxi.

AUTO 2 ITALIC IS FLAVOURABLE – IT GIVES A STRONG CONTRAST NEXT TO ROMAN FONTS

Suddenly the situation seemed complex. It was midnight,
and a moonless chill whispered his bones freezin'. Buildings
were closed off, restaurants did not serve anymore, and Harold
was ready for a snack. On his back he had his sick grandaddy,
who sighed: "where is mommy?". It all seemed to be running out of
hand, but along came a steel-plated rescue. It was a taxi.

AUTO 3 ITALIC DEMANDS YOUR ATTENTION – IMPRESS YOUR GRANDPA WITH THIS ONE

an independent sans serif
an upright sans serif
an alternate italic

ROMAN

romana

TYPOGRAPHIC

italica

PHONETIC

italica

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Used as an independent style (*see 3.2.4*)

The use of italic as an independent style continued throughout the last century, and this use continues to influence design. Fairbank promoted independent italics in 'Italic in its own right' in the first issue of *Alphabet* (1964). Spiekermann (1993: 79) encouraged designers to question the status quo: 'The rule says that you can't set whole pages, let alone books, in the italics of a typeface. The only reason it might not work is because we're not used to it.'

Underware's Auto (Figure 3.31) is an example of a recent type family that recognizes use as an independent style. It includes three italics for a variety of typographic uses, including one specifically for independent use. Two decades earlier, Unger's Flora was designed without a roman counterpart. Although initially classified as a 'script' typeface, it established a model for sans serif italic text faces and is used independently and as an occasional italic counterpart to Praxis (Figure 3.32). Both Auto and Flora show the ongoing influence of the chancery style that inspired Gill and Goudy.

Used for the world's languages (*see 3.2.5*)

The desire to support all the languages of the world that use the Latin alphabet continued to inspire designers to expand their fonts' character coverage. SIL International included hundreds of additional glyphs in their Latin script fonts: Doulos SIL, Charis SIL, Gentium Plus, and Andika (SIL International 2016). Some of these fonts have been in ongoing development since 1994, and have been periodically updated to support additions to The Unicode Standard (Unicode Consortium 2016).

The expanded character set of modern digital italic fonts also added additional complexity to their design. An example is the design of the lowercase **a** (Figure 3.33). The International Phonetic Alphabet (IPA) uses the single-storey ɑ and double-storey **a** to indicate different sounds (International Phonetic Association 1999: 11). In an upright roman font this poses no problem—the designer can include both forms. However, in an italic font the designer must choose how to represent these characters, and decide whether the counterpart to the upright double-storey **a** should follow typographic tradition and be single-storey, or should preserve the phonetic distinction between letters by designing a less-traditional double-storey italic form.

In summary, the use of italic has had a continued, strong influence on its design. This influence began with the first independent italics, proceeded through its evolution into a linguistic secondary, and has continued to address issues such as language equality, type family structures, and complex document hierarchies. The creative, ornamental elements of the italic style became more restrained as its primary use changed into secondary roles. This change in use led to fundamental changes in the way italics were designed. Decisions regarding size, weight, slope, and style began to be considered for how they would affect use alongside a corresponding roman font.

The contemporary influence of usage, however, is not clear, as the use of italics may be affected by changes in publishing paradigms and the expansion of electronic media. This needs further research, and is investigated in more detail through designer interviews (chapter 4).

*Figure 3.34. Granjon's Petit-parangon Italique (18.5 pt) (1554) (Ariosto 1556), followed by four revivals. Each revival demonstrates decisions made by the designer to make the design suit their needs. The cut off top right of lowercase **y** is a printing flaw. Houghton Library Collection.*
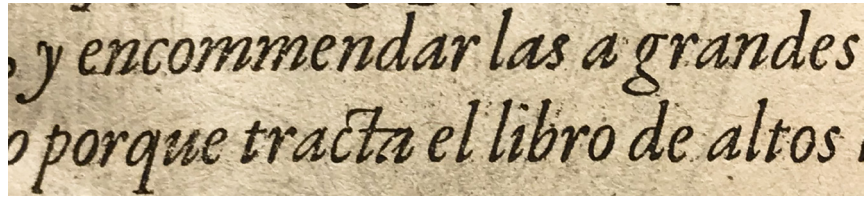
Figure 3.35. Adobe Garamond Italic (1989). Intended for text sizes, so spacing is more generous and consistent. Slope variation is reduced. Counters are larger and more open. Ascenders and descenders are shorter. (Slimbach 2005, Argetsinger 1991).

Figure 3.36. Garamond Premier Italic Subhead (2005). Closer to the original, although counters remain slightly larger and ascenders/descenders are short. Some ligatures are restored and available through OpenType features (Slimbach 2005).

Figure 3.37. Sabon Italic text size (1967). Exact type used as model is unclear, but Tschichold was looking closely at the Berner 1592 specimen, and this shows some elements of those types. The whole design had to be wider to accommodate duplexing with the roman. Some descenders had to change since kerning was not possible. Similar in spirit, but vastly different in execution (Burke 2009).

Figure 3.38. Sabon Next (2009). Digital revision of Sabon no longer restricted by technology. Many elements of the original model have been restored, but parts of Sabon remain—regular slope, short ascenders and descenders, large counters. It is more a revival of Granjon than Sabon (Berry 2006: 33, Porchez 2009).

3.3 The influence of history

This section explores how the historical tradition has influenced italic design. It looks at how designers have used types of the past as sources for inspiration, and the nature of that inspiration. As a historical marker (see 2.1.3), the design of an italic invokes connections with other typefaces of the past or present and 'can allude to an era, evoke an emotion, suggest a theme, [or] promote an ideology' (Bigelow 2014). It may closely emulate a past design to identify with a particular style or replicate its success. It may intentionally depart from tradition to address current needs or establish a new, original style.

3.3.1 Reviving the past

In some cases, designers have looked to historical designs as direct sources for new typefaces, and sought to revive those past designs for new audiences or environments. Blokland (2015: 5) defines a revival as 'an adaptation and redrawing of a historical typeface suited for modern typesetting'. There are no clearly defined boundaries for revivals, but they are not strict copies. Nor are they generally intended for purposes of creating facsimiles of historical publications, although some may approach that level of similarity. They are designed to closely resemble the source typeface and 'represent the intrinsic characteristics and the atmosphere of its original' (Blokland 2015: 5). The resulting type product is often delivered in a different technological environment than the original. Examples would be a revival of a hand-cut metal design for photocomposition or a revival of a hot metal design for digital typesetting. The distinctive nature of revivals is even recognized by the design community as a special class of type.[18]

The designer of a revival faces a wide variety of design decisions, particularly if there are technical constraints or requirements (Kelly 1991: 105). These choices can profoundly affect the resulting typefaces. A designer needs to decide:

- Whether to base it on the original design objects, such as metal punches, or on printed type images
- Which size of type to use as a source for hand-cut metal types
- The amount of regularization to be applied
- The extent to which the basic parameters may be adjusted, such as ascender height
- Whether to retain the traditional spacing or adjust to fit current tastes

The broad range of possibilities is demonstrated by the many revivals of the design most commonly known as Garamond Italic, though designed by Granjon. Although they may bear a similar name, these types differ greatly from one another, and are not based on a single design, but rather the thirty designs of Granjon over twenty years, that span twelve sizes (Vervliet 1998), as well as other types that emulated their style.[19]

An example of the breadth of possible interpretations are some of the types inspired by a single font—Granjon's Petit-parangon Italique of 1554 (§12 in Vervliet 1998) from the Egenolff-Berner specimen sheet of 1592 (Figure 3.34). It was a popular and common face for many decades. This and other types from that specimen inspired both of Slimbach's Garamond revivals (Figure 3.35, Figure 3.36), Tschichold's Sabon (Figure 3.37), and Porchez's Sabon Next (Figure 3.38). Each of these revivals has a unique

18 Judges in the TDC2 2001 competition felt it necessary to create a whole new category for 'type revivals'—recognizing both the rich original source design and the considerable skill and effort of the contemporary designer (Berry 2006: 20–21).

19 Many italic types in the Garamond/Granjon style are not even based directly on those designs, but are rather on fonts produced in 1615 by Jannon (Warde 1926).

Good lettering must be founded on good models; for the use
of beginners, they ought especially to be simple, dignified forms
that have been divested of the archaisms and mannerisms of
the scribes and exhibit the essentials of legibility, beauty and
character in a high degree. In the examples shown herein, the

Figure 3.40. The first drawing
for Juliana (1951). The upright
slope of the italic, similar to
renaissance 'chancery' styles, was
helpful in making a design that
could successfully be duplexed
with the roman. S.L. Hartz
Collection, Museum Meermano,
The Hague. Reproduced from
Lommen 2006.

Sorry—image redacted due to lack of reproduction permission

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interpretation of the design, with differences in shape, spacing, weight, and slope, yet they are all intended to evoke the spirit of the original within a particular technical and cultural context.

Smeijers (1999: 52, 2003: 39) writes that revivals require a significant amount of knowledge, skill, and restraint. The designer needs to understand and respect the historical original and the context in which it was produced and used. He also feels there is no room for creativity or originality, except in finding ways to interpret the original design for modern technology.

The breadth and variety of interpretations, however, shows that designers approached revivals in different ways. Shaw's book on digital revivals (2017) demonstrates this breadth. Some designers, such as Slimbach, shared Smeijers' concern for historical faithfulness and attempted to imitate the original. Others treated revivals with great freedom and creativity. Although revivals are, by definition, tied to their historical sources, the resulting typefaces display a wide range of interpretation.

3.3.2 *Drawing partially from the past*

Designers who were not wanting to revive a historical model sometimes intentionally drew in part on past designs for ideas. There seem to have been two approaches in this: to replicate specific design features or to copy a style's general character. The result of both were types that did not look like the historical model, but yet captured some of the spirit of the original.

Goudy's italic companion for his 1918 Kennerley Old Style type (Figure 3.39) is an example of replicating specific design features. The roman had been loosely inspired by fifteenth-century types, and Goudy (1922: 32) stated that he looked to Griffo's first designs (Figure 3.14) for the italic. Some elements of the design are shared with Griffo's work—the upright forms, pregnant **a**, slight ascender on **p**, flower-like **r**, and the upper left of m and **n**. However the face bears little overall resemblance to Griffo. The letter proportions are wider and more consistent. Curves are more round than triangular. Certain letters (**d g h l**) are completely different, with horizontal entry strokes on ascenders. The **u** is characteristically personal to Goudy's style.

This was the work of someone who valued tradition, and drew from it for useful design ideas, but whose work was designed for a completely different typographic culture. Goudy took only what he wanted from Griffo, and integrated it into a personal design that was more similar to nineteenth-century Scotch types than sixteenth-century Venetian ones. He took the details from history, but not the character.

In the case of Juliana (Figure 3.40), designed by Hartz (1951–1958), the desired outcome was reversed—the foundry wanted the character and characteristics of a historical style, but not the details. The goal was connotative, not imitative. Linotype wanted something that was 'chancery' in overall character (Figure 3.16) but 'without allowing the letters to become *too* calligraphic' (letter from Tracy to Hartz, quoted in Lommen 2006: 192). Although it shares some of the angular quality, and certainly the almost vertical slope, of the historical style, the details are very different. Many elements would be difficult to form with the broad-edged tool used by Arrighi: the squared-off stems at the baseline, the stroke weight changes in round shapes, the rounded internal curves in the lower-left of **a** and upper-right of **e**. These hint at ancient letterforms, but are executed as modern, drawn shapes.

TYPOGRAFIE KAN OMSCHREVEN WO rden als te zijn de kunst van op een juiste wijze drukmateriaal ordenen in overeenstemming met een bepaald doel; van zoodanig de letters rang-

AANGEZIEN DRUKKEN IN wezen een middel is van vermenig- vuldiging moet het drukwerk niet slechts goed zijn op zichzelf be- schouwd maar ook goed voor een gemeen doel. Van zooveel te grooter wijdheid dit doel is des te strenger zijn de beperkingen den drukker op- gelegd. Hij wage een proefneming

ITALIQUE.

MAIS ſe lassant d'obéir, il s'abandonna honteusement à tous les crimes ſans aucun menagement. Après un festin infâ- me arriva le celebre embrasement de Rome, qui de 14 quar- tiers dont cette ville étoit composée en reduisit trois en cendres & ne laissa de ſept autres que quelques restes des maisons ; il y fit mettre le feu pour ſe representer l'embrasement de Troye.

Figure 3.43. Fournier's Petit Parangon Italique (1742), an alternative to the dominant Granjon style. Houghton Library Collection.

The technique of drawing upon past designs as a model for general character did not always work successfully. Van Krimpen's Cancelleresca Bastarda (Figure 3.41) was an attempt to apply the character of a historical italic style to a new design. His roman design, Romulus, had a sloped roman as a secondary type (Figure 3.42). He and Morison wanted it to have a 'tertiary' or 'free secondary' type as well, based on traditional chancery models. Both of them knew that tradition well, and chose to design a type that was based on the chancery style rather than any particular type. This gave them more flexibility in applying the style to the characteristics of Romulus, and making the weight and proportions compatible. One decision was to give it the same basic slope (11°) as the sloped roman—twice the normal slope of a chancery design. Another was to cast the type on a larger size body in order to allow for long ascenders and descenders. Both of these decisions were later deeply regretted.

To make the design work with Romulus, the chancery curved ascenders were made straight and given horizontal serifs. This exaggerated the slope, giving it a strongly tilted appearance. Round counters, particularly on the **o**, were widened, changing the characteristic rhythm. These violated key aspects of the archetypal chancery model. The decision to set type on a larger body (such as 12-point on a 16-point body), meant that roman and chancery could not be easily set together, which diminished any usefulness as a tertiary/free secondary to the roman. The sizing problem was so troublesome that Monotype never produced the 10-point design. Van Krimpen deeply regretted these decisions that caused both design and technical problems, and violated key aspects of the archetypal chancery model. He lamented: 'we trespassed against the discipline and the laws set forth by ourselves' (1957: 61–70). The type was unsuccessful as an italic counterpart, and unsatisfactory as an independent chancery.

These partial or connotative approaches to historical influence were attempts to apply specific features, style characteristics, or design properties of a past typeface to a current design. This could be a troublesome effort. Contemporary approaches to partial and limited historical influence are discussed further in section 4.3.2.

3.3.3 *Rejecting the past and seeking true originality*

A designer's response to historical tradition was sometimes to reject it and try to design a truly original typeface free from past influences. Fundamental questions, however, were whether truly original designs were possible and whether the influence of history could be avoided.

The first clear attempt of this contrary approach is the work of Pierre-Simon Fournier, a master punchcutter and typefounder. He documented the techniques of the trade in his *Manuel Typographique* (1764, 1768). He sought to create a new style of type (Figure 3.43) that could be an alternative to the Garamond/Granjon styles that had dominated printing for over 150 years. His new italic had a strong resemblance to the roman, and was more open and readable. He had also taken some inspiration from the roundhand flexible-pen writing style popular at the time. He wrote (translation from Carter 1930: 290):

> But the difference between my italics and those of the old lettercutters, most of which are still in use, will be found to be far greater. Some of those proclaim the hand of the great masters who made them by the correctness and evenness of the strokes, but they also display a certain old-fashioned air which I have thought fit to

Figure 3.44. Lexicon (Lommen 2003: 30). Although truly original, this work grew out of De Does' study of many historical typefaces, and Lommen (p190–191) notes similarities with Fleischman's Kleine Garamond Italic No. 2.

foundries. He was even allowed to have the famous and precious Enschedé type specimen of 1768 at home for a while. As a violinist, in the *Proef van letteren* his attention was naturally caught most of all by the music-type by the eighteenth-century punchcutter J. M. Fleischman, which was described there as 'the most perfect and

redress. For this reason I have followed my taste in letters of this kind in approximating them rather more nearly to our way of writing, and especially in making a clear distinction between the thick and thin strokes.

His motivation was to create something less 'old-fashioned' than the norm.

As much as Fournier promoted his own originality, and rejected the past, his ideas were not completely new. He had built upon the work of Grandjean and Alexandre (Carter 1930: 290). His innovation of placing roman serifs on italic letters was foreshadowed in the *romain du roi*, and may have even been copied from Luce (Johnson 1966: 123). He did succeed in achieving his goal—a well-formed typeface that could challenge the dominance of the Garamond/Granjon style—and proved that an italic could have a close relationship to a roman without looking mechanical. However he did it with constant reference to the work others had done before him. He may have rejected one particular historical style, but in doing so he embraced elements from other historical styles.

Ovink (1971, 1971a, 1972) documented in great detail many nineteenth-century designs that attempted to upset the dominance of the didone style. In almost all of these cases, even those Ovink regarded as 'revolutionary', the anti-didone designs were inspired by design ideas that predated the didones. They did show originality in how those ideas were applied, but few of them could be considered completely original.

Designers disagreed whether truly original designs were possible. Morison (1926: 110), writing prior to the phototypesetting and digital revolutions, thought that there were no more historical typefaces open to revival, and that new designs were the only path forward. Burke (1998: 194), however, wrote that type designers 'usually have to accept that they can only produce modifications of existing genres'. Goudy wrote (1940: 67):

> [...]what we call an "original type face" is undoubtedly little more than a subtle variation of an orthodox or traditional letter form, a form to which we attempt to impart a charm of character or a quality of personality[...]

Even Goudy (1940: 37), however, felt that a significant contribution of craftsmanship was possible despite the 'dogmas of tradition', and that true character in a typeface came from subtle variations of lines and curves built upon a sound tradition (p42). Tracy (1986: 60) called these additional original characteristics 'the flesh on the skeleton'.

De Does (2013: 20), speaking of his work on Trinité and Lexicon (Figure 3.44), introduced the concept of 'historical originality':

> To my way of thinking, a high proportion of the elements I wanted to use to enhance legibility and harmony were original. True, most of them had been in existence since the Renaissance; some had their origins in a later period. However, in the circles in which I moved and on the composing machines available to me at Enschede, by the time I employed them they had more or less disappeared from the scene. Reintroducing them just when to me they had been lost is also, I think, a form of originality. You could call it *historical originality*.

Lexicon was not based on any existing design, but drew from both historical and contemporary designs (Granjon, Plantin, and Times) for ideas (De Does 2013: 82–84). This concept of *historical originality* leaves room for indirect influence, and helps to explain designs that reject any direct historical link, yet are recognized to have some traditional inspiration.

Figure 3.45. Lutetia Italic (from
a type specimen included with
Morison 1928). Although based
on Van Krimpen's personal
handwriting, it strongly echoes
the character and details of
Arrighi's types (Figure 3.11,
Figure 3.16).

Puis quand ainsi seroit, que selon ta prière
Elle aurait obtenu
D'avoir en cheveux blancs terminé sa carrière,
Qu'en fût-il advenu?

Figure 3.46. Centaur and Arrighi,
in digital form produced by
Monotype as Centaur MT.

ABCDEFGHIJKLMN
ABCDEFGHIJKLMN
OPQRSTUVWXYZ
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

An example of this is Van Krimpen's italic for Lutetia (Figure 3.45). He struggled to find a suitable historical reference on which to design Lutetia Italic. He wanted a chancery style, not something Granjon-like. Rather than go back to the types of Arrighi and others who defined that style, he instead chose a surprising model—his own handwriting. He had changed his handwriting a few years before, basing it on renaissance chancery models, so it seemed to make sense to him to draw inspiration through that indirect channel (Van Krimpen 1957: 24–25). The result was something new and original, yet deeply informed by history. Morison (1928: 216) wrote:

> The artless freedom of these characters flows from the designer's understanding of the disciplined labours of older writing-masters; the letters are effective because they are reasoned out, not photographed from Plantin typography or Tagliente calligraphy.

In summary, designers have consciously sought to create new, original works, and in some cases did so with the intention of breaking away from prevailing typographic styles. Tradition became something to be pushed against in the process of creating something truly inventive. That contrary process, however, involved referencing other historical styles and ideas, often indirectly. Past designs were not completely ignored or discounted— they were important and influential sources.

3.3.4 When there is no historical italic model

Not all historical romans have a corresponding italic design. If a designer chose to base a roman font on a particular historical design or designer, they often looked to that same source for inspiration for the italic. If the roman was based on a design by Didot, the italic might be based on Didot's corresponding italic, or on other italics by Didot. This was the case with revivals, but was also common when emulating an established style.

A challenge to this pattern occurred when there was no corresponding italic, or if the original designer did not create any italics that would serve that purpose, or if the existing companion italics were unsuitable for the current need. The designer was then faced with inventing or creating an italic that would seem to fit naturally with their roman. There was no precedent to follow, and the designer needed to decide how to approach it.

There are four identifiable strategies (in no particular order) that designers have used for dealing with a missing italic.
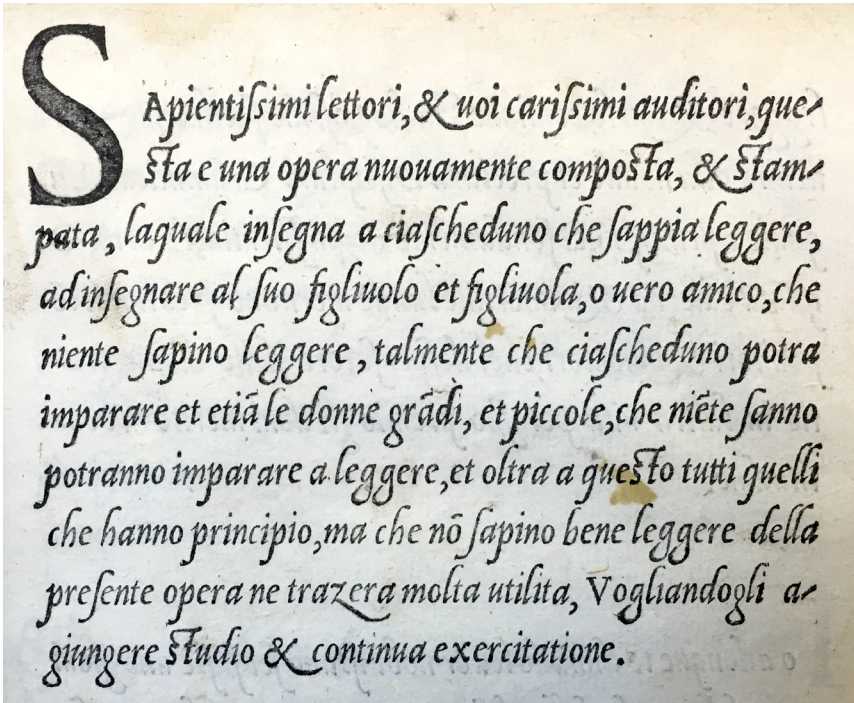
The first was to find an unrelated style that was compatible, and adjust whatever parameters were necessary, such as weight, contrast, or height. This was the case when Monotype adapted Rogers' Centaur (Figure 3.46) for machine-casting in 1929. Centaur was based on early roman types that predated the cutting of any italics. There was no historical precedent to follow, and so the decision was made to adapt Warde's revival of Arrighi to be the italic companion. Warde then shortened the descenders and added inclined capitals to make it suitable for use alongside Centaur. Although the two faces have no historical relationship, their shared renaissance calligraphic character and compatible proportions enabled them to work together successfully (Dreyfus 1966: 47, Lawson 1990: 97).

A second strategy was to look to the work of other designers from the same era. Fenway, designed by Carter (1999), was influenced by the work of Fleischman, though it was not a direct revival. Carter wanted an italic that was less steeply inclined than Fleischman's italics, and looked instead to the italics of Rosart, Fleischman's contemporary (Middendorp 2004: 28).

10.2 *A rather open but very efficient roman cut by Pierre Haultin.*
(Antidotarium ... Carolus Clusius, Antwerp: Plantin, 1561.)

Figure 3.48. Tagliente's
calligraphic type based on his
writing style (1524). Newberry
Library Collection. The florid
style required a large number of
alternate forms and ligatures.

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A third option was to try to get inside the mind of the original designer and imagine what they would have created. Smeijers chose this strategy for Renard (Figure 3.47). The roman is based on Van den Keere's 2-line Double Pica Roman. Van den Keere, however, never cut any complete italics, so Smeijers (1999: 58) imagined that he might have 'studied the largest italics cut up to that time'. Smeijers then considered which specific italics Van den Keere would have looked at, and what his opinion would be (quoted in Middendorp 2004: 243):

> I am sure he would have wanted to emulate the best italic available. Which, at that moment, was Granjon's Ascendonica Cursive. [...] I find it too monotonous. I think Van den Keere would have given it more of a rhythm, which is what I have tried in Renard Italic.

Smeijers (1999: 59) also considered his own needs:

> My italic had to read more supplely and have a rounder quality, and be an equal partner to the Renard roman at the same time.

A fourth option was to look to the same historical and calligraphic traditions that inspired the original. Van Krimpen's use of handwritten models for Lutetia Italic (Figure 3.45) was an example of this.

Each of these strategies sought to discover what might work best as an italic companion, and used the historic record to refine the possibilities. The end product remained an original creative work, informed by the work of past artists, and 'made in the spirit of the period' (Smeijers 1996: 185).

These strategies did not, however, guarantee success. The Cranach Press Italic project, begun in 1911, was intended to produce a secondary italic for a roman based on Jenson's type of 1470. Initial experimental drawings were prepared based on Griffo's italic, but were rejected due to technical considerations, and an alternative renaissance inspiration was chosen: Tagliente's calligraphic forms (Figure 3.48). Dreyfus (1966: 11, 13, 41, 47) pointed out that this was to later cause significant problems. Tagliente's design relied heavily on intricate forms and many alternate characters. The proportions were unsuitable as a match for Jenson's roman—so unsuitable that the forms had to be 'mutilated' to fit. The resulting design instability prolonged arguments between punchcutter, designer, and client. Although political events closed down the press before the italic could get significant use, this poor decision of which historical model to use had slowed down the project and contributed to everyone's dissatisfaction. The Tagliente model proved to be an unsuitable and troublesome choice.

In summary, designers have drawn on historical designs when making design decisions. This section has shown that the influence of historical models and paradigms on the design of italics was inescapable, but not constricting.[20] There seem to be five different ways in which designers applied historical influence to their designs. It could be strong and direct, as in *imitative* historical revivals. In other cases, the influence was limited to particular design features (*partial*) or subjective style characteristics (*connotative*). It could be *indirect*—following a general style of historical tradition. Designers also reacted *contrary* to certain historical styles, particularly ones that had become dominant, and sought to invent new, original styles. However even those new designs drew on past ideas and paradigms.

Whether these five types of inspiration continue to be applied in contemporary design is explored through designer interviews (chapter 4).

20 Unger (2018: 63) described this perspective: 'Convention [is] a powerful and challenging ingredient in type design: you can accept it or rebel against it but it is impossible to ignore it. Type designers who are aware of typographic convention can negotiate it, and choose to stay close to the centre or to go near the edge.'
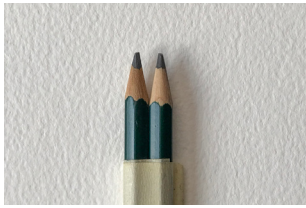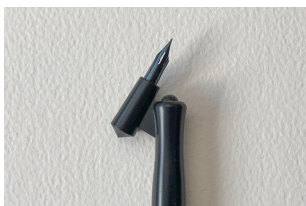
Figure 3.49. Physical tools used in the creation of italic letterforms and the styles they produce. From top to bottom: broad-nibbed pen, two pencils taped together, squared-off carpenter's pencil, brushes (size determines weight), flexible steel-nibbed pen. Letter images are scaled to a similar height for comparison. The use of pencils and brushes is discussed in more detail in sections 4.3.3 and 4.4.4. Images by the author.

DESIGNING ITALICS

3.4 The influence of tools and technology

Italics are objects of design (see 2.1.4) whose visual characteristics may reflect the tools and processes used in their creation. Argetsinger (1991: 80) noted that the basic shapes of roman letters were initially established by the pen and brush, and that 'The tools which are used to make letterforms imbue their creations with details characteristic of themselves.'

There seem to be four main types of tools/technologies whose influence can be identified:

- Pens and other writing instruments
- Type design and production tools
- Rendering technology
- Mental processes and physical actions

This section explores how each of these tools and technologies have influenced the design of typefaces, and italics in particular.

3.4.1 Pens and other writing instruments

Pens and other calligraphic writing instruments (Figure 3.49) have had a strong influence on italic letterforms. However their ongoing influence seems to be indirect and informal. The first italic type (Figure 3.3) was initially a typographic version of a handwritten script, and copied many of its visual characteristics—a consistent stroke angle, thick-thin contrast, and triangular counter shapes. These characteristics came from the dynamics of writing with a moderately stiff broad-nibbed pen, with the pen edge positioned at a consistent angle of 30–40 degrees to the horizontal line across the page.

A different kind of pen, the flexible steel-nibbed pen, informed the design of italics in the eighteenth century, particularly those by Fournier (Figure 3.43). The flexible pen popular during Fournier's time would respond to pressure, so the placement of thin and thick lines was influenced more by pressure than by pen angle. This allowed a particular style to develop with characteristically thin lines connecting thick, curved strokes. These historical styles, influenced by the pen-made shapes, became established in the type tradition.

It is important to consider to what extent writing tools such as the pen influenced later italic designs beyond the desire to emulate or follow a particular historical style. Hartz (1992: 17) questioned any direct influence:

> One almost hears the question at this point: 'What about italic? Surely there is an undeniable affinity with the pen-written character?'. At first sight there seems to be such an affinity. But if one looks closely it is rather the slope and narrowness of italic that give the impression of a pen written character.

Gill (1931: 53) was even stronger in his denial:

> But whatever may be said about the derivation of our letters from the chisel-made or pen-made letters of the past, there is no doubt whatever that neither the chisel nor the pen has now any influence at all.

However, Gill (1931: 30) also mentioned that when carving letters into stone he avoided certain forms because of how difficult they were to cut in the medium, so some influence of the tool on form remained, in this case the chisel rather than the pen. The influence of the chisel was not limited to

La Strada (1954) is Fe
Fellini's moving mas
ce that explores the
eternal *conflict* betw
the heart and mind.
Zampano (Anthony
is a cruel, traveling c

LA STRADA (1954) *is
Federico Fellini's mou
masterpiece that exp
the soul's eternal con
between the heart a
mind.* ZAMPANO *(An
Quinn) is a cruel, trau*
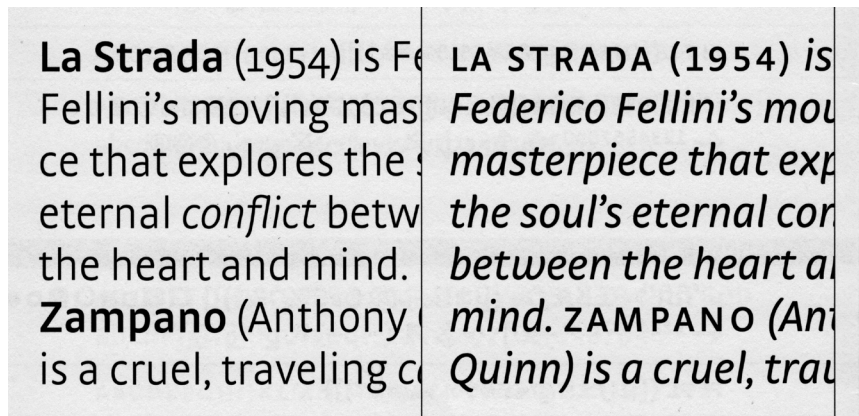
Gill. An example of this is Pinggera's FF Strada Italic (Figure 3.12, repeated, left), modelled on curves and terminals naturally suited to the medium of stone and chisel (Ramsey & Pinggera 2004). In these cases, the dynamics of a writing instrument—the chisel—influenced the design of a digital italic typeface. The chisel was not used to produce the type, so it was not a production tool, but rather an informative design influence. This influence, however, does not seem to have been prescriptive.

It is difficult to find strong evidence of pen-based forms functioning as a prescriptive influence on a text typeface beyond the early sixteenth century. Carter (2002: 71) suggested that the 'best masters of letter-cutting had the greatest respect for penstrokes and judged type by its fidelity to them'.[21] That may have been the case for some early italic punchcutters such as Griffo and Arrighi, but not for all of them. Froben's work seemed to be more of an evolution of a type style than an attempt to follow a calligraphic tradition (Kaufmann 2015: 39). Stone (2001: 17) noted that early type styles established their own structure and aesthetic based on production technologies, so it is reasonable that the amount of calligraphic influence was reduced. It seems very rare for the letterforms of a text typeface to have been based closely on pen-produced shapes.

There is evidence, however, of designers using calligraphic forms as an inspirational influence on their work. Two examples from the twentieth century demonstrate this influence.

When creating artwork for Centaur (Figure 3.46), Rogers used a broad-nibbed pen to draw over photographic enlargements of Jenson's type in order to produce a type that more accurately captured the calligraphic origins of Jenson's design (Zapf 1987: 56). Here the pen was used as a means to evaluate and improve a design, and connect it to a historical tradition by emulating the physical inspiration process as he imagined it.

Van Krimpen (1957: 24–25) pushed aside direct historical inspiration for Lutetia Italic (Figure 3.45), and looked to his own handwriting. The resulting forms, however, cannot be easily reproduced using any type of pen. The influence is indirect, and has more to do with overall rhythm and proportions than the small details of curve design.

This non-prescriptive influence is echoed in philosophical terms by Fairbank and Hesse. Fairbank (1964: 87–89) repeated a recommendation from Van Krimpen that calligraphy is to be 'regarded' in type design, and adds that it can be educational and contributes to a sense of unity in design. Hesse (2001: 35) encouraged young type designers to train in calligraphy so that 'the art of alphabet design will survive'. The influence they discuss is distant and indirect, but deeply foundational.

Noordzij used calligraphic theories as a tool to discuss and refine type designs (2005: 9):

> It is convenient if you can criticize the consistency of a design with absolute precision by simply asking something like: did you intentionally draw the translation of the *c* at a greater slope than in your *e*? Questions like this one express the properties of drawing in the parameters of the stroke of a pen.

These examples and references show that calligraphy and pen-based shapes have influenced type design, but the nature of that influence is varied and non-prescriptive. It tends to be informative and experimental, and may have only an informal connection to the final letter shapes. The shape of italics seems to have been defined and influenced more by the general characteristics of historical pen-based styles than by the pen itself.

Figure 3.50. A basic pantograph device (Doanri 2017). It could be used to enlarge, reduce, or transform letterforms and was used to produce sloped versions of upright forms.

Knob to adjust
scale of copy

Fixed point

Original

Copy
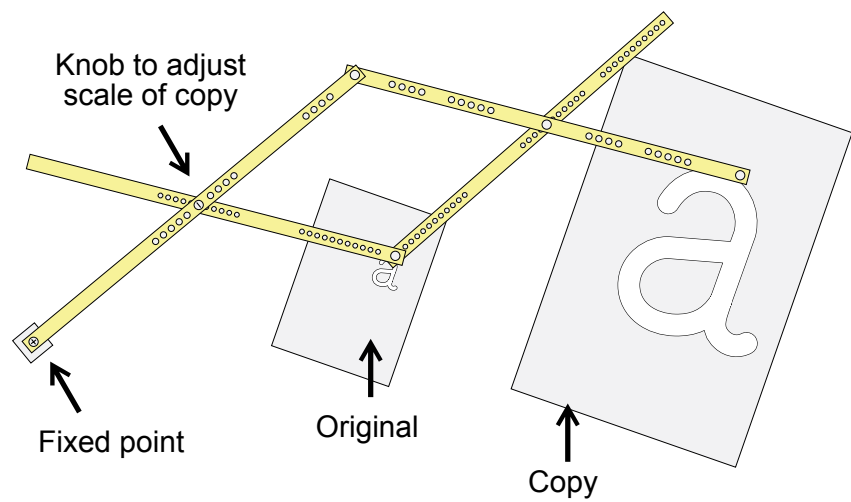
Figure 3.51. Heavily-inked impressions of Granjon's Gros-romain italic B (Ariosto 1556) that poorly represent the weight of the design as seen in other publications. Houghton Library Collection. Shown at high magnification, approx. 1000% of actual size.

natur
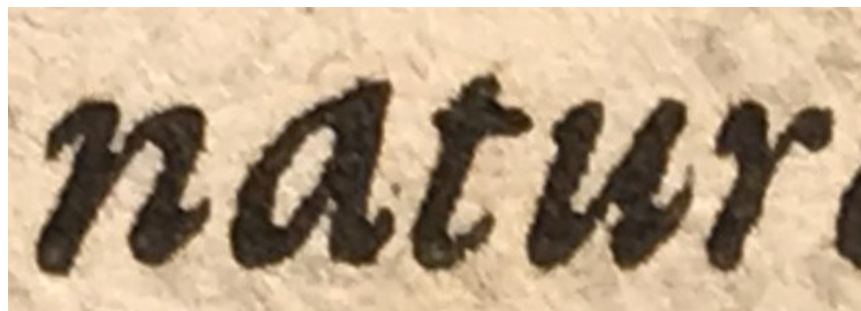
The role of writing tools in contemporary design practice is unknown and may differ from historical practice. Interviews with current designers may clarify contemporary practice and identify any significant trends.

3.4.2 Type design and production tools

Italics also show the influence of the non-calligraphic and mechanical tools used in their creation. Designers recognized that these tools were an equal, and integral, part of the art and craft of design. Goudy (1940: 117) wrote:

> My machines are then my tools, no less than the files and graver in the hands of the ancient craftsmen; they enable me to translate my originals in a shorter time than would otherwise be possible.

These tools seem to have had an impact on the shape and properties of letterforms, although some writers argued that they are only neutral tools used to form unrelated shapes. The following examples illustrate a few of the tools used and possible resulting design influences:

- *Files and gravers.* These traditional tools of the punchcutter were used directly to shape letterforms in steel, often without the guidance of prior sketches or guides (Smeijers 1996: 132). They did not impose particular style characteristics, but did place reasonable limits on the minimum widths of strokes (Southall 1997: 38). Their direct influence on letterforms seems to be limited.

- *Type gauges.* These were devices used by Fournier and others starting in the late seventeenth century as guides for inscribing lines on a fresh punch to indicate common properties, such as x-height and italic slope angle (Carter 1930: 24–26). These enabled punchcutters to give italics a more consistent slope, a notable property of designs that broke away from the Granjon tradition. In this case the tool influenced the design indirectly by giving the designer the ability to produce consistent angles.

- *Pantographic devices.* These mechanical devices, such as the Benton Delineator, could be used to enlarge, reduce, or transform letterforms from one medium onto another (Figure 3.50). They were first commonly used to produce type in the late nineteenth century, and made it easy to produce sloped versions of letterforms. This indirectly enabled the trend towards sloped romans, although designers expressed the opinion that mechanically transformed romans were not truly new designs and could not 'interpret' a designer's intent. (Dreyfus 1966: 44, Tracy 1986: 62–64)

- *Photography*. The initial use of photography was to reproduce images of historical types to be used as templates and guides for the design of new letterforms that might capture the spirit of the original forms, as was done for Centaur (Figure 3.46). One effect of this process was that new designs were sometimes based on the fully inked letterforms from printed pages, resulting in heavier, exaggerated forms, as seen in Morris's Golden Type. Figure 3.51 shows an example of over-inked forms, that if reproduced photographically and used as the source for a typeface could lead to overly-heavy letterforms. (Krimpen 1972: 25, Zapf 1987: 55–56)

In these examples, the tools were used as a means to implement the designer's intent. Mechanical tools could also place limits on what was designed, or make certain forms difficult or time-consuming to produce.
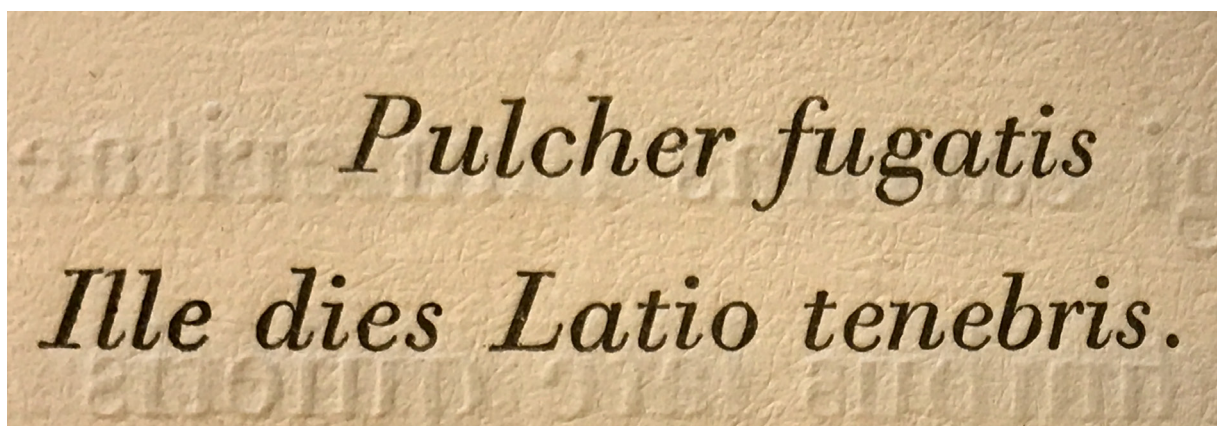
Figure 3.52. The italics of Bodoni demonstrate the fine precision that was possible when designing type for printing onto smooth paper. Serifs are sharply cut, thin strokes retain their strength, and subtle details are preserved (Tadini 1810). Shown at approx. 250% and actual size. Providence Public Library.
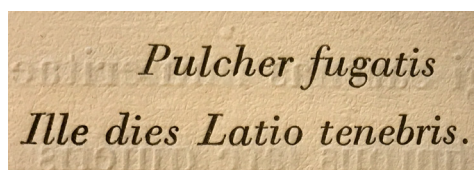
Van Krimpen (1972: 33–34) argued that mechanical methods produced 'dehumanized' designs. Ovink (1973: 242), however, responded that even 'sprightly' designs could be produced mechanically through 'patiently and laboriously drawing and redrawing'.

Some shapes seemed to be more native to mechanical processes. Dreyfus summed up Van Krimpen's argument (1972: 29) as:

> It is, he maintains, senseless to imitate the work of a machine by hand, and it is dishonest to imitate by means of a machine what has first been made by hand.

Renner had reflected decades earlier that designs should be honest in the way they reflect the tools used to produce them (Burke 1998: 114):

> He suggested that it was more honest to employ mechanized processes of type manufacture to reproduce clear, geometric forms than to imitate handwritten letters.

There is no clear agreement whether mechanical tools are truly neutral or leave an indelible mark on the designs they produce.

These examples and discussion span the full range of pre-digital type designs and demonstrate that non-calligraphic tools could have an influence on italic designs. The influence was usually indirect, enabling but not necessarily encouraging specific design decisions and trends, although some influence seems to have been unavoidable.

The tools used in contemporary design, however, are likely to be mostly digital, and their influence is mostly undocumented. Interviews with current designers may provide a greater understanding of this influence on both individual letterforms and the overall italic design process.

3.4.3 Rendering technology

The technological limits and effects of *rendering*, a reproductive publishing process (see 3.1.1), had a clear influence on design. Rendering refers to the means of producing lettershapes on a medium whether that is pressing ink onto paper or displaying pixels on a screen. The technologies and materials used in that process could place effective limits on the properties and features of an italic. They could also increase the range of design possibilities. Five examples demonstrate this influence across technological eras:

- *Paper.* Gill (1931: 53–54) and Zapf (1987: 34) both noted that the nature of paper influenced design, specifically the innovation of smooth paper as used by Baskerville. The availability of machine-pressed papers allowed and encouraged design and reproduction of sharply cut and finished serifs, as seen in the designs of Bodoni (Figure 3.52). This technology allowed designers to experiment and develop designs with new design properties and features.
- *Printing methods.* The roundhand calligraphy style popularized by high-quality copper engraving in the seventeenth century influenced preferred styles of lettering. This stylistic influence can be seen in the increased contrast, smooth curves, and thin serifs of the *romain du roi* and later typefaces (Mosley 1997: 8).
- *Hot metal duplexing.* The Linotype hot metal line-casting machines forced italic types to be *duplexed*—to fit on the same matrix as the roman. This led to italics that were as wide as their corresponding roman, a major change from some historical traditions. The italics

abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

Figure 3.53. The duplexed italics of Sabon—loosely inspired by Granjon but designed to fit on the same matrix widths as the roman (Monotype digital version).

Figure 3.54. Trinité Italic 2. The almost upright italic and limited contrast were a conscious decision in response to the optical effects of the phototypesetting process. (Autologic SA 1982). Shown actual size.

2 9/10 D

IZAAK ENSCHEDÉ WAS COMPOSITOR O
Izaak Enschedé was admitted journeyman compositor in the Haarlem printers' guild on the 21st of June, 1703; and it is from that day that his firm reckons its jubilees and centenaries. It is probable that, like most compositors at that time, he did much of his work at home, and it is not clear when he started to print there on his own account as well or when he ceased to be employed. Some broadsides and jobs bearing his imprint are known from 1707 onwards, and his first recorded book, a grammar, is dated 1710. Two years later he printed a rhyming Dutch version of the Psalms for the use of the Mennonite sect, to which he and his wife and his employer adhered. The family tradition maintains

Figure 3.55. Textile (1998). Designed as a contrast to Apple's heavy and geometric Chicago, this font was an attempt to bring the expressive, cursive nature of chancery styles to a system font designed for screen rendering. Text from Bigelow and Holmes 2014.

a fun-loving, playful font to contrast with the retro-futuristic look of Chicago

of Sabon (Figure 3.53, Figure 3.37) are often noted as a successful Granjon revival that bears little obvious resemblance to the original due to its wide forms. The technology placed hard limits on letter widths, but designers found ways to work within them. (Berry 2006: 31, Carter 1997: 25, Kelly 1991: 102, Tracy 1986: 40)

· *Phototypesetting.* The photographic process involved in rendering letterforms onto film tended to reduce the weight of strokes and serifs and round off sharp corners. Zapf (1987: 62) noted specifically that designers had to take this 'subtractive factor' into account. For example, in the process of designing Trinité (Figure 3.54), de Does (1982: 4) studied the nature of phototypesetting to determine the qualities that were most suitable for that technology. As a result he decided to limit the difference between thick and thin strokes, keep strokes and serifs from becoming too thin, and give it an almost upright italic. These accommodations had a marked influence on the design of types designed for phototypesetting.

· *Screen rendering.* The characteristics of computer screens had a strong impact on design decisions. The algorithmic process of *rasterization*—turning digital outlines into rendered bitmap images made of pixels—could heavily distort or degrade letterforms, particularly at low resolutions (e.g. 300 DPI). If a designer made decisions based on low-resolution testing (such as on screens) it could distort the resulting letterforms when printed at higher resolution (Argetsinger 1991: 72). However some designers chose to design fonts specifically to optimize rendering at low resolutions. Rather than see this as a negative limitation, Bigelow and Holmes (2014) drew Textile (Figure 3.55), a cursive font for screen, as an opportunity to 'make a bold statement in favor of font expressiveness'. Designers also began to use *hinting* (see 3.1.2) to aggressively adapt their designs for optimal screen rendering (Microsoft 2017). These methods of refinement specifically for screen use show the broad influence that computer rendering technology had on design decisions.

These examples show that rendering technology—printing, line-casting, screen rasterization—had an ongoing and powerful influence on the design of italics. This influence could place constraints on the design, but could also provide new design opportunities. Rapid changes in rendering technology in recent years, however, may have changed the nature and amount of influence on design, particularly related to screen use. The impact of these changes on contemporary design decisions is potentially significant, and is specifically explored in designer interviews (chapter 4).

3.4.4 *Mental processes and physical actions*

Designers have written about the influence of mental processes and physical actions as tools in the type design process, mainly related to the development of *character* in a design. Although rarely specific to italic design, these reflections suggest that mental and physical factors can affect design decisions. There has been disagreement, however, regarding the seemingly opposing roles of rational analysis and physical imperfection. The issues and arguments regarding these roles are complex and more extensive

than can be addressed in this thesis, however the influence of these viewpoints on design may have significance.

One perspective argued that the eye and the hand are more trustworthy than rational measurement and mechanical drawing. This went beyond discussion of calligraphic influences and involved the natural variances and subtleties of physical sight and touch. Van Krimpen (1972: 17, 38–39) wrote about the importance of the designer's 'hand' and the irregularities that come from manual drawing. He saw them as 'an important element of the charm of hand-cut type', and lamented their disappearance in many designs. Smeijers (1996: 148–150) noted that numerical precision and consistency can give a false sense of correctness and lead to 'dead' type:

> We are even afraid to rely on our own nervous system. Instead we have to be convinced by numbers (coordinates) rather than by visual evidence. Even experienced type designers get confused when they have to check the justification [fitting] of an old design. The design looks good but the numbers look bad. The consequence is too much dead type. We think that if we make the numbers correct then the result must be good.

Throughout this argument there was a sense that type should have an organic, human character, and that technology could endanger that quality.

The opposing perspective argued that character does not come from the imperfections of the human hand, and is not limited by technology or rational analysis. Tracy (1986: 38) suggested that the 'subtleties of style' that are seen in masterworks of punchcutters were deliberate design decisions rather than imperfections. Goudy (1940: 49) argued that character in a typeface would show 'in spite of any imperfections, not because of them'. Ovink (1973: 242) and Zapf (1987: 39) dismissed any idea that technology could surpress or thwart the will of the designer, and argued that character was possible without organic imperfection and with careful, rational design.
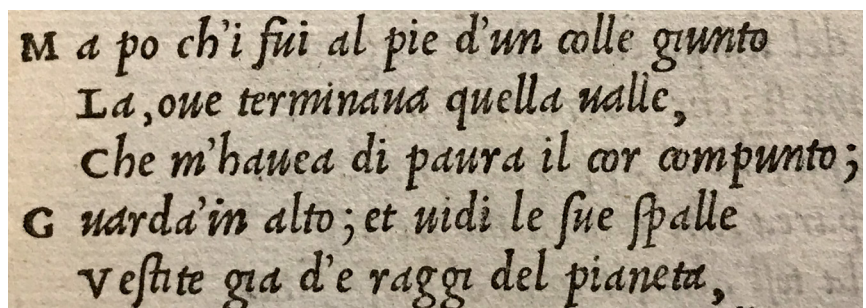
These two perspectives agreed that type should have a distinct character that is given to it through the mind of the designer, either consciously through deliberate design, or subconsciously through organic processes. In practice, Goudy embodied both points of view. He chose to produce his matrices himself to ensure that they were engraved 'in the spirit in which the letters themselves were designed' (1940: 104). He did not trust anyone else to impart that spirit into his type. This close connection between designer and design is expressed in Gill's summary of the role of the designer's mind in design (1931: 25–27):

> The mind is the arbiter in letter forms, not the tool or the material. This is not to deny that tools and materials have had a very great influence on letter forms. But that influence has been secondary, and for the most part it has been exerted without the craftsman's conscious intention.

It is difficult to find visual evidence of the direct influence of mind and body in specific designs, or to determine whether imperfections were mistakes, conscious decisions, or subconscious actions. However the intensity of these arguments demonstrates that the quest for character—and a sense that the typeface has been made by a person, not a machine—has been important to designers. The role of this factor in italic design deserves further investigation, and becomes a topic of designer interviews in chapter 4.
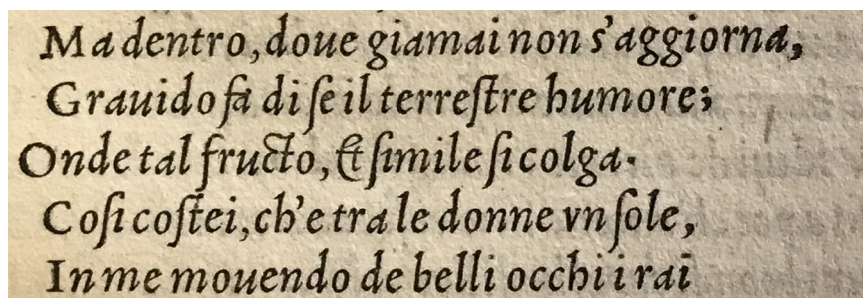
In summary, italics are objects of design that have been crafted and sculpted with tools and constrained by technology. Their design reflected the tools

*Figure 3.56. Griffo's first italic—for Aldus (*Dante 1502b*). The overall texture is uneven, with many tightly spaced ligatures that try to emulate the calligraphic tradition. Letter heights are inconsistent. Houghton Library Collection. Shown at approx. 195% actual size.*

*Figure 3.57. Griffo's second italic—for Aldus's competitor Soncino (*Petrarca 1503*). The general quality is arguably improved, with a more even texture and consistent spacing. There are fewer calligraphic ligatures and unique shapes. Houghton Library Collection. Shown at approx. 185% actual size.*

involved in their creation, whether that be pen, brush, pantograph. or camera. The nature of that influence seems to have been varied, indirect, and non-prescriptive. Even when technology placed strong limits on design it did not seem to hinder designers from creative expression or successful design, nor did it stifle their quest for personal character. The role of tools and technology, particularly in the context of digital design, is explored in depth in chapter 4.

3.5   The influence of business

Italics are business products—items that are sold and used to promote other products, companies, and designers (see 2.1.5)—and their design reflects that commercial identity. Business concerns seem to have influenced the italic design process by stimulating innovation and improvement, pressuring designers to produce complete type families with fully-paired roman and italic counterparts, and encouraging creative and virtuosic design. This section discusses each of these influences.

3.5.1   Innovation and improvement

The need to sell products to a limited or specific audience seemed to stimulate innovation and improvement. The pressure of competition drove publishers and designers to create new designs that improved upon existing ones. For example, after creating an initial italic for Aldus (Figure 3.56), Griffo created an arguably improved italic for Aldus's competitor Soncino (Figure 3.57). The improvements in the design likely drew from Griffo's increased experience, but was motivated and enabled by Soncino's business interests (Clayton 2013: 122).[22]

Quality was effective in selling typefaces. There were many poor quality counterfeit copies of Griffo's designs, however the Parisian italics produced from 1530–1550 were widely seen as excellent and became popular throughout Europe (Carter 2002: 74–79, Johnson 1966: 96). There is evidence that a poor quality italic could reduce its use, and even affect use of the related roman. Four centuries later, McMurtrie (1927: 25) noted that the upright roman of Cloister Oldstyle ATF was excellent, however he never used it because the accompanying italic was inferior. Competition was a strong motivation to improve the quality of italics throughout their history.

Fashion also seemed to affect change and improvement. Kaufmann (2015: 39) suggested that Froben's italics of 1519–1520 failed not because of quality but because their design—a blend of cursive and bastarda models—did not match the popular style. This pressure to emulate a popular style could make innovation a risky venture. The design to break from long-entrenched fashion, however, could also stimulate new designs, as it did for Fournier (see 3.3.3, Figure 3.43).

The constant need to sell new and improved products led companies to invest in the ongoing development and release of new versions of their type products, often linked to and enabled by new technology. These upgrades were prevalent in digital type, where users could easily update products. For example, the original Adobe Garamond (1989) was upgraded to Adobe Garamond Pro (2000) to support new OpenType technology and succeeded by Garamond Premier Pro (2005). Each of these improved versions provided improvements at a cost to users, and their sales offset the significant investment of resources required for their development. It is doubtful that Adobe would have invested in the development of Garamond

22   An additional motivating factor may have been Griffo's own desire to compete against his former employer who had treated him poorly.

The Family

Regular
Bold
Italic

Heavy
Fat
BLOCK
Bold Italic
Fat Italic

Regular   **Heavy**   BLOCK
Italic   ***Heavy Italic***   STRIPED
Bold   **Fat**
Bold Italic   ***Fat Italic***
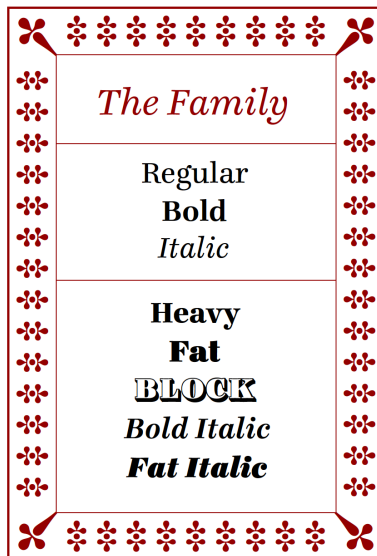
Premier Pro from 1992–2005 had there not been a business incentive. That investment, however, enabled the development of a very large type family, including four optical sizes (Slimbach 2005: 15–17).

These examples show that competition in published products and typeface quality motivated designers to produce improved and innovative italics. Popular fashion had a role in that influence, as did the motivation to sell improved versions of products.

3.5.2 The need for complete families

The pressure to produce complete typeface families, where each roman member had an italic counterpart, seems to have had an increasing influence in recent decades. This pressure did not seem to influence the design of italic letterforms—only whether an italic was produced for every weight and size. This may have affected the overall italic design process, although clear evidence of influence is difficult to find.

Although associations between particular romans and italics were common by 1550, and standard by 1600 (Carter 2002: 126), italic type could still be purchased separately well into the twentieth century. The italics of Guyot (Figure 3.21, Figure 3.22), although likely designed to harmonize with specific roman sizes, were not provided for every size. This was the case even in the twentieth century. For example, oblique (*schräg*) versions of Futura were released in 1930, three years after the original, but only for two weights (Burke 1998: 107–108). Until recently there was never any assumption that every roman weight and size would have an italic counterpart.

This may have changed alongside the development of digital typesetting and word processing software that contained user interface elements that could be used to apply ‘italic’ to any string of text. For example, Futura is now available in multiple different digital versions (from Linotype, Bitstream, URW, Neufville, and others) and every version has both an upright and oblique version of every text weight. The many versions of Futura differ in some details and in the range weights provided, so they are not likely to have come from a single common source. Some of these additional obliques may have been created prior to their conversion to digital formats, however the assumption that digital versions should have both upright and oblique styles seems to have universal agreement. The presence of obliques for every weight seems to be a deliberate change from the original initial design.

There is evidence that designers continued to face pressure from users to include italics even in recent designs, as seen in an interview with Spiekermann (Ulrich 2015) in which he is questioned about the lack of italics in the first release of FF Real. In some cases, typeface families that were designed without matching roman/italic pairs were later repackaged and re-released. An example of this is Ingeborg (Figure 3.58), whose initial type specimen did not include a Heavy Italic weight. When the project was later revised for web use, every text family had a corresponding italic (Typejockeys 2010).

Although this pressure to include italics seems to have been a trend that paralleled digital software developments, there is little documented evidence of it directly influencing designer decisions regarding individual letterforms. This is an area that deserves further investigation through designer interviews.

Figure 3.59. Swash variants and
decorative ligatures available in
Garamond Premier Pro Display
Italic. These seem to have had
only limited practical use, and
may have been equally inspired by
the desire to demonstrate Adobe's
design and technical skill.

*A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
as at a ct d et e ffk h is ij k ll m n
r sp st ta th t us u v v w*

3.5.3 *Creative and virtuosic design*

Italics were a showcase for skill and creativity, and that promotional role motivated designers to create designs that would stand out and draw attention. These designs often leveraged the ornamental tradition of italic, but could be new, creative designs without historical precedent.

An example of using the ornamental tradition to inspire virtuosic design was the wide range of optional letter variants in Garamond Premier Pro (Figure 3.59, Figure 2.16). In addition to a large set of decorative ligatures, the italic contained many lowercase swash variants and a full set of swash capitals. These were based on historical forms, but were updated for contemporary use. The designer's intention was to create an 'ambitious rendition' of Granjon's design, and called the project his 'most challenging type project' (Slimbach 2005: 16, 21). A 44-page type specimen was produced to promote the product, document its historical inspiration, demonstrate the design's high level of virtuosity, and convince users of the power of Adobe's new OpenType technology. The product seems to have been as much an advertisement for Adobe's skill as a practical application of new technology.

The goal of attracting attention seems to have motivated unusual new designs, such as the upright italics of Literata (Figure 2.15) and the multiple italics of Auto (Figure 3.31). In both cases, business pressures— branding and specific use scenarios—encouraged the designers to create unique solutions that gave the projects a stronger identity in a crowded marketplace.

For each of these products business motivations gave designers an opportunity to show off their creative skills through virtuosic and unusual italics.

Overall, the pressures of promoting and selling products seem to have had an influence on the italic design process by stimulating and encouraging innovation, improvement, and creativity. Fashion trends and technological innovations have also been factors. Whether business pressures, such as the need to produce completely matched roman/italic families, directly influenced the design of italic letterforms is undocumented and needs further investigation through designer interviews.

3.6 Summary and conclusions

This chapter has examined the italic design process and how it has been influenced by usage, history, tools, and business. It has reflected on the design process as *the sequence of decisions that affect the final letterforms and their relation to one another,* and identified the *designer* to be anyone who is involved in making those decisions (see 3.1.4). These design decisions have been grouped into five identifiable stages (see 3.1.2)—*initiating*, *experimenting*, *forming*, *harmonizing*, and *adapting*—that are overlapping and iterative (see 3.1.3) and apply to all technological eras. Analysis of published accounts of the italic design process and historical italic designs also seems to indicate that the type design process for italic is generally similar to the process for roman designs, except for some differences in timing and technique.

Influences on the italic design process have been rooted in the multiple identities of italic as described in section 2.1:

The use of italic as a *language feature* and *typographic element* has strongly influenced its design (see 3.2). The gradual change in its role from an independent alternative style to a secondary complement to roman affected decisions about its style characteristics and design properties. Related issues of use for complex document hierarchies and a wide range of languages also influenced design decisions throughout its history.

The identity of italic as a *historical marker* has provided an inescapable, but not constricting, context for design (see 3.3). Designers have chosen either to embrace or reject the influence of particular historical traditions, but have not ignored them. In particular, there seem to have been five approaches to historical inspiration: *imitative*, *connotative*, *partial*, *indirect*, and *contrary*.

Italic is a *design object*, and its visual characteristics have been influenced by the tools used in their creation (see 3.4). These tools included writing instruments, design and production tools, rendering technologies, mental processes, and physical actions. They did not specify or prescribe the shape of letterforms, but rather inspired design decisions. They may have placed limits on design decisions, but did not seem to stifle designer creativity.

The influence of italic as a *business product* has primarily been to stimulate innovation, improvement, and creativity in a competitive business climate. This seems to have had no direct influence on the particular shape of letterforms other than to encourage quality—an important factor in product success. It did begin to affect the structure of typeface families, although the extent of that influence needs further study.

This chapter has identified a wide range of influences that have affected the historical italic design process. These may or may not be significant in contemporary practice. These historical influences provide a context for the investigation of current practice. They identify areas of investigation that can be explored through interviews with current designers, and lead to important questions, such as:

- How does the predominance of electronic media affect design?
- What is the current role of historical designs in inspiring new ones?
- How do digital tools affect the design of letterforms?
- What non-digital tools remain relevant and useful?
- Are complete families still increasing in importance?

The following chapter investigates these issues through designer interviews and evaluates whether the five-stage model of the design process accurately reflects contemporary italic design practice.

4 Contemporary italic design practice

This chapter presents and examines the results of interviews with contemporary designers regarding how they approach the design of secondary italics. After describing the interview methodology and processes, it presents the responses organized according to the five-stage model of the design process described in section 3.1. It concludes with an exploration of the overall experience of italic design.

4.1 Interview purposes and processes

Current practice in italic design is largely not documented in any publicly accessible resources (see chapter 1). It is difficult to obtain from existing sources a complete and unbiased view of the experience of contemporary designers and how it relates to the historical practices and influences described in chapters 2 and 3. An analysis based on historical precedents alone may also not be representative of current practice.

A series of conversational interviews with current designers was a productive way of eliciting information on current practice and how it may relate to historical precedents. Semi-structured interviews enabled coverage of a wide range of topics and the gathering of information not easily gleaned from other mechanisms. They also provided the flexibility to spontaneously explore issues unique to each designer's experience.

From December 2016 to October 2018 interviews were conducted with 23 current typeface designers. The goals of these interviews were to:

- Document what they consider to be the influences on their design of secondary italics.
- Collect information on the processes and techniques they use.
- Establish how they learned and developed those processes, and how they pass that knowledge on to others.
- Gather information on the experience of italic design, including dimensions of learning, evaluating, and reflecting.

Each participant provided written permission for the interview and any recording, and the overall interview process was conducted according to University of Reading ethics policies.

4.1.1 Participants

Potential interview participants were chosen in order to provide a sample that could give a broad and balanced perspective on contemporary italic design, and to ensure that no particular design traditions or communities were neglected or given too much coverage. The goal was that the participants should reasonably reflect the current design industry.

Potential participants had to meet a set of basic requirements related to practical considerations, minimum experience, and avoidance of bias. Each participant needed to:

- Be currently involved in the design or production of digital typefaces, or active as a consultant or teacher.
- Have been involved at a decision-making level in the design of at least two published italic typefaces in order the keep the emphasis on practice rather than theory.
- Be able to communicate clearly about design in English, as all interviews were in English. Unfortunately this excluded some designers from regions outside Europe and the USA.
- Have not attended the author's italic design workshops at the University of Reading (2007–2009, 2011–2018), in order to minimize potential bias. In those workshops, ideas regarding models and processes for italic design were presented that might have influenced them towards a particular approach to italic design, and it was important to avoid any possible bias as a result.

Five further factors were considered when compiling an initial list of 39 potential interviewees, with the goal of balance within each factor. These factors were considered based on information known prior to any interviews:

- Current primary digital design tool
- Technology experience
- Foundry size
- Source of training
- Current geographic location

The final list of participants[1] was gradually reduced to 23 based on:

- Willingness to participate
- Availability
- Practical considerations such as the amount of travel required
- Limits on research time

The five factors did not directly influence decisions to reduce the list, however the balance within each factor was monitored to ensure that the sample remained broadly representative of the industry. No factor-specific adjustments to the list were needed. Details of the five factors and the distribution of final participants within each are provided in appendix C.2. An analysis of the educational and relational influences on the participants is provided in section 4.7.1.

4.1.2 *Methodology*

The interviews were all one-to-one conversations that took place through one of four media:

- 10 Face-to-face meetings at businesses, studios, educational institutions, industry venues, or places of residence
- 8   Video conferences via Skype or Facetime
- 2   Telephone conversations
- 3   Email correspondence

The interviews were conducted through face-to-face conversations, when practical, to avoid telecommunications difficulties that might be a distraction. Physical proximity would also make it easier for participants to spontaneously show examples, informally sketch illustrations, and demonstrate techniques on the computer. Because of geographic distance, the majority of interviews needed to be conducted through other means.

Face-to-face interviews did encompass more examples and demonstrations, however the amount and usefulness of the information gained was not significantly different from video interviews.

The decision to conduct primarily conversational rather than written interviews was confirmed by the quality and quantity of information produced. At the request of the participants, three interviews were conducted via email correspondence. While the responses of those interviews were useful, written responses were less detailed and provided less depth than the other interviews, even after more than one round of questions.

The face-to-face, video, and telephone interviews were semi-structured and 45 to 90 minutes in length.[2] Participants were asked to answer questions in seven subject areas that followed a natural sequence somewhat parallel to the design process described in chapter 3.1—*initiating*, *experimenting*, *forming*, *harmonizing*, and *adapting*:

- *Timing and sequencing*—when an italic was begun compared to roman
- *Inspiration*—sources for design ideas
- *Design features*—specific design features and technical considerations
- *Specific techniques*—methods of forming and harmonizing
- *Evaluation*—techniques for testing italics and determining success
- *Learning*—how they developed their techniques and approach
- *General*—difficulties, unique situations, non-latin italics

An outline of questions is provided in appendix C.1, although the particular questions used in each interview varied according to the participant's experience and expertise and were limited by time constraints. Conversations flowed freely through these areas and touched upon issues not initially anticipated, such as the future of italic design. Participants were encouraged to tell stories, explain decisions, share what they enjoyed and found difficult and challenging about italic design.[3]

The seven subject areas were chosen in order to encourage as much sharing as possible about each participant's experience with italics, and to elicit reflection about issues they may not have previously considered. This was effective. Multiple participants shared how the questions caused them to think about issues they had never considered before. A common response was 'I don't know—I've never thought about that before'.

4.1.3 Collection and analysis of responses

Each interview (except those via email) was audio-recorded. Minimal notes were taken in order to maximize focus on conversation and visual materials. Relevant portions of the audio recordings were transcribed, edited to remove obvious hesitations or repetitions and discussion irrelevant to the topic, and sent to the participants for their review. They were asked to read the transcript and verify that it was a good representation of the conversation, and could request changes. Only four participants asked for minor revisions: rephrasing of sentences and removal of a few words. Any notes that were taken were not used later, as the transcripts were deemed to be a sufficient record.

Transcripts were broken down into topic-specific passages from one sentence to a few paragraphs in length. Passages from all interviews were

2 Video conferences, particularly with Majoor (2018) and Stone (2018), encountered technical difficulties, but the interviews were extended in length to offset the time lost in switching to alternate technologies.

3 Participants were not provided with details of the proposed type design model of section 3.1, nor of the categories of visual characteristics of section 2.3.

Figure 4.1. The five-stage model of the design process presented in section 3.1 and Figure 3.2. Participant interviews confirm that this model is generally descriptive of the process of designing italic typefaces, although further analysis suggests that slight adjustments are needed (see 4.8.1). Following sections present the results of participant interviews according to this model.

Initiating

Experimenting

Forming

Harmonizing

Adapting
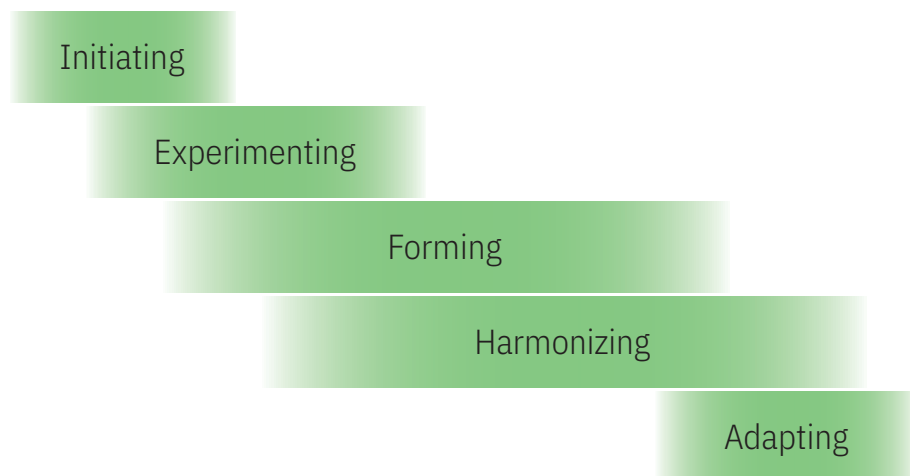
aggregated into topic areas that roughly mirrored the interview structure, such as *Learning*. As themes and specific sub-topics were identified and refined, passages were then grouped further into smaller clusters. These clusters were based on notable themes (e.g. *Mentoring and personal influence*) or technique-related sub-topics (e.g. *Slope, Weight, Width*). These collections of passages then formed the material from which the rest of this chapter was developed.

The analysis presented in this chapter represents a summary of the responses and identifies significant trends and themes that emerged through the interview process. Specific details, quotations, and examples from participants are provided to support summary statements.

4.1.4 Summary and further observations

The interview process was a useful method of gathering information on italic design practice. The group of participants was representative of the design industry, and the collected responses met the expectation to provide a broad and comprehensive picture of contemporary designers' experiences in creating secondary italics. The responses documented a wide variety of influences. They described the processes and techniques used—sometimes in great detail—and gave broad insight into how designers learn and develop those processes.

The interviews confirmed that the five-stage model of the design process presented in section 3.1 (and repeated in Figure 4.1) is a generally useful and accurate way to describe the participants' process of designing secondary italic typefaces, although minor adjustments are needed related to Adapting and Evaluation (see 4.8.1). They also confirmed that the four main influences on italic design described in chapter 3 (usage, history, tools and technology, business) remain influential (see 4.8.2).

In some areas, responses did not provide an expected level of clarity or introduced unanticipated themes and issues:

Participants often expressed strong emotions. Although it was expected that participants would share information on their experiential and emotional relationship with italic design, the extent of that information was surprising. Some participants expressed strong emotional feelings about aspects of italic design, often using the words *love* and *hate*. This is explored further in section 4.7.3.

There was a significant level of disagreement. In some specific areas, participants seemed to take extreme views on issues, aligning themselves strongly with specific philosophies, attitudes, and practices. For example, regarding the role of calligraphic exercises and sketching, most participants said that it is either absolutely critical to their work or not relevant at all (see 4.4.5). These instances of strong disagreement were limited, but there was moderate disagreement in many areas. The personal nature of the italic design experience provides some explanation for this level of disagreement, and is discussed in section 4.7.

Participants were often unsure of how to respond. As noted earlier, it was common for participants to respond to a question with 'I don't know—I've never thought about that before'. This general sense of uncertainty extended beyond specific questions, and participants often expressed that they were not sure of things. There were also passive ways of expressing uncertainty. For example, questions remained unanswered, even after multiple attempts at asking, or after questions were rephrased. This pattern of uncertainty as it relates to the nature of evaluation, is discussed in section 4.7.2.

There seems to be little knowledge transfer between designers. Although not all topic areas were covered in each interview, participants were asked whether they had opportunities to share their ideas about italics with others. Very few expressed that they ever had any opportunity to do so. Those who did have opportunities to teach—formal or informal—found that they were rarely able to talk about italics with their students, as the teaching was mainly focused on upright roman design. This lack of knowledge transfer between generations is even greater than expected and highlights the need for this research. Section 4.7.1 discusses how participants report learning to design italics, and it is rarely from formal teaching. Section 4.7.4 suggests that there may be other reasons for the lack of documentation and advice regarding italic design.

Participants wanted to speak about the future of italics. The interviews were not intended to evaluate or predict the current or future typographic role of italics. Participants, however, began to spontaneously express opinions on how current generations regarded the typographic use of italics, and what the future may hold. Because this might be an area of further research interest, and could have an effect on future approaches to italic design, this subject was explicitly addressed in later interviews. Some observations and possible conclusions are discussed in chapter 6.

Few participants had opinions related to scripts other than Latin. This research is focused on Latin script secondary italics, so there was no intent to gain a substantive set of information regarding italic design for scripts other than Latin. However, there was an optional question in the interview outline about participants' experience with non-Latin italics (see appendix C.1). The purpose of that question was to allow for the possibility of discussion that might increase the framework's applicability for other scripts. Most of the participants had no experience in creating italics for other scripts, and those that had opinions on the subject seemed to have little actual experience in designing them. The potential applications of this research to non-Latin scripts is explored in chapter 6.

The following sections present the responses organized according to the five-stage model, with an additional section on the overall experience of italic design. Where interview responses significantly echo or diverge from historical practice or opinion, sidenotes provide additional material drawn from published resources. Illustrations in this chapter are primarily drawn from the work of participants, and in some cases from their personal archives.

4.2 Initiating italic designs

There is no clear consensus or pattern regarding the timing of when an italic is begun in relation to its roman counterpart. Designers report a variety of individual preferences and habits. Factors unique to each project tend to have a significant influence on sequencing, even among those with established preferences.

There is clear evidence of a growing preference among both typeface users and designers for including italics in typeface families, and an increased expectation that all upright members of a family will have italic counterparts. This is a notable shift from historical practice, partially influenced by software user interfaces, but also by changes in typographic usage.

This section summarizes the responses of interview participants regarding the first stage of the design process—when an italic is initiated. It explores the factors that influence when, and if, an italic is designed, and the nature of that influence.

4.2.1 The sequencing of italic in relation to roman

The design process for italics seems to proceed in much the same way as with romans. They vary from one another, however, in where the italic process intersects with the development of the roman, and at what point in the roman process the italic process is begun.[4]

There is no consensus about when to begin an italic design.[5] A rough summary indicates three approaches among those who have a preference:

5   Begin the italic very early, while the roman is still in the initiating and experimenting stages, and conceptualize the design and its role in the larger family even before the roman has been formed.

6   Begin the italic at the same time, or very soon after, the design of the basic roman letters has begun—the forming stage.

4   Begin the italic after the roman design is stable and not likely to change significantly, either in the harmonizing or adapting stages.

9   Do not indicate a strong preference or say that their practice differs depending on the project.

From this it is reasonable to conclude that:

·   A substantial proportion of designers (9 of 23) report that they have no set pattern for when they begin an italic, and cite other influences unique to the project.

·   The majority of designers who say they have a preferred pattern (11 of 15) do not wait until the roman is set.

·   The majority of those with preferred patterns (10 of 15) do not start until the roman letters have been formed.

·   Only small proportions of designers report that they usually begin very early (5 of 23) or only after the roman is set (4 of 23).

Narratives, however, also show that designers who report a particular preference see roman and italic as intertwined designs, with some aspects that may be determined well before the design is executed.

Majoor (2018) reports that he usually begins with the roman, then does the italic later, but admits that he sometimes makes little sketches long before formally drawing the italic. Burian (2018) describes her

4   The definition of what it means to *begin* a design is not consistent among designers, and could be interpreted to mean when the first ideas for italic emerge (initiating, experimenting) or when the lettershapes are formed. Participants used the term in both ways. This paper refers to any decision affecting the form and alignment of letterforms as part of the design process (see section 3.1.1), and considers the first decision to be the beginning of the process.

5   Although the design process for italic capitals and lowercase may differ, there is no reported difference in how or when either is begun.

Figure 4.2. Five weights of Abril Display Italic (2011). This set of letters—'videospan'—is often used by Burian and Scaglione to prototype design ideas. The wide range of weights within this family increases the need to plan the family structure carefully early in the project, even if the full set of italic letters may not be formed until later.

videospan

videospan

videospan

videospan

videospan

process as always waiting until the roman is set. However many of the formative decisions regarding italic—oblique or cursive, for example—are determined much earlier:

> When we start thinking about a project, we already decide whether it's going to have an italic or not. The actual decision about the visual language comes later. We usually start with the uprights, the romans. At quite a late stage, when the roman is pretty much defined, we get to the italic. Therefore the classification, style, feel are pretty much set already from the design brief for the roman. So we have a set of parameters already in place. That also means that it's decided: Is this going to be slanted, more of an oblique? Is it going to be a true calligraphic italic? What's the contrast going to be? And so on. The actual aesthetics come quite late. I don't think I've ever designed an italic at the same time as the roman.

Majoor and Burian illustrate a pattern seen in some participant narratives—that although a designer may begin making design decisions at one point in a project, they may say that they do not begin the italic until later. This makes it difficult to establish clear patterns of the sequencing of italic alongside roman from designer narratives. There may be substantial differences between the timing of ideas and execution, and even reported preferences are not applied dogmatically. Designer practice varies widely, and some of that practice may be influenced by factors unique to individual typeface families. Those factors are explored in the next section.

4.2.2   Factors that affect timing

Individual designers are not necessarily consistent about when they begin working on an italic, and the timing can often change from project to project. Six particular factors were reported to have an influence on this timing:

- Family structure
- Influence of roman on italic
- Influence of italic on roman
- Intended style
- Design and production methods
- Project and client priorities.

This section describes how these factors seem to have influenced designer decisions regarding timing and sequencing.

Family structure

The intended structure of a typeface family can affect decisions about the design and cause decisions to be made long before the final designs are completed. This can split the timing of italic design into multiple phases of prototyping and production. Designers who report that they begin designing the italic very early commonly emphasize the importance of determining how the italic fits in with the larger family scheme from the beginning. These early design activities may be limited to only quick sketches (Slimbach 2018), or the design of a few prototype characters that explore the 'DNA' of the italic (Scaglione 2018) (Figure 4.2). The actual forming of the full set may come later, but for these designers the basic parameters of the italic are set from the beginning.

compressed italics were the last thing

compressed italics were the last thing

compressed italics were the last thing

compressed italics were the last thing

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compressed italics were the last

Figure 4.4. Early sketches for Stone Serif Italic alongside more fully-formed letters from Stone Serif. The italic has almost none of the features or characteristics of the upright roman, but was sketched alongside it. Image courtesy Sumner Stone.

DESIGNING ITALICS

Even those who report designing the italic after the roman may determine the presence and role of the italics in the family structure much earlier, as illustrated by Burian (2018) (see 4.2.1). Stone (2018) also establishes the role of italic in the family structure from the beginning, and encourages it with his students. He suggests it may help them avoid making decisions about the roman that will make creation of italics more difficult at a later time.

These prototyping and pre-planning activities may be separated by months or years. For example, the final production of some of Stone's italics did not happen until years after the initial family was released, even though those weights were planned with sketches from the beginning. Soskolne (2017) says that italic family members that are on the periphery of the family structure, such as Condensed Light Italic, are often the last to be drawn, as in the case of Whitney (Figure 4.3).[6]

Influence of roman on italic

A few participants say that the potential influence of the roman on the characteristics of the italic affects their decisions regarding timing.[7] This is particularly the case for those who begin their italics alongside, or soon after, the roman. Smeijers (2017) describes the influence of the roman on the italic as a natural process that proceeds directly from the roman design experience:

> If you really work on a text typeface then thoughts about the italic soon start to wrinkle in your head. Because there is often more than one possibility. Not always but often. So you have to consider what would be best and why, and you also have to consider of all possibilities which one you simply like the most.

This natural process tends to coincide with exploration of the range of weights and variants the family will have, using the first roman prototype as a starting point. This cannot be done until after the basic character of the roman has emerged (Clymer 2017, Hoefler 2017).

A visual example of this process is an early sketch of letters from Stone Serif Italic alongside two fully-formed letters from Stone Serif (Figure 4.4). Although the italic contains no elements directly taken from the roman, the italic is sketched in context with established roman letters. Another example is the process described by Maag (2018):

> With the uprights we define the look and feel of the typeface, usually on a regular weight. Once we have an agreement on the look and feel—and that's just a handful of characters so we can actually work quite quickly—we create design concepts. That's usually an extended character set of 26 to 30 characters, thereabouts. We also expand the design concepts into all the required weights, or what we think would be appropriate. Then in one of the weights—usually the regular—we define what the italic would look like. That's actually quite early on. That way we can instantly define 'Is it going to be a proper italic? Is it slanted?' That obviously depends very much on the style of what we know the upright is.

As a result, initial decisions in the italic design process may be made soon after, or even at the same time as, decisions about the roman.

I would use a pen
just to write out words

*I would use a pen
just to write out words*

Figure 4.6. Pierre Didot's 'Vingt
et un' from his 1819 specimen
(*Bibliothèque Nationale de
France*) compared with Yo Andy
Ten, a font loosely based on the
Didot tradition (Montalbano
2017). The slope and terminals
of Yo Andy Ten are different
from many Didot faces, but the
overall style and contrast is
similar, and the font shares many
characteristics of the Didot style.

*Couplets chantés par une des élèves
C'est Minerve, c'est la prudence:*

Couplets chantés par une des élèves
C'est Minerve, c'est la prudence:

Influence of italic on roman

Participants also suggest that the influence of roman and italic can be bi-directional, with the italic design process theoretically affecting the roman, but they give no practical or visual examples of that influence. Multiple interviewees share the opinion that decisions about italic may precede those for roman. This has been the experience of Hoefler (2017), who suggests that roman and italic are so integrated that it is difficult to start on a roman unless he has an idea of what the italic will look like. Ross (2018) also mentions it, and points out that this influence is not limited to regular-weight roman and can affect other members of the wider family.

Participants also report that early work on italic can have a positive impact on the roman. For example, Famira (2017) describes the benefits of having some back-and-forth interplay:

> If the processes are a little bit integrated then the typefaces can feed off of each other. Otherwise you might make decisions in form and shape that in the roman are like promises that are hard to keep in the italic. Or you get great ideas in the italic and then you go 'I wish I'd known this when I drew the roman'.

Highsmith (2017) notes that working on the italic can reveal errors in roman shapes or spacing, but warns of it becoming an ongoing circular process. Smeijers (2017) acknowledges that italic can influence the roman, but admits that it rarely causes him to go back and change the roman.

These examples reveal that designers do think about potential bi-directional influence, and may even make decisions about italic early in case it may help them with the roman. However, they provide no clear examples of this influence, and it is not clear whether this preliminary work on italic has a substantive impact on the roman.

Intended style

Participants report that the overall style of a typeface family can influence the sequencing of the italic.

Styles in which the italic is not directly derived from the roman allow the italic to be designed independently before, during, or after the roman. Grießhammer (2017) offers the example of his Quixo—a family based on independent roman and italic brush-written forms, where the design could be done in parallel with the roman (Figure 4.5). Ross (2018) agrees, and suggests this applies equally to non-calligraphic independent designs.

For families that are based on a known historical tradition, Munch (2018) reports that he waits until late in the process to design the italic because the genre predetermines many of the key parameters for the design. He 'knows where it's going to go'. For example, if a project has Didot-style contrast, then the italic will naturally follow that tradition (as seen in Montalbano's Yo Andy Ten, Figure 4.6). In these cases of historical style influence, the historical model will predetermine many characteristics of the italic, allowing for a greater time separation of design decisions between roman and italic.

Design and production methods

The timing of italic can also be influenced by the particular design and production methods used, with algorithmically-derived italics naturally following after the romans on which they are based. Designers who wait until the roman is completed before starting the italic often cite transformational processes as the reason for the delay.

For Open Sans we formulated an angle that would be in text generally a nice stepping pattern. It never got too steep and it never looked upright, so we worked in that zone. Open Sans definitely had a lot of engineers on Google's side looking at it and calculating degrees that would be good or bad in their environment. The angle was the result of a lot of formulaic conversations.

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Figure 4.8. Source Serif Pro Regular (2014) and Italic (2018). The italics for the family were delayed by four years, mainly because the extensions for other scripts were considered more important than italics. Text from Grießhammer 2017.

The project needed to grow very fast in a specific direction [that] was more about the upright styles because of its companion use. So I needed to focus on extending the character set to Cyrillic and Greek rather than starting italic from the outset.

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Matteson (2018) works mainly on designs where the italic is derived directly from the roman using a combination of digital transformations and manual corrections, so almost all of his italics are designed after the roman (Figure 4.7). Carter (2018) often uses transformations of the roman in his initial work on an italic, although the resulting italics go through a great deal of later adjustment. Both of these methods require an almost final roman—one that has been fully formed and harmonized—as a starting point, so a designer may wait until late in the roman design process to start the italic.

Highsmith (2017) mentions that in the case of mechanically-derived designs, such as many sans serif or geometric designs, it is common to start after the roman is done. However if that transformation is more 'dramatic', as with many serif designs, it becomes more important to work out the details of the italic earlier as it may affect other family members. Ross (2018) also warns of potential negative effects, saying that for some styles, italics can be more derivative than weight and width variants, and can end up being pushed too late into the overall design process. He suggests that the resulting italics can become 'leftovers' that are not 'integrated with the family' and do not 'provide for extra punch'.

Use of mechanical or algorithmic transformation processes to produce a draft or final italic from a roman is also mentioned as a technique by other designers (including Maag 2018, Montalbano 2017), and as a reason for waiting until the roman is completed to design the italic. This technical purpose is mentioned more than any other as an explanation for a late start to the italic. Details and examples of transformational techniques are described in section 4.3.4.

Project and client priorities

Development priorities can affect the timing of italic designs and occasionally delay final production. For example, Grießhammer (2017) says that italics are essential, and yet the release of italics for his Source Serif family was delayed for over four years, despite strong user demand (Figure 4.8). He explains that one factor in this delay was the need to extend the upright weights to support Cyrillic and Greek, and the need for these was more urgent than for the italics. This is a case where limited resources and project priorities have delayed the design and production of italics.

Participants say that such delays often come from client priorities. For example, Maag (2018) says that clients' most urgent need is for the upright romans, so italics are not initially of interest and may be delayed until later. When clients finally do want italics they want them quickly, and that time pressure often does not allow for a considered approach (Famira 2017). This seemingly tense relationship with clients is a factor mentioned by multiple designers, and is discussed further in the next section on family structures.

This influence of project and client priorities confirms that business pressures (see 3.5) remain a factor in decisions made by current designers.

4.2.3   *Italics and family structures*

Discussions regarding the influence of family structure present clear evidence of a growing preference among both typeface users and designers for including italics in typeface families, and an increased expectation that all upright members of a family will have italic counterparts. This is an unexpected theme that surfaced in many interviews, and one that has the potential to affect the italic design process. It is also a significant shift from historical practice (see 3.5.3).

Figure 4.9. Interface elements from Microsoft Word 2011 and Google Docs (3 March 2019). The default interface of these and many other applications of the last three decades include an 'I' button that activates the italic style. If the currently selected font has no italic counterpart an artificially slanted version is usually provided. This interface element is so common that it has a standard visual presentation—a slanted or italicized capital 'I'.
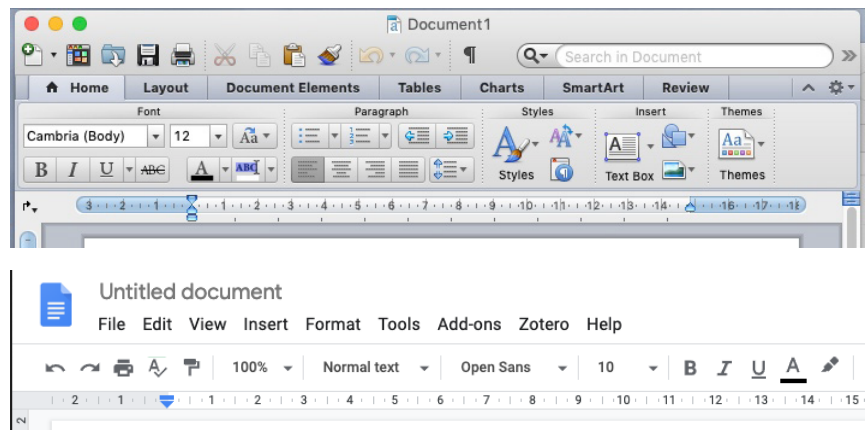
Figure 4.10. Benton Sans Regular and Italic (2003). The regular weight design was initially drawn in 1995. The italic was added years later due to user demand. Text from Highsmith 2017.

When I drew that I didn't bother with italics. Didn't think they were necessary. It was already a huge family. But everyone kept asking for them. So I had to draw them.

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This section summarizes the views of designers about whether italics are necessary and the importance of designing corresponding ones for every roman member of a typeface family. It concludes by discussing the difficult tension between designers and clients regarding the necessity of italics.

The need for italics

Participants report that users have become more insistent about having italics, and now expect them. This has been influenced by software user interfaces, and has become a significant business pressure.

Although there may be instances where italics are not expected, such as with display typefaces, participants commonly report that they are necessary for text typeface families, at least for the most common text styles. There is an increasing assumption that they will be present, even if the design is 'not interesting', such as with some sans serifs (Simonson 2016).

Clymer (2017) points out that software application interfaces (Figure 4.9) have had a practical, though indirect, influence on this:

> Maybe it's not always appropriate to draw an italic as a companion for roman. Maybe that roman doesn't need an italic. But more often than not you're going to make an italic because people are going to expect that, or they're going to hit the 'I' button. They're just going to get a slanted version anyhow. So I might as well make a nice oblique. [Even] if I don't really think it needs an italic, just because the interface option is there for it, it's better they get mine than just the default slanting.... If there was a backslant button that was a normal thing to have in an interface... we'd probably be occasionally drawing backslant versions. There'd be an expectation that that must be something that you have to include occasionally.[8]

He suggests that italics are not always needed from a design perspective, but produces them because people are likely to use them.

Users directly demonstrate their desire for italics in the feedback they give to designers through both their correspondence and purchasing decisions. Montalbano (2017) and Highsmith (2017) separately designed comprehensive families with no italics at all, but later changed their mind due to user pressure. Montalbano's extensive Didot family—Yo—contains over 100 variants (Figure 4.6). The early feedback he received was mostly 'Where are the italics?', so he designed another 100 italic versions. He also notes that his typefaces that do not have corresponding italics sell poorly. For him, a lack of italics is a significant disadvantage in a competitive industry. Highsmith did not initially plan to design italics for Benton Sans (Figure 4.10), but was also later convinced by user demand:

> When I drew that I didn't bother with italics. Didn't think they were necessary. It was already a huge family. But everyone kept asking for them. So I had to draw them. It was painful because I was so done drawing that [family]. Then having to go back to it and remember. [...] It would have been easier to do all of that once. I learned from that.

This increased bias towards including italics is reflected in recent practice. For example, Burian (2018) and Scaglione (2018) report that they always design italics for their original typefaces, and that the small number of families in their TypeTogether library that do not have them are anomalies, and for some of those the italics are already in development. Scaglione recognizes that many users demand italics, and sees them as a necessary business requirement from the start. One of the reasons that TypeTogether's

8   Backslanted, or reversed, italic type was first introduced by Figgins in 1815 (Seven Lines Pica, No. 2). The evolution of reversed italics is presented in a talk from ATypI 2016 (Baerdemaeker 2016)

We knew from the beginning that there was going to be an oblique. In that sense it's something that should work alone. We don't expect a huge amount of text to be set in these. The italic is just for grammar purposes—a grammatical tool. It has to be available mainly because of the competition not having italics. There is a commercial purpose there.

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Display Regular	*Display Italic*
Display SemiBold	*Display SemiBold Italic*
Display Bold	***Display Bold Italic***
Display ExtraBold	***Display ExtraBold Italic***
Display Black	***Display Black Italic***
Text Light	*Text Light Italic*
Text Regular	*Text Italic*
Text SemiBold	***Text SemiBold Italic***
Text Bold	***Text Bold Italic***
Text ExtraBold	***Text ExtraBold Italic***

My teacher said, 'But we don't need italic small caps. I never use them, so why do we need it?'. 'MAYBE I'LL USE IT. I THINK I LIKE IT. I LIKE TO HAVE THE POSSIBILITY.'

sans serif Tablet Gothic family (Figure 4.11) includes oblique versions is that the competition does not have them. This further confirms that the lack of italics is seen as a significant business disadvantage.

The importance of complete families

The increased expectation that upright romans will have complementary italics extends to complete families, where every upright member has a corresponding italic. This reflects a relatively recent change in typographic fashion and user preference over dominant styles of the twentieth century.

In traditional models of family structure only certain styles have italic counterparts, and typefounders decide which italics may be needed. An example is the history of the Futura superfamily, where secondary styles such as oblique and semi-bold did not appear until years after the first release (Burke 1998: 107). Hoefler (2017) and Maag (2018) both express a continued affinity for these models, in which the existence of an italic style is based on perceived need rather than a desire to enable users to produce anything theoretically possible. This is closer to a historical model in which italic is considered one of many styles rather than a variant of all of them.[9] It was also the common model used at Stempel and Monotype in Maag's early career, where italics were 'treated as an afterthought'. Hoefler (2017) describes a similar model with three equal partners (italic, roman lowercase, and roman capitals) in which each partner may or may not exist in a particular weight or variant, and refers to a similar model by Bringhurst (1996: 55). This way of thinking about and producing typeface families continued to be dominant throughout the twentieth century.

The large majority of interviewees, however, share a different view towards family structure in which each roman has a corresponding italic (Figure 4.12). Stone (2018) describes the thinking behind this model: 'There's a slot. There's a box. It should have something in it. Somebody's going to use it for something that you don't expect.' The emphasis here is on what users will do, not necessarily what typeface designers or typographers think is ideal. Highsmith (2017) demonstrates this changing attitude:

> Traditional typographers say you never need a bold italic. Well, bold italics are cool. There's nothing wrong with them at all. People expect them, too.

Participants also express a desire to give users freedom. When designing Scala Sans, Majoor (2018) decided that he wanted to give it italic small caps (Figure 4.13), despite being told that they had no use, because he liked them and thought it was good to have the possibility of using them.

Some designers who early in their career felt italics were optional later changed their mind as a result of seeing how their typefaces were being used. Stone (2018) did not initially produce semibold italics for his Cycles family. Years later, an academic publication was redesigned to use semibold for headings, and no corresponding italic was available, so titles and other special text was displayed using a mathematically sloped roman. He now says he wishes that he had designed those extra italics, and hopes to someday complete the full family. Even Hoefler and Maag admit that they are now more likely to conceptualize a full range of italics than in the past, even if only a limited set is actually produced.

It is clear that the dominant model for family structure has shifted to prefer families in which each upright roman typeface has a corresponding italic. This changed preference is evident not only in the user community but among typeface designers, and affects the italic design process.

9   Stone (2018) describes the historical model for the production of typeface families common prior to the mid-twentieth century: 'We'll make this thing, put it out there. If it sells we'll make more.' He credits Frutiger for signaling a change in this philosophy and practice with the Univers superfamily, where the full range of variants was conceptualized from the beginning. This was a direct inspiration for the ITC Stone superfamily.

Matteson (2018) suggests his efforts to educate clients were not always successful. He speaks with frustration regarding the Droid Sans project: 'One of my worst failures was [trying] to convince Android that they needed reasonable italics for Droid Sans. They said, "No, no, no—we're just going to slant these". I showed them what would happen if they just slanted them and how an italic word would be skewed off to the right in a sentence, and they said, "Oh we can algorithmically adjust it so they would slant and offset backwards". I'm like, "But no, that's not ideally what you want to do". But they were so concerned about footprint. It initially was certainly just for the UI and I could understand that, but you've got to look further than that because ultimately you're going to start getting full blocks of texts in this typeface. It's not just going to be for buttons and things. Eventually it's going to be used for a lot more. They're like, "Well, you know if that happens we'll ask you for it…". But I never was able to get Google convinced that they should have a proper italic.'

Convincing clients of the need for italics

Corporate clients who commission typeface designs, however, often do not share the view that all romans should be accompanied by italics, and designers actively work to change that attitude. Participants report that there can be tension between clients and designers about the need for italics. Almost all reports of this tension are from designers working for large foundries (Dalton Maag, Monotype) and producing very large families for clients such as Google (Maag 2018, Matteson 2018). These designers suggest that a major factor may be increased cost. Ross (2018) mentions another factor that may contribute to many clients' disinterest: that most people do not look closely at italics. They are generally 'not the most interesting part of the design'. Maag says that clients are most interested in upright romans because that is their most urgent need.

In response, designers say they try to educate their clients on the need for italics, and do so to proactively address their needs. Maag (2018) says:

> Quite often in custom fonts the majority of our clients never consider an italic to be part of the font family. It's usually our suggestion. 'Have you thought about this? You probably need an italic somewhere. You may not need it in the beginning, but it will come back and bite you if you don't have it, because you need a way to emphasize, you need a way for subtle differentiation for specific purposes: captions on images, or legal captions, or just emphasis in a piece of text, in a piece of copy.' It's usually only then—once we've been telling them how an italic actually ought to be used—that people understand that they might need an italic.

Matteson (2018) uses a two-part approach to educating clients, demonstrating to them the need for italics in text and the importance of them being designed properly. When he has an initial 'kick-off' meeting with a client he has a slide on which he shows the difference between a raw sloped roman, a corrected version, one with more cursiveness, and a fully cursive version. The result is that 'the light goes on and they'll see where there's a particular need for them to have them done properly'.[10] Maag (2018) reports that in the end, clients 'are usually quite glad when they have italics, because they can use it as a tool for things they haven't thought of'.

4.2.4   Conclusions about initiating

In summary, the responses from interviewees regarding the timing and sequencing of italics confirm that the design process for italics proceeds in much the same way as with romans. Their descriptions are also consistent with the five-stage model described in section 3.1. There is, however, no clear consensus on when an italic is typically begun in relation to the roman. A variety of factors can contribute to the decision of when to design an italic, and those can vary from project to project.

There is clear evidence of an increased expectation among both users and designers that all typefaces, even peripheral members of typeface families, will have corresponding italics. Designers are increasingly engaged in educating their clients about the need for italics. This shift from tradition is also recent, and can be seen in the changing opinions of designers across their careers. A full, complementary range of italics is now considered to be an integral part of typeface family structure.

4.3 Experimenting with style and character

Once it has been decided that a roman typeface should have an italic counterpart, the designer needs to determine its overall style and character, and begin to explore how that style is reflected in individual letterforms. This section explores the responses of participants regarding these style decisions and identifies four main influences:

- *Intended use* establishes boundaries and priorities for the design based on user expectations and motivates the designer to experiment with creative solutions.
- *Typographic history* provides initial guidance on appropriate styles and is a source for design ideas, although its influence is not prescriptive.
- *The calligraphic tradition* provides designers with a set of style characteristics that are commonly associated with italic designs: cursiveness, dynamic texture, personal quality, creative freedom, and aesthetic value.
- *The upright roman* provides a context for the italic and may be used as a direct source for individual letterform features. For some designers, the italic is treated as a transformed and modified version of the roman, or a transformed roman is used as a prototype guide when designing the italic.

These influences affect italic designs in all four categories of the visual characteristics introduced in chapter 2:

- *Style characteristics*—subjective descriptions of the qualities of an italic that are difficult to measure or compare with other designs.
- *Design properties*—objective, measurable aspects of an italic design, such as slope, width, weight, contrast, and height.
- *Letterform structures*—the construction and form of italic letterforms in contrast with the roman.
- *Features* and *motifs*—design elements repeated throughout a collection of letterforms to provide unity or achieve a particular effect.

Specific historical styles are not to be confused with *style characteristics*, and can be described as particular combinations of *style characteristics*, *design properties*, *letterform structures*, and *features/motifs*.

The influence on style characteristics, in particular, is discussed in this section. Other visual categories are explored in more detail in the section on forming techniques (see 4.4).

4.3.1 The role of intended use in setting design boundaries

Intended use is a strong motivating factor in determining the overall style of an italic. A large proportion of interviewees (18 of 23) mention it explicitly, and implicit influence is noted in the responses of others. The importance of usage is not linked to any specific style and seems to be equal across all families and styles. Interview results confirm that the influence of usage described in section 3.2 continues to apply to contemporary design practice.

The intended use of an italic sets the boundaries and priorities for the design.[11] If the italic will be used mainly for indicating differentiation of words or phrases within a body of text then it needs a 'standout' quality,

11 Designers cannot control or know the full range of how a typeface will be used, even if there is a clear primary client or purpose. They may test their italic in a wider range of contexts to prepare for unanticipated uses and adjust if necessary (Clymer 2017, Hoefler 2017). Some designers actively try to inspire creative uses by including new or uncommon features in their italics, such as sans serif small caps (Hoefler, Majoor 2018).

This is one of the puzzles of italic.
We use it for multiple purposes in our typography.
This is one of the puzzles of italic.
We use it for multiple purposes in our typography.
It seems to me that sloped roman sans serif typefaces work perfectly well by themselves as display type if you *only* use the sloped roman. Nothing wrong with it. But when you look at a word in a sans serif typeface, if it's being used for text, it's not distinguished enough from the Roman.

Figure 4.15. Output Sans and Output Sans Italic (2019). This italic is very close to the roman and is suitable for extended reading and interaction design. It is not, however, effective for marking differentiation. The italic word 'something' barely stands out within the paragraph. Text from Ross 2018.

Sometimes the point of the italic is to blend in and not cause any trouble. It just has to be there when you need to make *something* secondary. That would have a whole different set of criteria than if my goal for the italic is to actually make a statement. *Sometimes the point of the italic is to blend in and not cause any trouble. It just has to be there when you need to make* something *secondary. That would have a whole different set of criteria than if my goal for the italic is to actually make a statement.*

Figure 4.16. Operator Mono and Operator Mono Italic (2016). The italic is inspired by fixed-width script typewriter faces and provides the high level of contrast required by the coding environment.

```
for source, target in duplicates.items() :
    if source in font.keys() :
        if target in font.keys() :
            logger.log("Warning: " + target + " replaced")
        sourceglyph = font[source]
        newglyph = sourceglyph.copy()
        newglyph.unicodes = []
        font.__setitem__(target,newglyph)
        logger.log(source + " duplicated to " + target)
    else :
        logger.log("Warning: " + source + " not in font")
```

with forms clearly different from the roman (Carpenter 2018, Grace 2017). If it will be used for longer passages or independently then readability and comfort are more important, and may require simpler, less ornate forms (Clymer 2017, Highsmith 2017, Hoefler 2017). These uses place constraints on the design, and those constraints are equal to or more important than aesthetic considerations (Carpenter, Grace, Highsmith).[12]

Three examples of the work of interviewees illustrate the application of this influence to specific designs—with widely differing results.

The design of Stone Sans Italic (Figure 4.14) reflects a concern for differentiation. At the time of its design (1987) many sans serif italics were obliqued or sloped versions of the roman. Stone notes that these sloped romans rarely provided adequate distinction for individual words or phrases—they 'fail completely' (Stone 2018). As the head of Adobe's type department, Stone advocated for sans serif italics based on traditional calligraphic forms rather than sloped romans because they were more likely to succeed when used within text. He applied that same principle to his Stone Sans Italic design. To improve differentiation between upright and italic he made the forms lighter, more condensed, and more tightly spaced, and used a range of alternate letterforms (**a e y**). He also adjusted the arches of some letters (**h m n**) to give them a more calligraphic construction. Together these provide an italic that is significantly different from the roman, and likely to be more effective at differentiation than a strict sloped roman.

Output Sans Italic (Figure 4.15) is designed for reading and interaction (Ross 2019), and can be used as an independent italic for longer texts. The design is based very closely on the roman, with mostly identical letterforms, similar weight, and only a slight angle of slope. The letterforms are also simple and less ornate than calligraphic italics, making them clearer and more comfortable for longer reading (Highsmith 2017). The close correspondence with the roman makes differentiation difficult, but that seems to not be an important goal for the design. This a completely different approach than for Stone Sans, even though both are sans serifs designed for text reading.

Operator Mono Italic (Figure 4.16) is a fixed-width italic optimized for displaying and editing computer programming code—an environment where roman/italic differentiation is highly useful but difficult to accomplish (Hoefler 2016). The letterforms of the italic are completely unrelated to the fixed-width upright forms, and that provides the needed strong contrast with the roman. The only design elements that tie the roman and italic together are the overall proportions and weight. At the time of this design there were few, if any, precedents for highly-contrasting fixed-width italics. The need drove the designer to consider creative solutions and look to the tradition of typewriter script faces (Clymer 2017).

Operator also demonstrates a further factor in italic usage—the usefulness of character and personality. Although the intended use of Operator Mono is for coding, Clymer (2017) acknowledges that someone may want to use it in broader contexts to add a sense of style to a document, and designed it with that in mind. Ross (2018), referring to Highsmith, calls this giving it 'a little extra jazz'. Many style characteristics of Operator are echoes of the calligraphic tradition, an aspect explored in section 4.3.3.

In each of these examples, the intended and expected use of the italic have had a strong influence on the design, and determined the boundaries of the design: the most important characteristics and qualities that make the typeface successful for its intended purpose.

*Figure 4.17. Capitolium
Italic (1998). Unger's design
is distantly inspired by the
sixteenth-century work of Cresci.
The influence is mainly seen in
the capitals.*

*ABCDEFGHIJ
KLMNOPQR
STUVWXYZ
abcdefghij
klmnopqr
stuvwxyz*

4.3.2   History as a source of ideas rather than a set of rules

The interviews confirm that historical patterns continue to influence the design of italics, both in determining the general style as well as providing specific design elements. Over half of interviewees speak of their study of historical material as a significant part of their design process, and that influence is similar in nature to that described in section 3.3, with references to reviving the past (Slimbach 2018), drawing partially on it (Grießhammer 2017), and reacting against it (Ross 2018).

A strong theme in the influence of historical patterns is that history is a source of ideas rather than a set of rules that must be followed or expectations that must be met. Instead, it provides a 'historical palette' (Hoefler 2017) from which a designer draws ideas in order to make the italic effective for the intended use and harmonized with the roman. Four observations from the interviews support this view.

Ideas may come from study done years or decades ago

Designers report being influenced by their study of material years prior to the projects that are affected. This may begin when the designer is a student and may affect projects throughout their career. Smeijers (2017) describes this as building up a 'kind of database', from which ideas and design options are drawn. Slimbach (2018) says that when he works on an original design he draws on his pre-existing historical knowledge and may refer to historical sources if he gets 'stuck'. Regarding her work on Ringside, Soskolne (2017) reports that she was inspired by her earlier research on nineteenth-century compressed lightweight faces, but did not really look at them: 'I had a sense, in my mind's eye, what they looked like and how they would work.'

A good example of this is Unger's work on Capitolium (Figure 4.17). As a student in art school (1963–7) he was exposed to the work of Cresci, and spent hours pouring over it. Through that personal study Cresci taught him 'across time' (Unger 2016). That deep understanding of Cresci's work directly informed Unger's work over thirty years later. Capitolium is not a revival of Cresci, and shows little direct visual inspiration, however Unger gives direct credit to Cresci. His hand offered ideas that Unger drew upon.

History is not always consistent
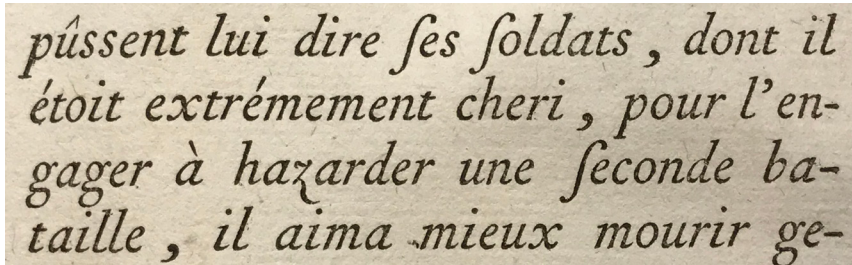
Even when there is a general historical precedent for what an italic counterpart for a particular roman might look like, such as a 'baroque italic', there is often a wide range of possibilities within that genre, and that range gets wider as the time period approaches the present (Smeijers 2017). Hoefler (2017) and Stone (2018) refer to projects in which there is clear historical inspiration, but for which there are multiple, highly contrasting options for source material. For these projects, history does not offer a single, consistent, prescriptive model. Smeijers says this is beneficial and gives 'space for playing around'.

Designers choose aspects that are interesting or useful

Designers may pick and choose individual characteristics or design elements from a historical design. The resulting italic may not always be clearly recognisable as a derivative of the historical model, but the inspiration becomes evident on closer inspection and explanation. The inspiration may also be limited only to evoking the spirit of the typeface or style (Ross 2018).

pûssent lui dire ses soldats, dont il étoit extrémement cheri, pour l'engager à hazarder une seconde bataille, il aima mieux mourir ge-

Figure 4.19. Escrow Italic (2002) and Miller Text Italic (1997). Escrow follows the same Scotch Modern tradition as Carter's Miller, but is adjusted to be more economical for use by newspapers. It is less sloped and the upper left serifs are flattened, allowing for tighter spacing. Text from Highsmith 2017.

In traditional scotch you have the incoming curved serif and the outgoing curl

In traditional scotch you have the incoming curved serif and the outgoing curl

Figure 4.20. Warnock Pro Italic (2000), a design directly based on calligraphic forms. Text from Slimbach 2018.

For Warnock I used a broad-edged pen to write out several roman and italic alphabets. One of the lines of italic lowercase jumped out as being something special, so I developed it a little further as type drawings before finishing the design on the computer. The original calligraphic italic sketch took less than a minute to produce, yet it looks remarkably similar to the completed italic type.

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For example, Source Serif Pro Italic (Figure 4.18) is inspired by the italics of Fournier. It shares the same overall construction and some specific design details such as the two-storey **g** and bottom-heavy **a** and **d**, however the slope angle and ascender height differ, as do the proportions of **e l t**. Grießhammer (2017) specifically departs from the traditional Fournier descending **z** to 'tone down the swashiness a bit' and make it more useful. He says:

> So you have to make decisions like: What parts of the italic are an homage to Fournier's way of thinking, and what are just pragmatic decisions that work or don't work?

The result is a typeface that is clearly original and not bound by Fournier models.

There is freedom to depart from tradition

Grießhammer freely departs from Fournier to enable his design to work better for its intended use. Highsmith's Escrow Italic (Figure 4.19) further demonstrates this freedom. It is based on the Scotch Modern tradition, but is simplified to be more effective for newspaper headlines. The upper left serifs are flattened to provide more economy in spacing. The use is more important than the tradition.

Interviewees also mention two personal reasons for departing from established tradition: philosophy and authenticity. Ross (2018) began his type career at a time when it was popular—and expected—to add cursive and curly elements to make skewed forms into acceptable italics. He pushed against this expectation, and that helped form his personal philosophy of 'not wanting to care about the things that those people thought I should care about'. Unger (2016) freely acknowledges his debt to historical models, but expresses his inability to dogmatically follow them. He says his 'personal curves always push themselves forward'.

These four observations support the view that historical models continue to significantly influence current italic design, and are a source of ideas rather than a constricting standard.

4.3.3   Style characteristics and the calligraphic tradition

Almost all interviewees (20 of 23) report that the traditions of handwriting and calligraphy[13] influence their italic designs, but the influence is more about overall style characteristics than specific design details. Grace (2017) says that this influence is even stronger than that of history. The influence applies more strongly to italics than romans (Carpenter 2018).[14] Smeijers (2017) suggests that people 'instinctively connect [italic] with handwriting'.

The influence of calligraphy seems to be strong but indirect. Only half of the interviewees (12 of 23) say that they have used calligraphic tools in their work, and only half of those (6 of 23) say that they continue to use them. Only three designers (Bigelow 2018, Slimbach 2018, Stone 2018) mentioned designing secondary italics that closely mimic calligraphic forms, such as Warnock Italic (Figure 4.20). A few interviewees report that they are terrible calligraphers, and do not draw directly on calligraphic methods, but that calligraphy is in their projects 'at a very low, intrinsic, backburner level' (Burian 2018).

This indirect influence can be seen in the three interviewees trained at the Royal Academy of Art, The Hague (KABK): Clymer, Famira, and Grießhammer. The KABK programme was initially founded on calligraphic

13   There is no distinction made in this thesis between writing, handwriting, and calligraphy. The *calligraphic tradition* refers to the influence from any manual writing method.

14   Hoefler (2017) suggests that this may be due to the different traditions of writing and printing.

Figure 4.21. The neo-caroline humanistic cursive of Niccoli (Celsus 1427: fol. 3v). Collection of the Biblioteca Medicea Laurenziana, Firenze CC BY-NC-SA 3.0. This early example of italic handwriting exhibits similar cursive characteristics to many italic typefaces: connected, uninterrupted construction; a flowing, running texture; curved forms.
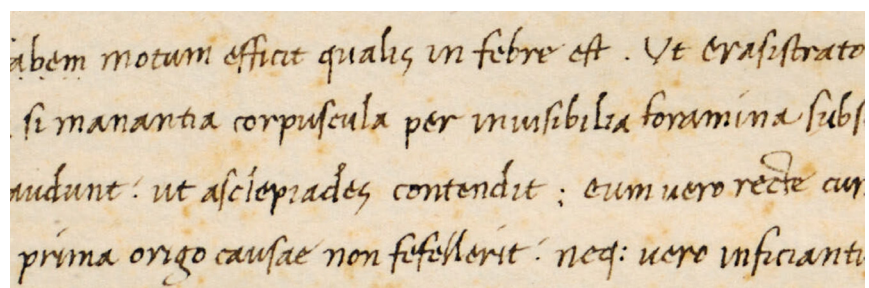
Figure 4.22. Scala Italic (1990) is a strongly cursive design, with implied connections between letters and a continuous construction—both of which contribute to the flowing texture. Text from Carpenter 2018.

Even if you've got more static head serifs and ascender serifs, if you've got something suggestive of that flowing of one letter into another letter, without the nib pulling off your page, then I think that gives you the essence of what italic should be.

Figure 4.23. Chaparral Italic (1997) is a much less cursive design, with few implied connections, a more constructed feel, and little sense of rhythm or flow. Text from Carpenter 2018.

Even if you've got more static head serifs and ascender serifs, if you've got something suggestive of that flowing of one letter into another letter, without the nib pulling off your page, then I think that gives you the essence of what italic should be.

exercises (Noordzij 2005: 9). Although these interviewees acknowledge the value of their training at KABK, none of them mention the founder of that programme, Noordzij, or his theories on writing, as directly influential.[15] Grießhammer (2017) explains: 'The training at KABK certainly influences my way of working, but [...] it's not like dogma.' Further discussion of training influences is discussed in section 4.7.1.

This section identifies five style characteristics that interviewees associate with italic designs and are also seen in the handwritten tradition. It also explores the limits of calligraphic influence.

Five style characteristics linked to the calligraphic tradition

Five particular style characteristics stand out that are closely associated with italic designs and shared with the calligraphic tradition:

- Cursiveness
- Dynamic texture
- Personal quality
- Creative freedom
- Aesthetic value

These are not unique to the calligraphic tradition, and can be achieved through non-calligraphic means. However most of these characteristics seem to be strongly associated with handwritten letterforms and the calligraphic origins of italic. Even interviewees that do not feel italic should be constrained by calligraphic models (such as Simonson 2016, Smeijers 2017) speak of these characteristics, and refer to the creative, dynamic nature of personal handwriting as influential. Stone (2018) identifies some of these characteristics, and suggests that they have a personal and social dimension:

> When you look at the graphic meaning, the social meaning, of italic, it has built into it that it's cursive, that it's informal, that it's somehow more personal and less public than the roman. That's the tradition that comes from and it still has that association.

CURSIVENESS

Italic letterforms are often cursive in nature, with qualities shared with the Italian informal cursive scripts of the fifteenth century (Figure 4.21) (Stone 2018). These are forms that[16]:

- Connect to one another—or hint at an implied connection
- Seem to be written with a single uninterrupted movement of the pen rather than multiple strokes[17]
- Establish a flowing, running texture[18]
- Tend to have more curvature than their upright counterparts

Forms written by hand tend to naturally exhibit these characteristics (Grießhammer 2017, Hoefler 2017). Carpenter (2018) describes the flowing quality of cursive italics:

> Even if you've got more static head serifs and ascender serifs, if you've got something suggestive of that flowing of one letter into another letter, without the nib pulling off your page, then I think that gives you the essence of what italic should be.

Grace (2017) reports that he sees cursiveness as important as slope in identifying whether something is italic. Other interviewees complain that in the late twentieth century the association was so strong that there was

15 The only mention of Noordzij was by Smeijers (2017). He comments that he greatly respected Noordzij and his ideas regarding 'true italics'. However he eventually discovered that 'non-true' italics were, in his estimation, more readable, and that Noordzij's influence was difficult to shed.

16 Based on the reports of interviewees, and primarily Carpenter 2018, Clymer 2017, Grießhammer 2017, Maag 2017, and Majoor 2018.

17 Continuous vs. interrupted construction is discussed in the section on letterform structures (4.4.2).

18 Majoor (2018) points out that the word *cursive* comes from the Latin word for 'running' (*cursus*). The association between italic and 'running' is also reflected in the German word for italic: *kursiv*.

exaggerated brushiness

You're changing the texture from the static texture of the upright with its 'lift the nib, place the nib' structure *to the continuous movement of italic calligraphy. Then that provides the tension you need.*

Contrary gestures
Contrary gestures

aes

aes

a tendency to use this characteristic alone as a standard used to judge whether a design was a 'true italic' (Ross 2018, Smeijers 2017).[19]

Two contrasting fonts from the 1990s illustrate cursive versus less-cursive styles. Scala Italic (Figure 4.22) exhibits many of the qualities of the cursive style. Steep and generous exit terminals seem to lead up and into the next letter. The low joins and almost triangular counters in **b h m n p r** imply an uninterrupted, flowing structure. The resulting angular feel, however, illustrates that not all cursive designs have high curvature.

Chapparal Italic (Figure 4.23) is a much less cursive design, although it shares similar proportions and a few similar forms (**g** and **r** in particular). Exit terminals push along the baseline rather into the next letter. Letters are more clearly separate and constructed from multiple strokes rather than a single movement. There is no hint of any flowing, running texture. However, it is still easily identified as an italic design, demonstrating that cursiveness is only one possible—and not required—style characteristic for an italic.

DYNAMIC TEXTURE

Italics need to provide an adequate contrast from the roman—a 'counter-vailing texture' (Hoefler 2017) that indicates that 'something is changing here' (Scaglione 2018). Carpenter (2018) talks about how important it is for an italic to have a 'leap-off aspect' that adds strong contrast, and considers texture more important than letterform structure. Hoefler says that this change of texture is more important than slope in defining italic.

A commonly reported way of indicating that contrast is through characteristics that provide a dynamic texture. Interviewees described this texture in broadly descriptive terms:

- Movement (Burian 2018)
- Liveliness (Grießhammer 2017, Smeijers 2017)
- Tension (Carpenter 2018)
- Rhythm (Soskolne 2017)
- Speed (Grace 2017, Grießhammer 2017, Matteson 2018)

Grießhammer (2017) describes such texture as having 'more life' than the roman, and attributes it to similar qualities in handwritten forms.

These dynamic characteristics are subjective and difficult to describe, but three examples illustrate how various visual elements related to handwriting can contribute to achieving a dynamic texture:

- Grießhammer (2017) uses a handwritten feature—an 'exaggerated brushiness'—in the heavier weights of FF Quixo Italic (Figure 4.24) to sustain a sense of liveliness throughout the weight range.
- The sharp angularity of Burian's Maiola Italic (Figure 4.25) resembles a traditional calligraphic hand written quickly. The low joins (**h m n**) and sharp serifs (particularly on **i r s v y**) add extra movement and activity and provide a sense of dynamic tension (Carpenter 2018).[20]

- The italics of Ringside (Figure 4.26) use a subtle change in stroke terminals to signal a change in texture. In the roman the strokes terminate horizontally, reinforcing an industrial look. The italic terminals, however, are cut off at angles to give a more dynamic character to the texture. Hoefler (2017) refers to these as 'contrary gestures', describing them using the language of calligraphy and hand movement.

Figure 4.27. Goudy National and
Italic (2018). Goudy's original
National Old Style (1916)
was upright only. Matteson
invented an italic based on
his understanding of Goudy's
style, including his sense of
humour, which can be seen in the
exaggerated curls on **x**.

Aabcdefghijklm

Aabcdefghijklm

nopqrstuvwxyz

nopqrstuvwxyz

Figure 4.28. Figural Italic (1949).
Hlavsa writes that the italic 'grows
from the designer's calligraphic
handwriting... [with] oscillating,
internal tension'. Image from
Hlavsa (1961: 186).

ABCDEFGHIJKLMNOPQRSTUVXYZ
abcdefghijklmnop
rstuvwxyz

These examples show that dynamic texture can be achieved through a variety of techniques that reference handwritten qualities.

PERSONAL QUALITY

21 This *personal quality* is different from overall typeface *personality*, which refers to a typeface's overall connotative or affective dimension (Shaikh 2007: 20) and in common usage tends to be synonymous with *uniqueness* or *character*.

22 Goudy (1940: 69) himself writes that a typeface should have emotion, expression, interest, charm, and personality, and that these are more important than excellent design technique.

Italics can have a *personal quality*[21] that goes beyond a sense of creative uniqueness and implies a connection with a human person or identity. Stone (2018) describes italics as being 'personal, informal, less public', qualities that are echoed by Grace (2017) and Simonson (2016). Burian (2018) says that italic needs 'a human closeness, atmosphere, humanity'.

Interviewees describe italic as having a 'voice' and 'humour'—other human qualities. Italic is often used for quotes, conversation, or the voice of the editor (Burian 2018, Carpenter 2018, Hoefler 2017, Stone 2018). It gives typographers another voice to use in their publications (Maag 2018, Soskolne 2017). Matteson (2018) describes 'knowing Goudy's kind of humour' and trying to build that into his italic extension to the Goudy National Old Style family (Figure 4.27).[22] These imply or establish a personal link between the italic and the speaker, author, or designer.

Maag (2018) uses a human analogy to describe the relationship between roman and italic:

> You could almost compare it to acting. You have a great lead actor, but the great lead actor is actually pretty useless without a great supporting actor. In the movies you have good guy/bad guy. No matter how good an actor they are, [the good guy's] role is never great without the bad guy. The bad guy is usually a supporting actor. The bad guy needs to be someone who really relishes that role—who absolutely enjoys that role. That actually makes the good guy role, and makes the lead actor get an Oscar. I see the italics exactly the same way.

Majoor (2018) also uses a human comparison:

> For me roman and italic is like a husband and wife. They just belong to each other. One is not less than the other.

A perceived association between italics and human qualities is clear, however it is difficult to identify particular characteristics that give an italic these qualities. Interviewees provide only brief details on how they achieve it, and those point towards hand-produced forms. Munch (2018) talks about using small differences between letters to give a human-made quality:

> There's a difference in the sizes of the necks on top and bottom. The pattern for that is going to be different. If the 'a' and the 'd' have a deep cut, this one is going to be even deeper. Not a whole lot but it's going to be asymmetrical top to bottom. I don't want them to be perfectly the same because it's boring—it doesn't look like it's made by a human being—it looks mechanical.

Burian (2018) says that Menhart 'used calligraphy to give a contemporary typeface some dynamic feel, some movement, something that would push it into a human realm but keep that typographic layer on top.' Figural Italic (Figure 4.28) has a rough, sculpted texture that looks almost hand-chiselled into the page. Hlavsa (1961: 186) attributes this directly to Menhart's handwriting. When designing Maiola Italic (Figure 4.25) Burian looked to Menhart's work to give her italic a similarly hand-made quality.

When these designers want to give their italics a personal, human-crafted quality, they do not draw on any particular design technique, but

I see italic as a way to be more playful. It can be a little bit more experimental. *It is one of the styles that gives you a very positive feeling about design.* It gives a certain liberty and expressionism. *You can really push boundaries if you want to,* perhaps more than with a roman.

Extra sized goggles
Extra sized goggles
Extra sized goggles
Extra sized goggles

I see italic as a way to be more playful. It can be a little bit more experimental. It is one of the styles that gives you a very positive feeling about design. It gives a certain liberty and expressionism. You can really push boundaries if you want to, perhaps more than with a roman.

rather seem to draw from the tradition of calligraphic and handwritten forms.

CREATIVE FREEDOM

Half of interviewees (12 of 23) speak of the increased creative freedom of italics over romans. A commonly mentioned reason for this is that italics are used less than 20 percent of the time, and rarely for complete documents, so there is less need to be concerned about issues such as readability (Burian 2018, Montalbano 2017). There is also less need to be conservative (Simonson 2016). Secondary family members, and italic in particular, can be 'ambitious, daring' (Hoefler 2017). Montalbano says, 'You can have some more fun!'

The words interviewees use to describe the creative potential of italic demonstrate the sense of freedom they feel when designing italics, and the qualities they desire to incorporate:

- Liberty (Burian 2018)
- More expressive (Maag 2018)
- Experimentation (Bigelow 2018)
- Pushing the limits/boundaries (Burian 2018)
- Extreme (Clymer 2017, Simonson 2016)
- Inventive (Famira 2017)
- Different (Grace 2017)
- Strange (Ross 2018)
- Playful (Burian 2018)
- Fun (Burian 2018, Montalbano 2017)

These desired qualities can have an effect on the style characteristics of an italic. Creative freedom may be manifested in shapes that may seem unusual or odd, resulting in non-traditional textures, or in creative experiments such as the upright italic of Literata (Figure 4.29).

Two examples illustrate one method for expressing a sense of creative freedom—the use of inventive forms to give an italic a particularly unique style. Ross (2018) refers to the italics of Gimlet (Figure 4.30) as a sloped roman with 'one or two ridiculously flamboyant' forms. What is otherwise a relatively restrained and modest italic is given a strong style and character through the use of playful forms for **a g x z**. These forms have no other functional purpose than to communicate a particular style.

Burian (2018) also uses the term 'flamboyant' to describe the italics of Portada (Figure 4.31), a font primarily for on-screen use. Unlike some of her earlier italics for screens, such as Abril (Figure 4.2), this italic takes advantage of more recent high-pixel-density screens to explore a design with more 'liberty'. This can be seen in the uncommon construction of **w**, the swinging **x**, the right-pointing tail on **y** and the raised ear on **g**. One customer wrote to her to complain that the **y** was too playful, too distracting. While telling the story in the interview Burian smiled slightly and said, 'OK. Well perhaps. But we didn't go and change it.' Even though a user said that it was a hindrance to their use of the font, the designer chose to retain the more playful style.

This pattern of flamboyant creativity and innovation echoes the freedom seen in the handwritten tradition that inspired early italic designs (Figure 3.48). Interviewees do not mention any direct inspiration of the calligraphic tradition on their efforts to give their design a creative, inventive style. However, some of the techniques used to achieve those styles have calligraphic and handwritten origins, such as the roundhand-

Figure 4.32. Script forms in
Operator Book Italic (2016). Text
from Clymer 2017.

I feel most creative within restriction.
You have to have some boundaries
set up. That's the most fun—to push
yourself to the edge of those boundaries
and make something grow within it.

Figure 4.33. Whitman Italic
(2004). Ross (2018) suggests that
this italic is not calligraphic, but
yet is graceful and elegant. Text
from Ross 2018.

Whitman was one of my early text typeface
loves. The italic for that is very graceful, but not
calligraphic. To me that was fascinating—that
you could have elegance through a different
means than we usually use to get elegance.

Figure 4.34. Digital versions of
Trump Mediaeval and Gill Sans,
two designs commonly referred
to as hybrids—sloped romans
that have been given some cursive
forms.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

inspired, curved **x** of Gimlet. Many of the unusual forms of Operator Italic (Figure 4.32, Figure 4.16) are inspired by typewriter script faces, which are themselves inspired by handwritten forms (Clymer 2017).

These examples illustrate the high level of creative freedom designers feel they have when designing italics, and the high value that inventive and playful qualities add to their designs. Clymer (2017) says, 'There are endless possibilities for what you could really fit into your italic.' Although links to specific calligraphic or handwritten styles may be indirect, there is a shared culture of personal, creative expression.

AESTHETIC VALUE

There is an expectation that italics will have aesthetic value—that they will, to some extent, be beautiful, decorative, elegant, or flourished.[23] Interviewees report that in most cases italics are more decorative and elaborate than their roman counterparts (Simonson 2016 , Maag 2018). They have a decorative role both independently and within roman text (Matteson 2018). Ross (2018) suggests that consumers rarely look closely at italics except for aesthetic elements such as flourishes.[24] When asked about what makes an italic successful, Famira (2017) begins to talk about how we perceive beauty. These examples demonstrate that italics have a strong connotative relationship with aesthetic characteristics.

Despite this association between italics and aesthetic value, this style characteristic seems to have the most subtle link to the calligraphic tradition.[25] No interviewees explicitly mentioned that they looked to calligraphy for ideas on how to make their italics beautiful or decorative, although some of them have created designs that include traditionally calligraphic decorations and flourishes. Ross (2018) speaks of incorporating graceful and elegant characteristics specifically without the influence of calligraphy, and references Whitman Italic (Figure 4.33) as an example:

> Whitman was one of my early text typeface loves. The italic for that is very graceful, but not calligraphic. To me that was fascinating—that you could have elegance through a different means than we usually use to get elegance.

Even though his intent is to show that aesthetic qualities can be gained without looking to handwriting, he acknowledges that calligraphy is the default—that it is the means that 'we usually use to get elegance'.

There seems to be no single source from which designers draw inspiration on incorporating aesthetic value, such as beauty and decoration, into their italics. Calligraphy is only one source, but is a well-established inspiration, though that may be subtle, indirect, and under the surface.

The limits of calligraphic influence

The application of calligraphic influences on italic design has limits. Interviewees mentioned three situations in which a calligraphic approach can be unnecessary or unhelpful:

Some styles do not require a calligraphic or cursive approach (Burian 2018, Carpenter 2018). Carter (2018) describes italics as having two-and-a-half categories, including 'hybrid' forms:[26]

> There are really two-and-a-half categories of italics. The first one is where the italic is simply the slanted roman, because it's a sans serif type or a slab serif type. All you do essentially is kick the right one over whatever degrees. Then there's the very opposite of that, which are some old style types where the lowercase italic has essentially

23 Goudy (1940: 77) suggests that although he believes that the 'proper standard of beauty' is practical effectiveness, aesthetic attributes have a place in design.

24 This well-developed association between italics and beauty has its origin in the early sixteenth century, where the italics of Arrighi were used to produce luxury editions of poetry. Italics continue to be used for purely decorative purposes (see chapter 2).

25 There is a natural association between beauty and calligraphy (which means 'beautiful writing'), however that does not imply that beauty in design is drawn from calligraphic sources.

26 Other authors, for example Unger (2018: 136–137), also refer to sloped romans that have been modified to include some cursive forms as *hybrids*. Although this classification may describe some significant historical designs, such as Trump Mediaeval and Gill Sans (Figure 4.34), it may no longer be relevant or useful. Many contemporary designs are digitally sloped romans that are then modified to be more cursive (see 4.3.4). It is unclear what level or type of modification qualifies a design to called a *hybrid* and when it becomes a *cursive*.

Figure 4.35. Gimlet Text (2017), based on Trump's Schadow.

The quick brown fox jumps over the lazy dog.

Figure 4.36. Ross's first attempt at an italic for Gimlet, incorporating calligraphic joins and terminals. Image courtesy Ross 2018.

The quick brown fox jumps over the lazy dog.

Figure 4.37. Ross's second attempt at an italic for Gimlet, with pothooks based on modern italic and roundhand styles. Image courtesy Ross 2018.

The quick brown fox jumps over the lazy dog.

Figure 4.38. Ross's third and final attempt at an italic for Gimlet, returning to a sloped roman style but adding a few carefully chosen cursive forms. Image courtesy Ross 2018.

The quick brown fox jumps over the lazy dog.

nothing to do with the roman lower case at all. It's a cursive typeface of a sometimes very independent design. And then there is a sort of hybrid. Perpetua, Pegasus and a few other faces are good examples of this, where they are essentially slanted romans, but a few discrete characters have been made cursive—'a e f' sometimes 'g' sometimes 'y'. You get this hybrid form. It's not a pure slanted roman, but on the other hand, it is not really a cursive either. It's got some elements of both.

For most sans serifs and slab serifs, Carter (2018) suggests that a sloped roman (with some distortion correction) may be the most appropriate style, and that cursive or calligraphic influence is not needed.

Calligraphic and handwritten influences need to be applied with freedom. Most of the negative reactions of interviewees regarding calligraphic influence (such as Ross 2018, Simonson 2016, Smeijers 2017) are against strongly prescriptive views of that influence that demand a certain level of cursive features, such as particular cursive forms or a continuous, uninterrupted construction. These designers do not argue that there should be no influence, only that there needs to be freedom to not incorporate handwritten features to be considered an italic, or incorporate them only to a limited extent. For example, Smeijers suggests that letters with an interrupted construction are better because they are more readable.

Calligraphic expectations can also be a hindrance to design. Soskolne (2017) reports that she struggled with the italic version of one of her early typefaces, Motet. She kept producing things that looked very calligraphic, but hated the result. At that time she did not know how to proceed to get to the forms she wanted, as the tendency was to envision and design italic as something calligraphic.

A useful example that illustrates all three of these situations is Ross's design process for an italic companion for Gimlet (Figure 4.35), a design based on Trump's Schadow (Ross 2018):

1. He abandons Trump's sloped roman in favour of a more calligraphic design with lower joins and traditional terminals (Figure 4.36):

   My initial feeling with the italics is that Schadow's whole sloped roman thing was a bit weird and maybe passe, and Gimlet's italics could be a fresh start. I thought the little kick in the outstrokes could be a nice motif to carry over some of the pep of the roman, but the whole thing came out feeling a little humanist. The motion was at odds with what was essentially a modern Roman structure.

2. He tries another approach based on modern italic forms inspired by roundhand calligraphic styles (Figure 4.37):

   Gimlet is ostensibly a modern so I figured a modern italic would be a good next step. I had seen exaggerated pothooks succeed quite nicely in Cyrus's Ibis, which has some similar DNA. But in Gimlet it looked finicky.

3. He returns to a sloped roman, but incorporates a few strongly cursive forms (Figure 4.38):

   The third stab goes back to Trump's original sloped roman and narrows in on the bizarro 'x'. It's all about contrast between cursive and roman forms.

*Figure 4.39. Linotype Really roman and italic (1999). The forms of the italic are only distantly related to the roman, but the design of the upper left serif on the **n** is almost identical in construction and position. This helps to tie the roman and italic together.*

nearly

nearly

n

n

Ross found that trying to impose calligraphic style characteristics on Gimlet was a hindrance and led to disappointing results. He eventually realized that a calligraphic approach was unneeded, but decided to add in a few carefully chosen cursive elements.

Overall, the interviews confirmed that the handwritten and calligraphic tradition has a strong influence on italic design. Five style characteristics that are associated with italic have links to that tradition. However, a broad application of calligraphic expectations can be unnecessary and even frustrating to designers. Further discussion regarding calligraphic and tool-related techniques for forming letters, including the role of manual and digital sketching, is addressed in section 4.4.

4.3.4 Transforming roman into italic

A fourth commonly reported source of inspiration for italic designs is the corresponding upright roman. Over half of interviewees (14 of 23) report that they look to the roman for guidance regarding both the overall style and design details of the italic, and many of the remaining interviewees make indirect references to the roman. Whereas the intended use tends to set the boundaries of a design, the roman provides a source for how the design is executed within those boundaries. The roman can play three roles in the design of an italic:

- Prescribing basic style characteristics
- Suggesting design features and motifs
- Providing shapes for direct transformation

This section describes how the interviewed designers apply each of these roles to their italics.

Prescribing basic style characteristics

The overall style of the roman can dictate the style of the italic. It sets the general characteristics of the design and confirms the functional requirements (Carpenter 2018). There may also be expectations regarding which italic styles match with specific roman styles. Famira (2017) describes this influence:

> The roman would bring a number of criteria that I would have to match. If it's a really clinical sans serif, or a very romantic serif book typeface, then I would try to match that in the italic. You could make it look very dry and upright […] or give it an extreme angle and big descenders and flourishes.

The role of historical models is significant in determining expected style correspondences between certain roman styles and their italic counterparts. These expectations are often acknowledged, but might not be followed.

Suggesting design features and motifs

The roman can provide specific design features or motifs that a designer uses to establish a visual connection with the italic. This is particularly useful when the italic letterforms are not otherwise similar to the roman ones, such as with specific historical styles (see Guyot, Figure 3.21).

The italic letterforms of Linotype Really (Figure 4.39) are significantly different from the roman forms, but are linked with the roman through small details that tie them together as a visual family. For example, Munch

Figure 4.40. Chronicle Text Grade 1 Roman and Italic (2002). The two styles are unified through similar entry serif and arch constructions, and through the liberal application of balls found on roman letters to many italic forms.

abcdefghijklm
nopqrstuvwxyz
abcdefghijklm
nopqrstuvwxyz

intentionally designed the entry serifs on a range of italic letters to closely match the corresponding serifs on the roman. This provides a common visual motif and keeps the two styles related. He describes his approach (Munch 2018):

> The starting position serif on the 'm n i' usually pins the shape down to the page and gives it a starting point that is very much like the roman. Here's a clue. You've seen this before. Here's a wedge-shaped serif or beak-shaped serif or a little fist-like serif. That's like a little clue—it's exactly the same as what's in the rest of this text and I can maybe make out the pattern. Your cue recognizers will go off more easily because you have this one thing that you've seen before. You don't need to do all that much new image processing—you can sort of glide and get away with all that stuff.

A similar approach is used in Chronicle Text (Figure 4.40), a design in the Scotch Modern tradition, where the italic is also traditionally very different from the roman (Hoefler & Co. 2002). The designers (Hoefler & Frere-Jones) used the upper left entry serifs and arch construction to unite the roman and italic. They also took the balls found on the upright **a c f j r y** and added them to many of the italic letters. The result is a family that is unusually unified for the Scotch Modern tradition.

The design features used to unite roman and italic can also be more subtle. Hoefler (2017) speaks of 'themes', 'sharp moments', 'decisive tensions', 'contrasting treatments', and 'overstuffed gestures' when describing details from a roman that may apply to an italic. Ross (2018) says that he looks for 'movement' in the roman that could inform the italic. These subjective descriptions demonstrate that a designer may look closely at the details of the roman to find ideas that may apply to the italic.

Providing shapes for direct transformation

In some cases, the roman shapes are digitally transformed to become the basis for the italic. This seems to be an obvious approach for some designers, such as Highsmith (2017), who see italic as something derived from the roman, even though they admit that this view goes against historical precedent. Highsmith describes his italic process as identifying the appropriate transformations of angles, shapes, widths, and spacing.

In this approach, a digital transformation consists of a few steps, some optional, and not always applied in the same order (based on descriptions from Carpenter 2018, Carter 2018, Majoor 2018, Montalbano 2017, Munch 2018, Smeijers 2017, and Stone 2018):[27]

27   This procedure echoes one described by Moye (1995: 164).

- · Skew the outlines to the right
- · Slightly compress them horizontally
- · Adjust the curves to reduce distortion
- · Chop off the serifs, and optionally replace them
- · Slightly reduce the stroke weight
- · Tighten the spacing
- · Replace **a** and **g** with more traditional single-storey italic forms

Some designs, such as Output Sans (Figure 4.15), use only a subset of these techniques, and the result is the final italic with no further modifications.

Even designers who believe that italic is naturally a separate style, such as Smeijers (2017), use or recommend this technique. The purpose may not be to create the final letterforms, but rather to discover prototype forms that can inform the manual design of an italic (Maag 2018). Carter (2018)

describes using it to see what it does to particular letter features: arches, balls, compression. Hoefler (2017) says it can be helpful in developing the *praxis*—the particular parameters of how letter elements, such as curves, are adjusted in the italic. Carpenter (2018) notes that it can be helpful in retaining some of the roman's 'genetic qualities':

> Normally I would start off by sloping, or compressing and sloping, the upright version and then work on that basic model to create a cursive. In that way you preserve a kind of underlying structure and architecture even if you want to change the structure of an 'e' or a double-storey 'a' to single-storey. By using the upright version some of those genetic qualities get absorbed into the italics. Then you can start working on italic and however much you want to change things there are still aspects of the upright still drawn into the basic underlying texture.

One application of this technique is suggested by Munch (2018) and Grießhammer (2017). When starting a new italic with no obvious historical model, they recommend starting by slanting and adjusting the capitals, then designing the lowercase to fit well with the slanted capitals.

In each of these three approaches the roman is used to provide key characteristics, qualities, and design elements for the italic, even if the resulting letterforms remain quite different from the roman.[28]

28   Burke (2002: 488) notes that, when starting an italic from a sloped roman, it may be necessary to 'adjust almost every character for form and weight'.

4.3.5 Conclusions regarding style and character

Four major influences affect the design of italics in the experiment stage: intended use, typographic history, the calligraphic tradition, and the upright roman. These all have a role in establishing design properties, letterform structures, and features/motifs. However their strongest influence is on *style characteristics*—subjective qualities of an italic that are difficult to measure or compare with other designs, such as cursiveness or aesthetic value.

None of these influences seem to be prescriptive. They do not establish a particular standard or demand a certain level of style conformance. Their role is to provide ideas on how to make italics that function well alongside their roman counterparts, but also carry some of the subjective characteristics that are often associated with italics: cursiveness, dynamic texture, personal quality, creative freedom, and aesthetic value.

The next section explores, in more depth, designer opinions on objective design properties, letterform structures, and features/motifs. It also looks at the role of tools and techniques in the forming stage.

4.4 Forming techniques

The process of forming individual letterforms overlaps with the experimenting stage. However it is focused on how to make a shape fit the chosen style rather than to discover the basic style characteristics (see 3.1.2). This involves making decisions in three main areas (see section 4.3):

- *Design properties*—objective, measurable aspects of an italic design, such as slope, width, weight, contrast, and height.
- *Letterform structures*—the construction and form of italic letterforms in contrast with the roman.
- *Features* and *motifs*—design elements repeated throughout a collection of letterforms to provide unity or achieve a particular effect.
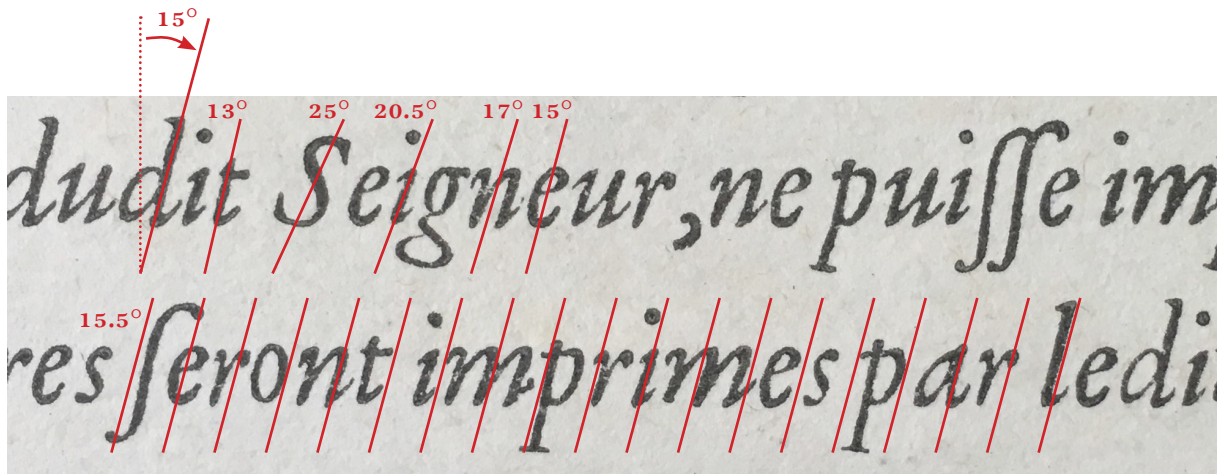
OVERALL SLOPE 15.5° / SLOPE RANGE 13–25°

Figure 4.41. Analysis of slope angles in Granjon's Gros-Romain (Cousin 1560). Newberry Library Collection. Slope may be measured for individual letterforms or for the typeface as a whole. In both cases the angle is determined visually.

OVERALL SLOPE 16° / SLOPE RANGE 14.5–22°

OVERALL SLOPE 13.5° / SLOPE RANGE 13–19°

Figure 4.42. Analysis of lowercase slope angles in Garamond Premier Pro Italic Display (top) and Caption (bottom) optical sizes. There is less slope variation in the smaller (caption) size.

DESIGNING ITALICS

This section documents the opinions and techniques shared by participants in these areas, and shows that differentiation from the roman is achieved through a balanced mix of techniques that is unique to the designer and project and driven by a desire for creative problem-solving. It then gives attention to the role that tools and materials play in the forming process and how that has changed over time to focus more on abstract concepts than on physical tools. Finally, it highlights a recurring theme in participant responses—the concept of *sketching* as a technique for shape discovery.

4.4.1   Design properties

The design of an italic can partially be described by five measurable and objective properties in comparison to the roman: *slope*, *width*, *weight*, *contrast*, and *height*. Interviewees express a range of opinions on these properties, such as what angle of slope is best. There seems to be no single ideal value in most cases, and the values may differ even within the range of work of a single designer. Interviewees confirm this, and often say that decisions about these properties must be made on a project by project basis.

Even when a particular value is chosen, there needs to be flexibility to adjust as needed after testing. Clymer (2017) describes his view:

> [Say] there's a rule that you're going to blindly follow, like 'the angle of this typeface is going to be 12 degrees', and you just blindly follow that without really judging [whether it was] the right choice. That looked good in the book weight, but in that ultra black weight does that still feel right? Maybe it'll look perfect or maybe something will look a little bit off. You have to take consideration over every single choice that you make. As soon as you think that there's a rule, make sure that it really does work.

This section explores each of these five design properties and the factors that affect design choices. They are presented in order from the most identifiable and commonly measured property (slope) to the least (height).

Slope / Slant

The *slope* or *slant* of an italic can be defined as *the amount the italic seems to tilt away from the vertical as expressed in angular degrees* (Figure 4.41). It is an optical rather than mathematical measurement.[29] For individual letterforms it is the visually dominant angle of the letter rather than the angle of any particular part. For a whole typeface it is the visually dominant angle of a body of text set in the typeface rather than the angle of specific letterforms or their average value.[30]

Slope is often mentioned by interviewees as the property most strongly identified with italic (Smeijers 2017), and the one property reflected in the common user interface button (Figure 4.9). Interviewees are not in complete agreement on this. Hoefler (2017) says it is the 'least important' aspect of italics, and cites the example of upright italics.[31] Interviewees do, however, seem to agree that the smaller the slope angle, the more the design needs to rely on other techniques for differentiation—cursiveness, alternate forms, width, etc. (Carpenter 2018, Montalbano 2017).

29   This may seem to imply that slope judgements are more subjective than objective, however, in practice, slope can easily be determined in a reasonably objective manner.

30   The dominant angle of a body of text can be determined by imagining a background grid of diagonals and adjusting the angle of those diagonals until it seems to naturally match the text. This is a visual rather than a mathematical measurement.

31   An example of this is Literata (Figure 4.29), however Burian (2018) admits that its upright italics have a tiny bit of slope (1–2°). She had tested a truly upright italic but felt it never 'looked right' and 'really needed that little bit of extra movement'.
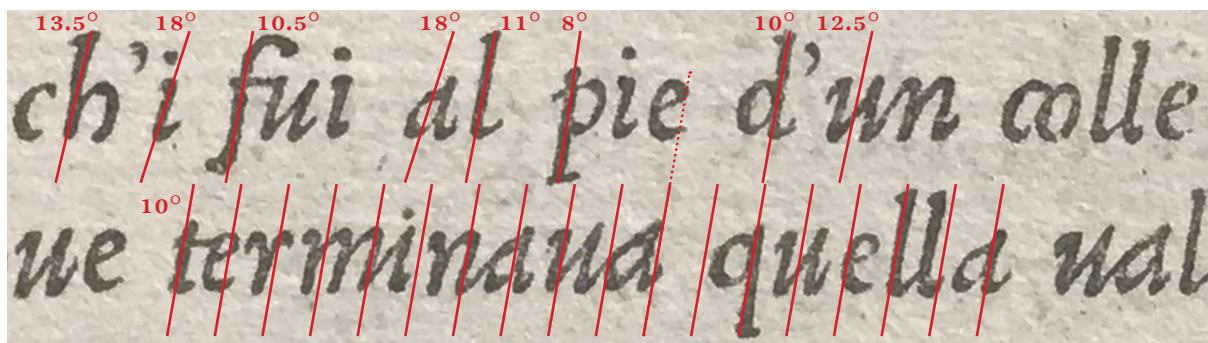
OVERALL SLOPE 10° / SLOPE RANGE 8–18°
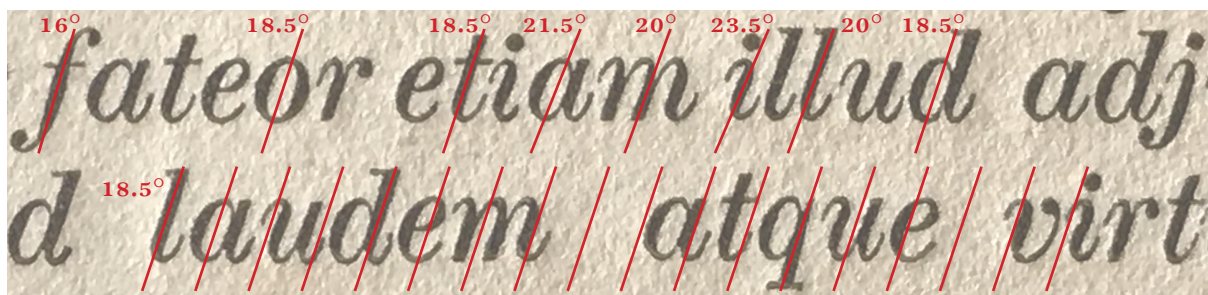
OVERALL SLOPE 18.5° / SLOPE RANGE 16–23.5°

OVERALL SLOPE 10° / SLOPE RANGE 5–15.5°

Figure 4.43. Slope analysis of three historical italic designs: (top) Griffo's italic for Aldus (Dante 1502b) Houghton Library Collection; (middle) F. F. Didot's Huit Serré Compacte (Didot 1831) Providence Public Library; (bottom) Dwiggins's Eldorado (Mergenthaler Linotype Company 1953).

I tried a single story 'a', a descending 'f'. I tried all these things. In the end I said 'this sans has no DNA for any sort of fanciness', like it came out of a factory. There's nothing there. So it's a sloped sans that is at a very extreme slant. In the widest it may be like 20-21 degrees. All of the work was about getting that sense of speed in the curves.

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Figure 4.44. Condor regular and italic, an example of an italic that depends heavily on slope alone to provide differentiation from the roman. Text from Ross 2018.

AMOUNT OF SLOPE

When asked about how much slope they prefer in an italic, around half of interviewees (13) do not specify any particular value. Those that do give a preferred value or range of values mostly prefer slopes between 7–10°. Three interviewees mention that they prefer slopes in the 12–13° range.

None of these opinions regarding amount of slope is expressed strongly, and almost all interviewees mention that these values can change widely depending on the project (Grace 2017, Hoefler 2017, Simonson 2016, Smeijers 2017). They are starting points that need to be rigorously tested and adjusted (Burian 2018, Carpenter 2018, Clymer 2017). There is also a feeling that a designer should use 'not too much' (Unger 2016), and no more slope than is necessary (Montalbano 2017, Munch 2018).

Two particular factors seem to be strong influences on the amount of slope. The strongest is the intended style—a factor repeatedly noted in other decisions (see section 4.3). Both Slimbach (2018) and Smeijers (2017) note that if the style is based on a historical tradition, then there are boundaries on the amount of slope that is appropriate. For example, a Granjon-inspired italic (Figure 4.42) should not have too little slope, and an Aldine italic such as Griffo should not have too much. Figure 4.43 gives three examples of this and other historical styles.

A secondary factor is to what extent an italic's effective differentiation from the roman depends on the slope. An extreme example of this is Condor (Figure 4.44), whose shapes are almost identical to the roman except for slope. Without a large slope angle, these strict sloped romans would not stand out enough from the roman (Ross 2018). The general principle seems to be that the amount of slope should be in proportion to its importance to the design.

SLOPE VARIATION WITHIN AN ITALIC

Slope can vary throughout the letterforms of an italic, and that variation can be an important part of the design.

Some styles, such as Granjon (Figure 4.41) exhibit large variations in slope between letterforms. Highsmith (2017) suggests that this variation is better suited to display sizes, and that smaller sizes (such as 6 pt) need more regularity and less slope overall (Maag 2018). Slimbach's Granjon revivals (Figure 4.42) are a good example of this technique. Their slope variation is overall less than that typically found in original Granjon designs, and is reduced further in the smaller (caption) optical sizes. Maag also suggests that certain groups of letters can have a different slope than others, with capitals having less slope than lowercase letters.

Soskolne (2017) notes that even in designs that do not intentionally vary in slope, a designer needs to consider the 'apparent slope' of letters:

> When it comes to the apparent slope of shapes you really have to trust your eye. You can't let math tell you what to do. Every single shape, pretty much, will have its own weird internal dynamics that will change the apparent slope. And you can't use the same slope for all of your straight shapes, for instance. It's just not going to work—if they're long, if they're short, depending on what's attached to them, or if there is nothing attached to them, how long the serifs are, what style of serifs they are. [...] There's so much variation within the lower case, that if you try make them all the same angle it will look like they are all different angles.

Famira (2017) agrees, and reflects on the importance of counter shapes:

*Figure 4.45. Slope angles in Karmina Italic. The dominant angle is represented by **n** and **o** (9°) but there are subtle adjustments to the slope of other letters (**f h i t**) to give the appearance of a uniform slope.*

defghilm

nopqrtu

8° 8.5° 10.5° 9°

9° 9° 10°

Figure 4.46. Verdana Italic. The slope angle (13°) was carefully chosen experimentally to make it render well on screen.

abcdefghijklmnopqrstuvwxyz

abcdefghij
klmnopqrs
tuvwxyz

Italic angle is created through the angle in the actual strokes, but much more importantly in the countershapes. When you actually have an upstroke, then the counters don't have two parallel stems on either side, but have an upstroke on one side and the downstroke on the other side. The downstroke has the slant of whatever comes from the roman, and the upstroke has a much steeper angle. This means that many characters look like they are much more slanted than their stems are, because the counter shape has one side that is just much steeper.

Others agree that some adjustment in angles is necessary, even to give the perception of uniformity. Scaglione (2018) says that without a slight *increase* in their slope some letters (such as **f i l t**) may look 'like they're falling the other way'. An example of some this subtle adjustment is the italic for Karmina (Figure 4.45). Soskolne (2017) and Famira (2017) argue that longer forms (such as **b d f h l p q**) look more sloped than the shorter letters, and need to have their slope *reduced*. This can lead to contradictions for some letters. For example, should the slope of **l** be increased or reduced? However interviewees seem to agree that adjustments may be needed.

In summary, the slope of individual letterforms within an italic can vary, and some designers feel they normally should.[32] Variation can be related to historical influences, but may also be necessary to provide the appearance of a uniform slope. Designers do not, however, agree on the nature of those adjustments. This supports the view that while slope can be measured, perceived slope can be more important than formally measured angles, so it is necessary to measure slope visually rather than mathematically. This distinction is reflected in the definition of *slope* provided earlier that speaks of 'visually dominant' angles.

SLOPE, SCREENS AND READABILITY

Concerns regarding the readability of italics, specifically on screens, can affect slope decisions. Grace (2017) and Munch (2018) express concern about readability in general, particularly when the slope angle becomes extreme. Scaglione (2018) mentions that many of TypeTogether's italics do not have much slope, mainly because of the limitations of screen rendering that make extreme slopes less attractive and readable because of pixel stepping patterns. Carter (2018) comments that decisions about slope angle for Verdana (Figure 4.46) and Georgia (Figure 4.50) were made through experimental testing of how that slope affected screen readability:

> When I started work on what became Verdana and Georgia for Microsoft—this was back in the mid-nineties, with binary bitmaps, relatively coarse resolution screens, no anti-aliasing—finding a good angle for the italic was quite a problem. If you say 'All right, I'm going to look at the italic where the x-height is seven pixels high, let's look at where the ascenders and lowercase stems break as they cross the raster', you may come up with a good decision for that. But then when you go to a different number of pixels it may all fall apart. So we have to decide there will be one or two target sizes, which the people at Microsoft thought would be the most important for reading on screen, and we concentrated on those. We found experimentally by doing quite tiny changes of degree of slant—when you see it at large scale it looks hideous—we could make appreciable differences to how the italic slant rendered on the screen.

Figure 4.47. Width variants of
Gotham Book Italic. The slope
angle reduces as the width is
reduced.

Gotham slope is reduced in narrow widths
Gotham slope is reduced in narrow widths
Gotham slope is reduced in narrow widths
Gotham slope is reduced in narrow widths

nnnn

Figure 4.48. Width variants of
Ringside Medium Italic. The
slope angle (11°) is constant
throughout the width range.

Ringside has a common slope across widths
Ringside has a common slope across widths
Ringside has a common slope across widths
Ringside has a common slope across widths
Ringside has a common slope across
Ringside has a common slope across

nnnnnn

Figure 4.49. Examples of width
measurement as applied to Abril
Text, Source Serif Pro, Brioso
Pro Medium, Capitolium, and
Candara.

abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 97%
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 92%
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 93%
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 89%
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 97%

Figure 4.50. Georgia Regular
and Italic. The italic is 130% the
width of the regular.

abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 103%

Figure 4.51. Ibis Text Regular
and Italic (2010), an italic that
is slightly wider than the roman
(101%), primarily due to the
extra space needed for the curved
outgoing serif (Highsmith 2017).

abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz 101%

Three interviewees (Clymer 2017, Hoefler 2017, Ross 2018) note that decisions about slope can be related to width.[33] Each of these designers has created designs with extensive width ranges, and has had to decide whether the overall slope should vary between narrow and expanded weights, or should remain constant throughout the family.

One approach is suggested by Carpenter (2018): 'The more compression you apply the less slope you need to apply.'[34] Hoefler and Frere-Jones used this principle in Gotham (Figure 4.47), but found it to be technically troublesome. The 66 different styles and weights depend heavily on interpolation, but the designers felt that the italic capitals were looking too narrow in the condensed faces. Their workaround was to interpolate the capitals separately from the lowercase (Hoefler 2017).

Hoefler, Clymer, and Soskolne used a completely different approach for a later sans serif design—Ringside (Figure 4.48). To avoid the 'production nightmare' a single slope (11°) was chosen for all widths, although it made the narrow faces too oblique and the wide faces not oblique enough. To offset these problems changes were made to the italic letterforms to make them softer, with more roundness and rotation (Soskolne 2017).

There seems to be agreement with Carpenter's principle—that narrower faces need less slope. Technical considerations, however, make that difficult to achieve for families with extensive weight variants, in which case other techniques can be applied.

Slope remains the most identifiable design property of italics, although there is no specific slope angle or range of angles that is considered common, normal, or most appropriate. Decisions regarding slope are made on a project-by-project basis, and are affected by historical style, width, and practical concerns such as readability.

Width / Narrowness / Compression

The *width* of an italic can be measured as *the length of the lowercase alphabet as a percentage of the roman.*[35] It is a combination of two factors: the width of the letterforms and the spacing between them. It is also called *narrowness* or *compression* (Carpenter 2018, Ross 2018). Figure 4.49 provides a few examples of this measurement applied to interviewee designs.

Interviewees are in solid agreement that italics are generally narrower than their roman companions.[36] Half of interviewees say that italics should always be narrower than the roman, but rarely specify numeric values. Only two interviewees (Burian 2018, Montalbano 2017) suggest a particular amount of compression (2–4%), and both say it varies from project-to-project and requires testing to find the right amount.

No interviewee suggests that italics should be wider than the roman. Grießhammer (2017) says that he doubts that any such italics exist. However they can be easily found in the work of interviewees.[37] Georgia Italic (Figure 4.50) is substantially wider than the roman (103%). One of Highsmith's designs—Ibis—is also slightly wider (Figure 4.51), but that was not an intentional decision (Highsmith 2017):

> I didn't think to myself I'm going to make this italic wider [than the roman]. The spacing has to change a lot because it has that curved outgoing serif. I think the white spaces inside the letters get narrower but the spacing overall—the copy fit—may increase. That's probably what's happening because I liked the way the serifs work in that design. I liked how they came out.

33   There seems, however, to be no particular interaction between slope and other design properties: weight, contrast and height.

34   The context of Carpenter's comment is broad—applying to any italic compared to its roman conterpart—and not limited to width varations within families.

35   Capitals have been excluded in this measurement, as their width may or may not follow the pattern of the lowercase, and their overall contribution to the perceived width of an italic is negligible. Capitals are discussed further in section 4.4.2.

36   The expectation that italics should be condensed was established early in its history. It was first articulated by Arrighi (1522) and affirmed by Fournier two centuries later (Carter 1930: 162).

37   Italics that are wider than the corresponding romans have some historical precedent, and can be found in the work of Bodoni (Dowding 1957: 26).

Figure 4.52. Gros Parangon Romain and Italique (Fournier 1742). Houghton Library Collection. The italic is mentioned as a good model for italic width and colour (Majoor 2018).

GROS PARANGON ROMAIN.

CLAUDE oncle de Caligula lui ſucceda à l'Empire ; c'étoit un Prince ſans vices, mais ſans esprit : il voulut immortaliser ſon nom par des ouvrages & des bâtimens publics. Le Mont Aventin, le deſſéchement du lac Fucin, & la construction d'un Port à Rome, furent quelques monumens de ſa liberalité & de ſa magnificence.

ITALIQUE.

IL fut ſi prodigue de ſes faveurs envers ſes amis, qu'il ne dédaigna pas lui même d'accompagner les triomphes dont Aulus Plautius fut honoré pour la conquête de la Grande Bretagne : mais il commit une action de la derniere ſtupidité, en appellant à la ſucceſſion de l'Empire Neron, ſon beau-fils, au préjudice des droits & prétentions de ſon fils Britannicus.

These examples confirm that while the great majority of italics are narrower than their roman counterparts, it is reasonable to make an italic wider than the roman.

REASONS FOR COMPRESSION

Interviewees give many reasons for why they think compression is important or useful. Their reasons group into three categories:

Tradition. Historically, most italics have been narrower, particularly those that come from a humanist or calligraphic tradition (Hoefler 2017, Slimbach 2018). There is a well-established expectation that they will be narrower (Famira 2017), and designers were taught to follow that pattern (Ross 2018). Majoor (2018) says that he has never asked himself why italics should be narrower—they just are.

Textural difference. Compressed italics provide stronger 'stand-out contrast' (Carpenter 2018) and establish a different texture from the roman (Maag 2018). Munch (2018) suggests that italics that share the same width as the roman cause an unwelcome change in texture that can be improved with compression:

> [With so much width] it just feels like whoever is talking normally suddenly slows down. By bringing the italic stems in closer and then obliquing, it retains some of the 'pop' across the page as the letters occur. The overall cadence is going to be more similar [to the roman] than if they had a wider cadence.

Optical adjustments. Compression is also used to offset changes to white space that occur from sloping and change to letterform structure. Grießhammer (2017) notes that changes in 'horizontals' (such as serifs) from roman to italic cause an increase in white space within letterforms. Sloping can also cause these counters to look larger than in the roman (Hoefler 2017). Compression is used to reduce these effects, and to address the illusion that sloped letterforms are generally wider (Montalbano 2017).

These varied explanations show that designers have some specific purposes in mind when choosing to compress their italics, but that tradition and cultural assumptions likely play an equally significant role in that decision.

LIMITS TO COMPRESSION

Interviewees say that it is possible to have too much compression, and that in some cases compression is not needed. Overly compressed italics can look too 'tight' (Stone 2018) and be too 'timid', disappearing into the roman text (Smeijers 2017). Two interviewees, including Majoor (2018), mention some of the italics of Jan van Krimpen (Figures 3.41, 3.42) as examples, and offer Fournier's italics (Figure 4.52) as a much better model for width.

The amount of compression can also be limited by intended usage. Stone (2018) points out the tension between use within roman text and independently:

> Then what you're faced with is this sort of puzzle, where you want to make it narrower enough that it works in text and has its own presence there, but not so narrow that when you set it as a body in a paragraph or even a whole page it [becomes] hard to read because it's too narrow. You're looking for some kind of hybrid that's in-between.

Italics for screen use are often less compressed than others, partially due to legibility concerns (Highsmith 2017, Slimbach 2018). The italics for Georgia (Figure 4.50) are wider than the roman because of their use on screens.

Figure 4.53. Measuring stroke weights in Minion Pro Regular and Italic. The stroke weights in the italic are generally reduced in the italic, although strokes become wider in some places.

on

on
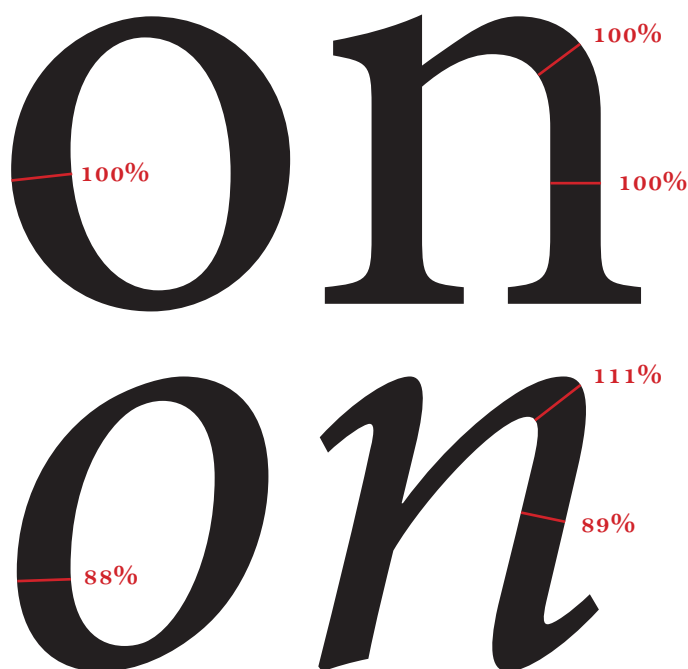
Figure 4.54. Maiola Book and Book Italic. The weight of the italic is less than the roman, which increases text differentiation. Text from Burian 2018.

Perhaps the first steps are to decide if this is going to be just an oblique. *If it's a true italic will it be more condensed?* Or do we want to keep the same width? *Do we want it a bit thinner?* Or the same weight? *These depend on the project and the purpose of the typeface.* How individual should this italic be? *How much change of appearance do we want?*

Figure 4.55. Adelle Regular and Italic. The weight of the italic is closely matched with the roman and more suitable for online use. Text from Burian 2018.

Perhaps the first steps are to decide if this is going to be just an oblique. *If it's a true italic will it be more condensed?* Or do we want to keep the same width? *Do we want it a bit thinner?* Or the same weight? *These depend on the project and the purpose of the typeface.* How individual should this italic be? *How much change of appearance do we want?*

Figure 4.56. Minion Pro Regular and Italic. The lighter weight of the italic increases the level of contrast with the roman. Text from Slimbach 2018.

The weight of the italic is determined primarily by the weight of its companion roman. *I like to make the italic just slightly lighter than the roman* to provide added contrast between the two, and to give the italic *a more delicate* appearance.

They were initially designed as bitmaps optimized for screen rendering, so had to have extra space to work in a low-resolution environment. Carter (2018) expresses surprise that he continues to see long online texts set in Georgia Italic—ones that he might have otherwise expected to be set in sans serifs. It seems that web designers perceive wider italics as more pleasant and effective.

In some cases compression is not needed or wanted. Fixed-width and monospaced italics, such as Operator Mono (Figure 4.16), usually need to match the uniform widths of the roman (Bigelow 2018, Ross 2018). Some sloped romans, obliques, and sans serifs, such as Tablet Gothic (Figure 4.11) may also not need compression (Burian 2018, Maag 2018, Scaglione 2018). In these cases more of the distinctiveness comes from other aspects, such as alternate or unusual letter shapes.

Interviewees are united in the expectation that italics will usually be compressed, but easily break from that tradition for specific styles, to compensate for optical or textural changes, or to make them better suited for a particular purpose.

Weight / Colour

The *weight* of an italic can be described as *the change in perceived colour, or grey value, compared with the roman*. This can be measured, but requires analysis of the amount of black vs. white in a sample text. A partial indicator is *stroke weight*—the width of stems and curves (Figure 4.53). Interviewees use adjustments to stroke weight to manage overall colour, although none of them discuss specific numerical values for those adjustments.

Opinions regarding weight follow a similar pattern to those about width. Most interviewees (15) agree that italics are usually lighter than the roman, and half of those say that italics should always be lighter in weight. As with width, tradition seems to be a factor in these opinions. Some interviewees expressed a particular dislike for italics that were heavier than their roman counterparts, but did not give any practical reason for their preference (Soskolne 2017, Stone 2018). The assumption that italics will be lighter seems to be a well-established opinion.[38]

There is, however, some trend towards a change in this preference, especially for web fonts. Some interviewees indicate that their goal is to evenly balance the colour between roman and italic (Burian 2018, Clymer 2017, Highsmith 2017, Scaglione 2018).[39] Matteson (2018) says that his clients strongly prefer equal weights despite his personal preference for lighter italics. This trend seems to be particularly strong among those designers who produce and market web fonts. An example of the influence of web fonts as a target market can be seen in two designs by Burian: Maiola (Figure 4.54) and Adelle (Figure 4.55). Maiola Italic is notably lighter in weight than the roman. Adelle Italic—a design more focused towards online use—is more carefully equalized with the roman.

Other interviewees continue to see a change in weight as useful.[40] Slimbach (2018) uses a lighter weight to add contrast, as in Minion Pro (Figure 4.56). Munch (2018) uses it to establish a different pattern, and suggests that a weight change is especially important when there are few other clues that indicate a difference in the texture, such as a strong slope or alternate letterform structures.

Most interviewees use changes in stroke weight to adjust colour and compensate for the effects of other property or structure changes:

- *Sloping can make letterforms look heavier* (Highsmith 2017, Ross 2018). The stroke weight of vertical stems becomes slightly thinner,

38 The expectation that italics should be lighter in colour was established by the eighteenth century (footnote in Carter 1930: 26).

39 This preference for even colour is echoed by Scaglione (Henestrosa, Meseguer, and Scaglione 2017: 96), who also prefers that italic differentiation be achieved primarily though changes in texture.

40 The usefulness of a difference in 'tonal value' is noted by Hochuli (2008: 21), although Black (1990: 30) says that an italic that is lighter may not be effective if the purpose is to indicate emphasis.

Figure 4.57. The effect of sloping on the space between stems. Although sloping reduces the weight of stems, the reduction of space between them can create a heavier texture.
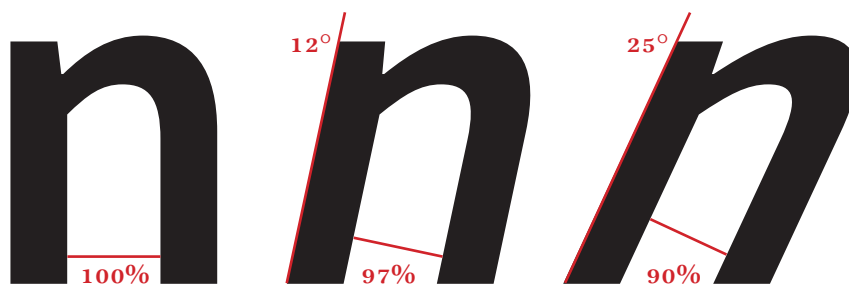
Figure 4.58. Effects of artificial sloping and compression on Source Serif Pro. Slope alone gives a darker appearance. Compression makes individual letterforms appear lighter but may give a more dense overall texture. Transformations are exaggerated for illustration purposes. Text from Grießhammer 2017.

People like the italic to really look different from the roman. It makes sense. If you want to have some kind of contrast or if you want to have some level of emphasis the italic is obviously different.

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Figure 4.59. ITC Galliard Pro. The letterforms of the italic are much more complex than the roman forms. The overall stroke weight of the italic needed to be reduced to compensate, otherwise the italic would appear too heavy. Text from Carter 2018.

In terms of how I make sure that the italic doesn't sort of *go off on its own somewhere else* and become an independent typeface, *I think it's purely by seeing it with the roman.* Does this look comfortable? Is this a good marriage?

Figure 4.60. Quarto Medium Regular and Italic. The italic thin strokes are slightly thinner than in the roman and are more pronounced. The weight distribution is also more complex and unique.

but the space between the stems is also reduced, creating a darker texture (Figure 4.57). A further example of this is shown in Figure 4.58, where an artificially sloped Source Serif Pro illustrates this perceived weight change.

- *Compression can affect texture.* Montalbano (2017) and Simonson (2016) say that compression can make the texture seem lighter. Other interviewees disagree with this analysis and say that compression can make the texture heavier (Maag 2018, Majoor 2018, Scaglione 2018). Figure 4.58 illustrates this perceived effect, although whether it causes a lighter or heavier texture may depend on the individual design and level of compression.

- *Structural differences, such as an increased complexity in italic forms, can make the texture more dense and busy and seem darker* (Clymer 2017, Soskolne 2017). An example of this is Galliard (Figure 4.59), where the letterforms of the italic are much more dynamic and complex, and where a significant reduction in stroke weight was needed to balance out the weight.

Although there is a strong tradition that italics are lighter in weight than their roman counterparts, there seems to be a trend among interviewees towards balancing their weights more closely, particularly for web fonts. Other italic properties or forms (slope, compression, structure) can affect overall colour. To compensate for these changes designers may make adjustments, primarily to stroke weight.

Contrast

The *contrast* of an italic can be defined as *the ratio of the thickness of the thinnest strokes to the thickest strokes*, and can be compared to the contrast of the roman. The term is somewhat confusing. Interviewees use it with this meaning, but also to refer to the amount of overall differentiation from the roman. Although it can be measured and compared, no interviewees mentioned doing any formal or numerical comparisons. The placement of contrast—where the thin and thick strokes appear in letterforms—seems to be as important as the amount.

Only four interviewees explicitly mention contrast-related decisions. Their comments hint that contrast may be more important than it may appear, and can be summarized in two points:

- *Contrast in italic is more fluid than in the roman, and does not need to match the contrast of the roman.* For example, Clymer (2017) says that there is 'a little wiggle room' in where weight is placed in italic strokes. Similarly, Soskolne (2017) reflects that letterforms may need more contrast if they are significantly more complex than in the roman. Weight can be shifted around and increased or reduced as needed even if it does not follow the pattern of the roman. These adjustments are demonstrated in the design of Quarto (Figure 4.60).

- *Contrast needs to be carefully managed in low-contrast designs and for particular rendering environments.* For example, Famira (2017) notes the difficulty of shaping italic forms for apparently monoweight designs, as the changes in shape of the joins and counters can require a thinning of some strokes. However the forms still need to appear to have no increase in contrast. He calls this 'localized high contrast but without changing the overall appearance of contrast'. A subtle example of this can be seen in

ngng

Figure 4.61. Adelle Regular and Italic, an apparently monoweight slab serif often used online. The thin strokes in the italic are subtly thinner to manage the amount of black around the high/low joins.

Figure 4.62. Capitolium Regular and Italic (top). The height of the italic is very slightly reduced (99%) to visually balance with the roman. The italic in the bottom paragraph has been enlarged to mathematically match the roman height for comparison. Text from Unger 2016.

I cannot faithfully follow an example, make a revival. I have tried it, but always my own shapes, my *personal curves push themselves* forward. Someone once observed that all Van Krimpen's romans look similar and his italics are very different *while with my designs* it is the reverse.

nono 99%

I cannot faithfully follow an example, make a revival. I have tried it, but always my own shapes, my *personal curves push themselves* forward. Someone once observed that all Van Krimpen's romans look similar and his italics are very different *while with my designs* it is the reverse.

the thin strokes of Adelle (Figure 4.61). Stone (2018) laments how difficult it is to manage these contrast issues between rendering environments, even between two screens attached to the same computer.

Contrast is a subtle design property that in some cases requires careful management, and designers report having increased freedom in the amount and placement of that contrast in italics.

Height

The *height* of an italic can be defined as *the percentage of the x-height compared with the roman*. It is a rarely discussed property, with only three interviewees mentioning that it might differ from the roman height. It is normally assumed to be 100% of the roman height (Burian 2018).[41]

The height can differ from the roman, primarily to offset visual illusions that may make an equal height seem unbalanced.[42] Soskolne (2017) says that slope, weight, and design changes can affect perceived height:

> Slope can be a bit dastardly. You make something narrower and you make the cuts deeper and you take weight out of it and suddenly the counter is that much taller. When you're dealing with an old style italic, for instance, I think you have to make it the height that looks optically right.

Famira (2017) recalls being told that because sloping makes vertical strokes longer, the letters seem to be taller, and that an italic needs to be subtly reduced to compensate.[43] Adjustment is not limited to reduction, and could theoretically include enlargement, although no interviewees provide examples of this.[44] Grießhammer (2017) says that the height should be determined visually rather than mathematically—so the roman and italic seem to be the same height.

An example of height adjustment is Capitolium (Figure 4.62). The height of the italic is reduced to 99% of the roman height in order to make it look like it is the same height as the roman. The need for this is possibly due to the significant difference in counter shapes. The slightly open and static counter in the roman **o** is more dynamic and elongated in the italic, giving an increased sense of height.

Although interviewees rarely mention height, it can be usefully adjusted.

Conclusions regarding design properties

These five measurable and objective design properties each have a role in forming the final shape of italic letterforms and giving them a separate visual identity from the roman:

- *Slope* is the most identifiable design property of italics, and seems to have the strongest influence on visual appearance. It has the greatest range of values and is closely tied to established style expectations. It seems to be the most dominant property, with other property decisions made after the slope is set, and sometimes to compensate for visual problems caused by sloping.[45]
- *Width* is commonly reduced for italics, except in the case of fixed-width designs, some sans serifs and obliques, and italics for screen use. Width and slope seem to closely influence one another, with a decrease in width suggesting a decrease in slope.

41 This assumption may not apply to historical designs. Black (1990: 94) notes that italic x-heights can be slightly less than the roman.

42 This italic optical effect is mentioned by Briem (2001a): 'Pointed shapes and curved that seem to be the same height often are not.'

43 This effect—and the need to compensate—was documented as early as 1768 by Fournier (Carter 1930: 26).

44 Scaglione (Henestrosa, Meseguer, and Scaglione 2017: 97) suggests that italics need slight enlargement due to compression and angularity but does not provide examples.

45 Adjustment of slope in the case of width variants is a notable exception.

*Figure 4.63. Structural changes in
Maiola Book Italic: expected italic
forms of **a** and **g** (top), alternate
forms for others letters (middle),
and the removal and replacement
of serifs (bottom).*

a*a* g*g*
e*e* f*f* k*k* p*p* y*y* z*z*
h*h* i*i* m*m* n*n* q*q*

*Figure 4.64. Candara Regular
and Italic. The single-storey form
is used for **a** but not **g**.*

abcdefgh
abcdefgh

- *Weight* is also expected to be reduced, although there is a growing trend towards balancing the weights of roman and italic to appear equal. Designers may make adjustments, primarily to stroke weight, to adjust overall colour and compensate after changes to slope, width, or structure.
- *Contrast* is a subtle design property that often remains similar to the roman, but may require adjustment, particularly in the case of complex letterforms and designs that need to appear to have a uniform stroke weight.
- *Height* also usually remains unchanged from the roman, but can be adjusted to compensate for the effects of other property decisions.

A common theme throughout discussion of these properties is that their values need to be determined uniquely for each project. There are traditions and expectations that may hint at a default range of values or starting points, but those are very fluid and can be adjusted as needed to compensate for the effects of other design decisions.

4.4.2 Letterform structures

Italic letterforms can have a different structure than their roman counterparts. Interviewees report that this structural change is important. Carpenter (2018) considers it one of the three main ways to differentiate the italic from the roman (compression, slope, structural change). Maag (2018) refers to it as a procedural step in some typefaces: slant the upright then apply structural changes. Majoor (2018) goes further, and suggests that italic is a construction[46]—a structural definition—rather than a style.

Three techniques are mentioned by multiple interviewees as common ways to establish a uniquely italic structure (Figure 4.63):

- Expected italic forms for **a** and **g**
- Unique italic forms for other letters
- Removal and replacement of serifs

This section describes what interviewees say about these structural changes, then discusses the role of structural change in italic capitals.

Expected italic forms for **a** *and* **g**

When talking about italic letterform structures, interviewees most commonly mention single-storey forms of **a** and **g**. These are expected in a 'proper italic' (Burian 2018), and changing the form from upright double-storey forms is a standard step in designing an italic (Simonson 2016).[47]

Despite this expectation, interviewees report a great deal of freedom regarding which, if any, of these forms they use, and will often try them out to see if they can make them work (Ross 2018). For example, Hoefler tried out single-storey designs for Ringside (Figure 4.48), but reports that 'it just didn't feel right'. It is also possible to use only one of the forms, as can be seen in Candara (Figure 4.64).

Interviewees give three reasons for their decisions about single-storey forms:

- *Historical or stylistic precedent.* For example, in Source Serif Pro Grießhammer chose to use a single-storey **a**, but retained a double-storey design for the **g** based on the precedent set by Fournier's designs (Figure 4.18).

46 The term *construction* can be ambiguous. Some interviewees use the term to refer to specific methods of forming letters, such as *running* or *continuous* (formed through a single movement of the pen) vs. *interrupted* or *disconnected* (using multiple disconnected strokes), a distinction noted by Noordzij (1982). Other interviewees use the term more broadly to refer to the overall shape of the letterform. In this thesis the term is used broadly, and generally refers to the overall structure and shape rather than any particular method of drawing letterforms.

47 This expectation may have been initially related to traditional calligraphic forms, but seems to have persisted because of its effectiveness in giving the italic a different character from the roman (Gill 1931: 64, Luna 1992: 103).

Figure 4.65. Examples of unique italic-only forms in designs by interviewees: Brioso Pro, Protipo, Escrow Text, ITC Galliard, Garamond Premier Pro, Operator, Abril Display, Gimlet Display, Georgia, Miller Text.

*b d e f k p r s
v w x y z*

Figure 4.66. Stylistic alternates in Turnip Book Italic (2012). The normal italic (top) can become more or less 'italic-y' by turning on one or more alternate forms for **g k p**. *A separate 'swash' set (bottom) provides a descending* **k** *to make it more italic (Ross 2018).*

*sparkling
sparkling
sparkling
sparkling
sparkling*

Figure 4.67. Merriweather Regular and Italic (2010). The transformation from roman to italic seems to follow the process of slant, chop off serifs, adjust, add back new serifs.

n*n*

Figure 4.68. Brill Roman and Italic (2011). The italic forms have serifs removed where a pen might change direction without leaving the page, a feature of uninterrupted letterform structure.

ndp*ndp*

Figure 4.69. Alfon Medium Italic. The serifs on the top of **t** *and lower left of* **n** *and* **r** *are non-traditional and drew criticism from another designer who felt they were wrong.*

tolling pealer

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- *Personal taste.* Highsmith (2017) suggests that in many cases either form could work, and feel natural, so it is sometimes just a matter of taste—whichever one the designer thinks looks best.
- *Client preference.* Because single- and double-storey forms are a common difference between roman and italic, clients may have strong preferences about which forms are used, and even about the small details of its design. For example, Munch (2018) reports that people expressed strong reactions against his initial single-storey design for the italic **a** in Candara (Figure 4.64), but liked the double-storey **g**.

Interviewees also report creating special OpenType features that allow designers control over which form of **a** and **g** they wish to use (Highsmith 2017).

Unique italic forms for other letters

Interviewees report 'going further' (Highsmith 2017) in differentiating the italic structures from the roman by using unique italic-only forms for many other letters. They speak of introducing 'cursive forms', although there seems to be no clear definition of their structure other than for **a** and **g** (Carpenter 2018, Ross 2018). Interviewees refer to these italic-only forms as more complex (Clymer 2017), elaborate (Maag 2018), and dynamic (Carpenter 2018).[48] Figure 4.65 gives a few examples of these unique forms from italics designed by interviewees.

As with single-storey forms, these italic-only forms can be optional and provided to users through stylistic sets that provide different 'levels' of italic (Famira 2017). An example of this is the set of stylistic sets designed for Turnip (Figure 4.66), although the purpose seems reversed: some sets are intended to provide simpler, less complex forms in place of the normal italics. One set provides a more florid *swash* form for **k** (Ross 2018). Sets of swash forms are a common alternative in italics (Majoor 2018) and are discussed further in this section alongside the design of capitals.

Removal and replacement of serifs

Interviewees mention one additional specific structural change for italics: the removal and optional replacement of serifs. Munch (2018) calls this 'working on the serif pattern'. Smeijers (2017) describes how this change can be part of transforming a roman into an italic: slant, chop off the serifs, adjust the design, then maybe add back some redesigned serifs. Figure 4.67 provides an example of applying this structural change.

The presence or absence of serifs[49] in italics seems to be influenced by calligraphic traditions, but with some freedom. Famira (2017) suggests that a serif is only needed at stroke beginnings and endings. When a stroke 'turns around'—where the theoretical pen reverses direction without leaving the page—there is no need for a serif, as in the lower left leg of **n**, the ascender of **d**, or the descender of **p**. An example of this serif treatment can be found in Brill (Figure 4.68).

There is some disagreement about this among interviewees, and no consistent pattern regarding which serifs are removed or retained. Many designs that remove the lower left serif on **n** retain the ascender serif on **d**, such as Capitolium (Figure 4.62) and Minion (Figure 4.56). However that pattern is not universal. Serifs can also be removed and other serifs added in ways that may seem unnatural or non-traditional. Montalbano (2017) provides an example of this in Alfon (Figure 4.69), but reports that he

48 Clymer (2017), however, also suggests that simpler forms may be better for smaller sizes or for screen use.

49 Beginning (or entry) strokes and ending (or exit) strokes in the calligraphic tradition are often referred to as terminals rather than serifs, but interviewees use the term serif to refer both to the details of upright roman forms as well as the terminals in italics (Burian 2018, Famira 2017, Smeijers 2017). Bringhurst (1996: 52) explicitly describes italic serifs as entry and exit strokes.

Figure 4.70. Historical examples of capital forms used alongside italic lowercase that show the progression from upright to sloped capitals. Left: Griffo's italic for Aldus (Dante 1502b) with upright roman capitals. Houghton Library Collection. Top right: Arrighi's second italic (Palladio 1524) with upright swash capitals. Newberry Library Collection. Bottom right: Granjon's Second Cicero italic (Ariosto 1556) with sloped capitals. Houghton Library Collection.
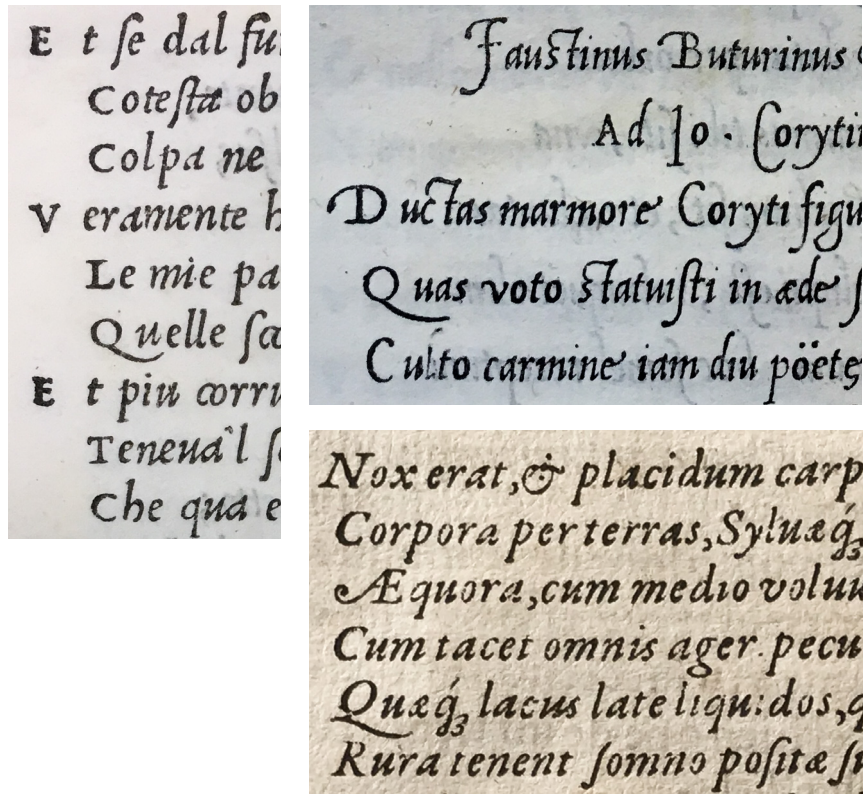
Figure 4.71. Cursive capitals in Kennerley Old Style Italic (Goudy 1922: 33). The texture in this sample is disturbed by the justified setting.

Figure 4.72. Upright capitals in FF Seria Pro Regular and Italic. The forms needed to be more calligraphic to be successful alongside the italic since they are not sloped. They show some influence from traditional swash forms, but are intended for use in normal text, not as occasional decoration (Majoor 2018).

received heavy criticism from another designer about this design, mainly because it seemed to conflict with calligraphic tradition. Despite this disagreement there does seem to be an expectation that certain serifs will be removed and others replaced, loosely based on the calligraphic tradition.

Capital forms

The interview responses show that decisions regarding the structure of capital forms tend to be made separately from decisions regarding lowercase forms. There are no expected forms for certain letters, fewer italic-only forms, and less frequent removal or replacement of serifs. Every interviewee who talks about italic capitals says that they are based directly on the upright roman forms.[50] Some details may be adjusted, but the basic structure remains the same (Carpenter 2018).

Interviewees say that this difference between the design process for capitals and lowercase reflects the difference in their historical origins (Grießhammer 2017, Stone 2018). Majoor (2018) refers to capitals and lowercase being from 'different worlds'. There was no tradition of handwritten italic capitals. The capital forms used alongside the first italic lowercase were the same upright forms used with the roman. Swash forms were developed, but mainly for decorative purposes. The upright forms were later sloped to more closely harmonize with the italic lowercase (Figure 4.70).

This tradition of sloped roman capitals seems to remain the standard practice of interviewees. Departures from that tradition are not popular with users. For example, Montalbano (2017) mentions Novarese as a 'beautiful, classical roman' that did not sell well because users did not like its unsloped italic capitals. As with lowercase, there remains a strong expectation that italic capitals have some slope.

The process of designing capitals tends to have three steps, throughout which the overall structure of the upright roman is mostly retained:

- *Slope the upright roman capitals, usually to the dominant angle of the lowercase.*[51] The forms may also be compressed slightly to be more compatible with narrower lowercase forms, particularly if the upright letters are wide, as may be the case with **C D G O Q** (Carpenter 2018, Grießhammer 2017).

- *Adjust for optical distortions and weight changes.* The sloping may introduce distortions to curves and stroke weights. It may also be necessary to adjust the overall weight and proportions to better harmonize with the lowercase (Grießhammer 2017, Munch 2018, Smeijers 2017). Details of these adjustments are covered more fully in section 4.4.4.

- *Optionally modify letterforms to make them look more italic.* Interviewees report that they sometimes, but not always, make such changes (Burian 2018). Hoefler (2017) says that making forms more cursive can create a 'lovely texture', especially in all caps settings, and mentions Kennerley (Figure 4.71) as an example. Carpenter (2018) gives specific examples of the type of modifications that can be made, some of which can be seen in Kennerley: 'bowing of diagonals, finial loops applied to **A K R X**, and occasionally a more elaborate **Q** tail'. The capitals of Seria Italic (Figure 4.72) are intentionally more calligraphic because they are not sloped and show the influence of swash forms. The examples show that structural modifications beyond sloping and adjusting

50 Munch (2018) goes so far as to claim that italic capitals are always based on the roman forms, and that relationship affects even the lowercase. For example, he uses slanted roman capital forms to inform his decisions about weight distribution in the lowercase.

51 The slope angle can vary from the lowercase. Maag (2018) suggests that a slightly less steep angle can be useful for differentiation, but greater slope can also be seen in some historical designs.

Figure 4.73. Changes from roman to italic in Linotype Really. The most notable difference is where the main stems meet the arches and bowls. Moving that join lower results in a italic with a considerably different character from the roman and increases differentiation.

bhmnpr dqu
bhmnpr dqu

are used by designers to refine italic capitals based on upright forms.

These practices in the process of designing italic capitals are consistent throughout the interviews. However, the interviews also show that there remains some underlying tension between fidelity to the structure of the upright forms and a desire to make the capitals reflect the character of the lowercase. Hoefler (2017) asks the question: 'How far do you push the DNA of the lowercase into the caps?' In discussing a monospaced design, he further asks:

> If the lowercase has script mannerisms, should the caps as well? Is this becoming a decorative face or is it taking on these cursive inclinations in a way to distinguish itself in ways that are useful? That's a very fine line.

Conclusions regarding letterform structures

In summary, letterform structure is seen as a key technique for differentiating the italic from its upright roman counterpart. For some letters (**a** and **g**) a change in structure is assumed and expected. Other uniquely italic forms are optionally used to increase differentiation. The removal of certain serifs, based loosely in the calligraphic tradition, is a further method of increasing differentiation. The design process for capitals, however, is strongly rooted in the tradition of sloped romans that closely retain the upright roman structure with only moderate, optional changes.

4.4.3 Features and motifs

52 The terms *feature* and *motif* are not mutually exclusive, and interviewees use them to describe similar design elements. *Feature* tends to be used to describe elements that are more subtle and affect a wide range of letterforms, such as a particular counter shape. *Motif* tends to be used for elements intended to capture attention and may only affect a few letters, such as ball terminals.

53 This echoes a similar observation by Tracy (1986: 60).

54 The longstanding importance of detail in italic serif design is demonstrated by the effort and pride shown by Fournier in making his serifs different from those of Alexandre and Grandjean (Fournier 1742a: 62–63).

Interviewees report using specific design elements—*features and motifs*[52]—to provide a particular quality throughout an italic or to achieve a certain effect. These repeated elements do not define the basic structure of letterforms, but rather the details of how those basic structures are shaped into a related collection of letterforms. For example, the letterform structure may define whether a letter has a serif in a particular location. A motif might define how those serifs are shaped throughout an italic.

Features and motifs can have a profound effect on the appearance and character of an italic. Munch (2018) suggests that these details are more significant than letterform structure in marking italic text as something different from the roman.[53] Three examples of specific features and motifs illustrate how interviewees use them to define their italic designs and address practical considerations:

- *Join location.* The joining or branching connection between stem and arch, or stem and bowl, is one of the design elements that most defines a 'proper italic' (Burian 2018).[54] Munch (2018) considers lowering the joining point on **b h m n p r**, and raising it on **d q u**, to be a standard step in designing an italic (Figure 4.73). This follows the chancery tradition and gives a triangular or almond-like shape to the counter (Highsmith 2017, Smeijers 2017). Famira (2017) notes that the details of the join—its roundness, angularity, and location—can vary depending on what 'expression' is desired. For example, a 'clinical sans serif' might have a high, rounded branch. Maag (2018) reports that having the 'crotch' created by the join deliberately open can help to ensure that the white space created

Figure 4.74. The lively serifs of Scala Italic alongside Scala Sans Italic. The serifs are a characteristic feature of the Scala family and provide a unifying element to the design that was later carried into the sans serif through the t. *The original Scala serifs were a way to make the text look less dull on poor-resolution* 300 dpi *printers, but became a recognized feature of the design. Text from Majoor 2018.*

Figure 4.75. Twisted right legs with increased slope are used in some italics to counteract an optical effect that makes the legs seem to be too open. This technique is used broadly and with designs inspired by different design traditions: the contemporary old style of Stone Serif Italic (left) and the modern newsface of Abril Text (right).

What I learned from Scala was that the long serifs really help give the typeface its 'face', its character.

What I learned from Scala was that the long serifs really help give the typeface its 'face', its character.

will be present even in screen environments where the rendering may not be controllable.

- *Serif design.* Burian (2018) lists this as another key element that defines a 'proper italic'. Distinctive entry and exit serifs (terminals) are other aspects of the calligraphic tradition that have strongly influenced italics. Ross (2018) says that their design can have a strong effect on appearance, and it can be a challenge to create italic serifs that depart from tradition and do something more 'interesting'. His struggle to find an effective serif treatment for Gimlet is described in section 4.3.3. The effect can be seen in the italics for Scala (Figure 4.74), where the generous and lively exit serifs are the most characteristic element of the design. That unique, unifying feature is then echoed in the **t** of Scala Sans.

- *Right leg angle.* Carpenter (2018) and Scaglione (2018) point out that when the letters **h m n** are sloped the right leg often needs to be inclined slightly to the right, giving it an increased slope (Figure 4.75). This is to offset an optical effect that can make the legs seem to be too open. Scaglione considers this 'twist' feature to be an intentional part of the design, rather than a 'tweak' or adjustment. It is also sometimes applied to other letters, such as **i** and **l**, making it a regular recurring motif.

Interviewees report that incorporating special features and motifs in an italic is quicker and easier than in a roman. There are more repeated shapes (Grießhammer 2017). The rounded bowl of the single-storey *a* can be used for *d g q* (Burian 2018). Scanned sketches for features can be digitized once and used broadly (Matteson 2018).

The powerful effect of recurring features and motifs, combined with the ease of incorporating them, makes them a commonly used and useful technique in the italic design process.

4.4.4 The role of tools and materials

The forming stage in the design process involves the use of tools and materials. The nature of those tools influences the design of letterforms. This influence has two opposing effects:

- *Positive.* Tools can inspire new shapes and features, and provide ways to shape letters within the boundaries of established style characteristics. Interviewees report this to be often the case with physical tools and their imaginary counterparts. Digital tools can also be helpful.

- *Negative.* Tools can also restrict a designer's creative range and introduce optical distortions. This is mentioned most often with digital software tools.

This section explores the uses and effects of three types of tools and materials (physical, imaginary, digital) in the process of forming italics. It concludes with a summary of techniques used to counteract the most common negative effect of digital tools—optical distortion.

Physical tools

A quarter of interviewees (6) report using physical, calligraphic tools as an ongoing part of their design process, and another quarter report having used them in the past, as discussed in section 4.3.3. The broad-nibbed pen

is the most commonly-mentioned tool (Majoor 2018, Munch 2018, Stone 2018), and has informed the design of italics such as Warnock (Figure 4.20). There are tools intended to create shapes similar to the broad-nibbed pen: two-pencils taped together to simulate a large pen (Majoor 2018) and a squared-off carpenter's pencil (Matteson 2018). Brushes are also used (Grießhammer 2017), such as for Quixo (Figure 4.5). Figure 3.49 shows examples of these tools and the shapes they naturally create.

These tools are more often used in earlier rather than later parts of the forming stage, and may even lead the initial forming work (Grießhammer 2017). They are used to write out words and texts or to try out individual letter shapes or elements (Maag 2018). The most tool-centric attitude is expressed by Slimbach (2018):

> Drawing and writing are both a shorthand for quickly developing new ideas, and a means for applying to letterforms the gestural movements that define most alphabetic form. [...] My manual techniques involve writing and drawing exercises. My digital techniques are just straightforward editing.

Interviewees note three benefits of using physical tools, including two that directly help in unifying an italic with its roman counterpart:

- Tools provide design properties at no cost. For example, a broad-nibbed pen naturally produces thick/thin contrast (Famira 2017).
- Use of the same tool for roman and italic can give them a similar DNA (Carpenter 2018).
- A tool can be used to write over a sloped version of the roman to retain similar proportions and yet provide natural thick/thin contrast (Munch 2018).

A notable omission in the set of tools mentioned by interviewees is the flexible steel-nibbed pen popular for formal writing in the 18th to 20th centuries. That tool and writing style was heavily influential in type styles from Fournier to modern Scotch Romans. Styles influenced by that pen remain popular and have been produced by almost half (10) of interviewees, yet none of them mention using the flexible pen in their design process.

There are possibly three factors that contribute to the current lack of connection between designers and the flexible pen:

- Writing with the flexible pen is inherently difficult and requires much practice.
- Contemporary designs in that tradition are more likely to be inspired by other typefaces rather than the shapes produced directly from the tool.
- The properties of the tool are understood from the historical record and have become imaginary tools in the minds of designers.

Physical, calligraphic tools seem to have a useful and positive role in the design process of interviewees. The influence of the physical tool, however, is not always direct, as in the case of the flexible pen.

Imaginary tools and materials

Interviewees also talk about using imaginary or abstract tools or materials, based loosely on the characteristics of physical ones, to inform their work. For example, Matteson (2018) describes thinking about writing letters with an abstract utensil or instrument that defines properties such as slant,
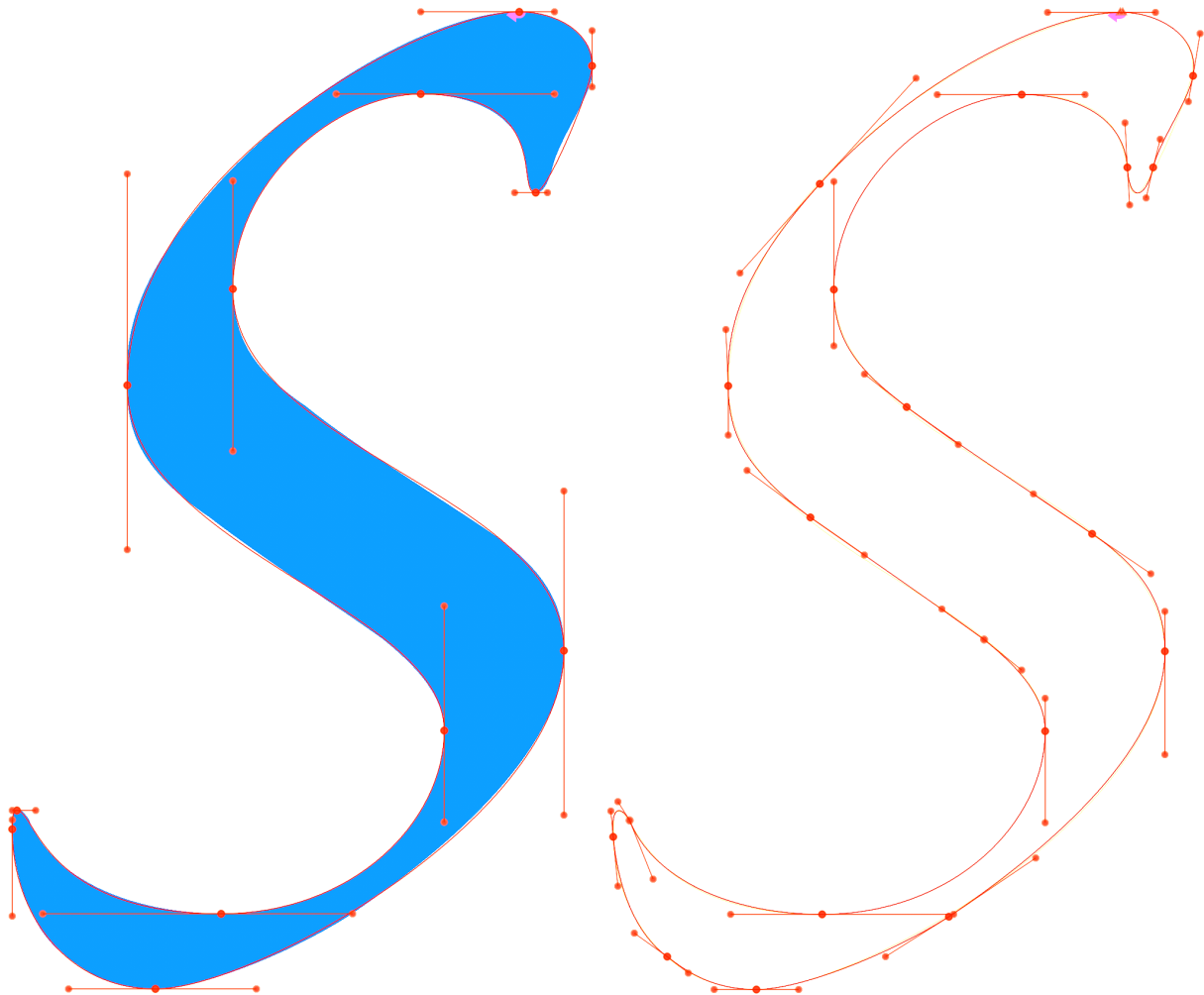
Figure 4.76. A letter from Brioso Pro Display Italic, defined using two different Bézier curves. The filled blue shape is the letterform rendered using the published font. The red outline superimposed over that shape is the simplest outline that generally approximates the intended letterform, although on close inspection some curves are inaccurate and some details are softened or removed. The red outline on the right is the designer's final outline. It has 67% more points and increased complexity. The outline on the left may seem elegantly simple, and would likely produce an attractive shape, however the outline on the right contains more subtle, dynamic details—almost flat portions on the middle curve and a duck-like head—that hint at calligraphic origins.

weight, and contrast. Carpenter (2018) calls it applying an 'imaginary mental process or attitude'. Others talk about a 'metaphorical pen' (Famira 2017) or 'tool logic' (Montalbano 2017). Designers who have had considerable past experience with physical tools share that the behaviour of those tools has become instinctive, and that they no longer need to pick up a physical pen to apply the characteristics and benefits of that tool to their italics (Majoor 2018, Munch 2018).

This abstract thinking also extends to physical materials, not only to tools. For example, Montalbano (2017) describes type design as working with clay—pushing curves around rather than drawing them. Clymer (2017) talks about shapes made of material that can bend and 'kink'. The work of Gill is characterized by Carpenter (2018) as 'carving letters into a [stone] plaque'. The natural properties of these physical materials seem to have parallels in letterform design.

Although the material in which a letter is produced does not necessarily restrict the shape (Carter 2018), interviewees say that they find abstract expressions of physical materials to be useful. Experienced designers also seem to use imaginary tools as freely as physical ones.

Smeijers (2017), however, highlights the differences from and limitations of designing with non-physical materials:

> If you cut a punch there's a relation between you and the punch you just made. And that relation is different than the relationship I ever could have with a digital file because I have no relation to that digital file. It's just gas. It's like it doesn't exist. It's not material. A punch is.

Although imaginary tools and materials are useful, and used by many designers, they remain abstract concepts and may not be equivalent to using physical tools. However some tools, such as the flexible pen, may be used almost exclusively in their abstract, imaginary form.

Digital software tools

The design object that interviewees create is a digital object, formed through the use of digital tools (see 3.1.1). Interviewees mention the following types of digital tools:

- *Dedicated type design software* including FontLab, Glyphs, and Robofont
- *Specific routines within design software* such as scalar transformations
- *Extensions that can be added to design software for specific purposes* such as to add routines or enhance the user interface
- *The Bézier curve format* used by most software to define outlines, although that may in practice function more like a medium than a tool

Interviewees rarely mention any appreciation for these tools, and more often express frustration with the effect the tools have on the design process and the resulting letterforms. They comment that digital tools can influence the shape of letterforms, and that changes in tools can result in changes to the design process (Clymer 2017). The tools do not seem to be neutral.

This section looks at two specific digital tools that are discussed multiple times by interviewees and seem to have a significant influence on the design of italics. One tool—*the cubic Bézier curve format*—is generally reported to have a negative influence. Another—*the Italic Bowtie*—is an example of a software tool that has had a positive influence.

Figure 4.77. Examples of spacing problems when sloping a roman to create a draft italic, based on artificial sloping of Source Sans Pro Semibold.

Application of a 20° slope results in severe spacing problems when roman and italic are mixed. The effect is exaggerated here due to the lack of interword spacing.

Moving the outlines to the left to fix capital alignment is not satisfactory for lowercase. It may make individual italic words in a roman text seem too far to the left.

Moving the outlines to the left based on lowercase alignment. Simonson (2016) says this is usually best, as mixed upright/ italic is rare in all caps settings.

HHHooooHoHoHo

H *HH*Ho *oo* *Ho*HoHo

HH*H*Hooo*o* *Ho*HoHo

HH*H*Hooo*o* *Ho*HoHo

Figure 4.78. The Italic Bowtie (Ross 2013). Based on values for italic angle, cap height, and x-height, this Robofont extension can automatically slope outlines and then move them to compensate for either capital or lowercase alignment. It also displays bowtie-like guides that show the designer the resulting sidebearings to assist with further manual spacing adjustments.
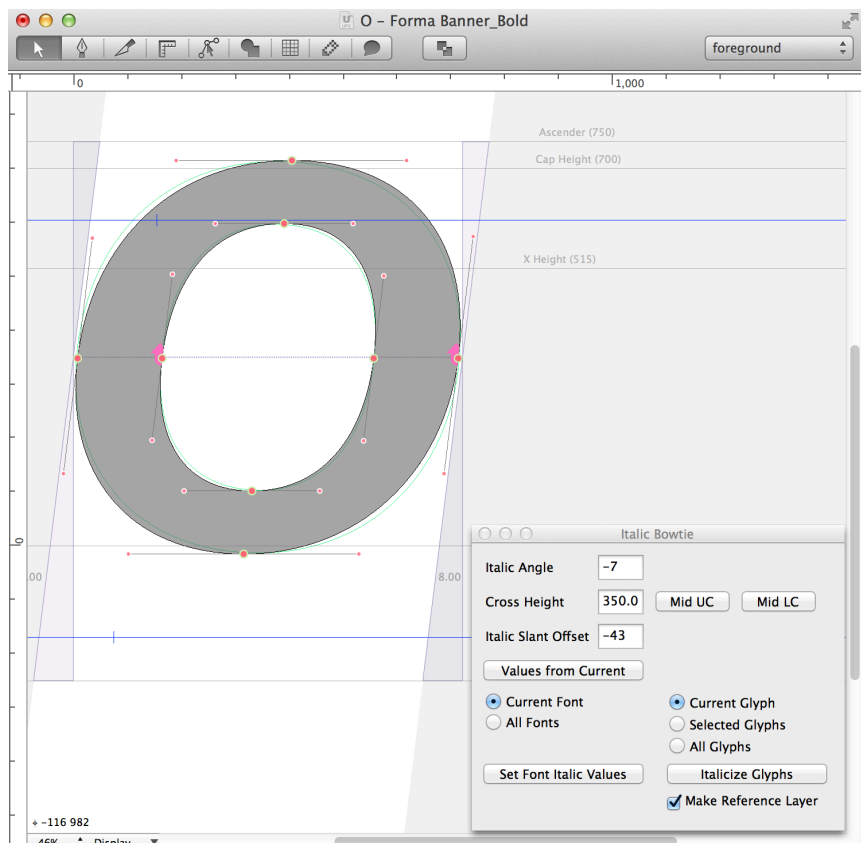
THE CUBIC BÉZIER CURVE FORMAT

The cubic Bézier curve is the most common digital format used in design software to define the outline that describes the shape of a letterform. It is a mathematically-defined series of points with connecting arcs. Editing an outline is a process of moving points around on the screen either manually or through software commands. There is an inherent reward in keeping that outline as simple as possible by minimising the number of points used. The Bézier curve is capable of describing any shape given enough points, but the fewer the points the less effort it takes to create or edit the outline.

This bias in favour of simplicity is the main complaint of interviewees about designing letterforms using Bézier curves. For example, Carpenter (2018) argues that Béziers effectively force designers to create geometric shapes—that 'we do naturally what's easy'. He considers the most difficult aspect of designing italics to be retaining 'calligraphic authenticity' when using Béziers. Grace (2017) agrees, and counsels designers to stay away from the computer for as long as possible when designing an italic because of the negative influence that manipulating Béziers can have on the design process. He calls Béziers an 'illusion' and stresses the importance of understanding the nature of the underlying form. Figure 4.76 illustrates how the natural bias in favour of simplicity in Bézier curves can affect a letterform.

Smeijers (2017) mentions other difficulties of the Bézier format, including keeping italic stroke widths consistent. He gives the example of an italic angle that is defined as 8:1—eight vertical units to one horizontal unit. When adding points it is important to place the new points in intervals of eight units or the angles can become misaligned. This can be difficult, such as with the long stems of **h** and **l**, that due to their shapes cannot easily have points in similar coordinate locations.

This negative opinion of Béziers is not shared by all interviewees. Some feel Béziers are not an inherent restriction, that any shape they need is possible (Simonson 2016), and that creating letterforms on screen with Béziers is their normal practice (Carter 2018). However those that express that view tend to be designers with decades of digital design experience. They may have developed the ability to overcome any natural weaknesses of the Bézier format or have over time adjusted their design work to fit within its limitations.

The ways that interviewees describe the Bézier curve make it sound more like a medium than a tool. It is something to be manipulated, with inherent limitations and characteristics that need to be acknowledged and, in some cases, overcome. The overall opinion seems to be that the influence of the cubic Bézier curve as a medium for design is not positive. It is either negative or irrelevant, and designers should be wary of its subtle influence.

THE ITALIC BOWTIE

The Italic Bowtie (Ross 2013) is an extension for Robofont developed to solve problems when sloping a roman to create a draft italic version. The primary problem at the time of its development was that type design software could not display slanted sidebearing guides.[55] This made spacing both within the italic and alongside the roman an arduous task, as it required many rounds of testing and adjustment. It also involved moving outlines manually along the horizontal axis, with the amount depending on whether alignment of the capitals or lowercase was optimized (Figure 4.77).

Highsmith (2017) reports that he learned a technique from Carter and Frere-Jones that involved drawing x-shaped guides in the background to

55   IKARUS-M had slanted sidebearing guides (Montalbano 2017), but that software was never in common use. All three major design programs now provide slanted sidebearings for italics. The Italic Bowtie extension remains available and has been recently updated as it provides additional features not yet incorporated into the major programs.

Figure 4.79. When letterforms are sloped it affects the width of strokes. Vertical strokes, such as the stems of H, become thinner. Horizontal strokes, such as the bar of H, remain unchanged. In a monoline font this can cause the verticals to be thinner than the horizontals—an undesirable change. Right-leaning diagonals become thinner, but left-leaning diagonals become thicker. A relatively monoline k can become imbalanced and require manual correction. Amount of slope: 20°.

H*H*H*H*k*k*

Figure 4.80. Sloping can also distort serifs and make them look imbalanced. The upper right and lower left outer serifs become elongated, and the corresponding inner serifs appear compressed. Vertical serifs, such as those on F, can become thinner and require manual correction to add back weight that was lost. Amount of slope: 20°.

H*H*
F*F*

assist with spacing. He then shared that technique with Ross who built it into a software extension so it could be used more easily.

The three main features of the Italic Bowtie (Figure 4.78) are to:

- Automatically slope the roman a specified amount and move the outlines left to compensate for the slope.
- Draw a bowtie-like shape to the left and right of outlines to display guidelines based on the design's italic angle.
- Provide a reference version of the glyph in the background that has been skewed and rotated to reduce optical distortion (see techniques in the next section), and can be used as a guide.

This extension is a good example of an effective manual design technique that has been developed into a useful digital tool. Its influence has been to improve consistency, make the design process easier for designers, and give practical help in reducing optical distortions—all positive results.

These examples demonstrate that digital tools have an influence on both the resulting letterforms and the design process. That influence can be either positive or negative.

Correcting optical distortions

A major negative effect of the use of digital or photographic tools is the problem of optical distortion.[56] Interviewees commonly slope forms mathematically or photographically to create a draft italic from a roman or to adjust the slope of an existing italic. It may be applied on its own or along with other transformations, such as compression (Munch 2018).[57] This process introduces subtle optical distortions in the shapes. A wide range of techniques is used to correct for these distortions, and interviewees stress the importance of that step in italic design.[58] This section describes these distortions and examines the various techniques used to correct them.

STRAIGHT STROKES, STEMS, AND SERIFS

When vertical strokes are mathematically sloped to the right their stroke width is reduced and the letter can appear lighter in weight. This also the case with right-leaning diagonal strokes. Simonson (2016) notes that this distortion is not always a problem. The strokes become lighter, but also longer, and that increased length can help to offset some of the weight change. In many cases, designers want their italics to appear lighter (see 4.4.1).

Distortion becomes a problem when the relative proportion of strokes is affected. Although vertical and right-leaning diagonal strokes and stems become thinner, the width of horizontal strokes remains unchanged, and left-leaning diagonals have their width increased (Figure 4.79). In some cases, particularly the lowercase **k**, the letter can become imbalanced (Matteson 2018). This distortion can affect serifs (Munch 2018) and make them appear larger, smaller, or thinner in comparison with other serifs (Figure 4.80). These distortions are exaggerated further if other mathematical transformations, such as compression, are also applied. Interviewees report correcting this distortion of straight strokes manually, without using special techniques.

ROUND SHAPES AND BOWLS

The visual effects of sloping can appear stronger for round shapes, such as **c e o** and the bowls of **b d g p q**, causing them to appear stretched and 'double-slanted' compared to rectangular shapes (Simonson 2016). Upper

56   This section primarily discusses the results of digital transformation, however optical distortion also can occur with non-digital processes, such as with photocomposition (Carter 2018).

57   In the case of combined transformations, interviewees suggest that it is better to apply any sloping as the last step to minimize distortions (Montalbano 2017).

58   This importance is also noted in published literature, for example, Bringhurst (1996: 58) and Henestrosa, Meseguer, and Scaglione (2017: 98–99).

Figure 4.81. Font rendering is optimized to perform best when curves are defined with points at horizontal and vertical extremes. Keeping points in those extreme locations is a technical consideration that interviewees say is important, to the extent that Montalbano (2017) calls it an 'obsession'. Sloping moves points off of horizontal extremes, so most sloping techniques add those extremes back and remove the extra non-extreme ones.
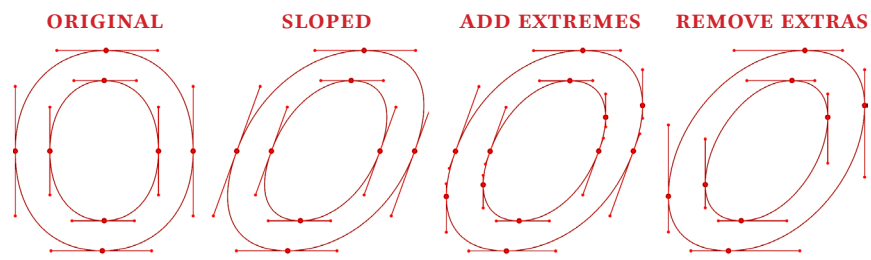
Figure 4.82. Rounded letters and bowls are also affected by sloping, and can appear more sloped than rectangular letters with the same amount of slope (20°). The distortion makes the shapes look stretched, with upper right and lower left arcs becoming heavier and more tightly curved, and upper left and lower right arcs becoming thinner and more gently curved.

SLOPED AND ROTATED   AFTER ADJUSTMENT

Figure 4.83. The half-and-half technique applied to the upright forms of Figure 4.82. The first pair of letters is sloped 10° and rotated 10°. The second pair show the forms after manual adjustment has restored their height and the angle of the bar on e*. This technique seems to be effective in avoiding the stretched look of strict sloping, but only provides a starting point for further design.*

RAW RESULTS   AFTER ADJUSTMENT

Figure 4.84. Rough results of applying the Briem technique. The shapes remain distorted, even after initial adjustment. Briem notes that large slope values will require more final adjustment, as seen in this example of a 20° slope. It seems the effectiveness of this approach may vary greatly according to the individual style and amount of slope.

SINGLE APPLICATION   DOUBLE APPLICATION

Figure 4.85. Results of de Groot's point-movement technique. The first pair shows the shapes after the recommended amount of point movement. The second shows the shapes after doubling the point movements. Both seem to be effective in reducing distortion, and particularly unwanted changes in stroke weights.

right and lower left arcs become heavier and more tightly curved. Upper left and lower right arcs become thinner and more gently curved (Figure 4.82). This 'water-balloon' effect increases as the slope increases (Carpenter 2018, Matteson 2018).

Interviewees report knowing a variety of techniques, applied during the sloping process, to correct optical distortion. These focus on correcting round shapes since most stem and serif correction is done without special multi-step processes (Famira 2017). The techniques also seem to be heavily influenced by the need to end up with points at horizontal and vertical extremes (Figure 4.81).

The key element in most of these techniques is rotation. Shapes are partially sloped, partially rotated, then adjusted. This may provide the final shape or may be used only as a guide. The following examples show three ways in which a mixture of slope and rotation is applied by interviewees:

· *Half-and-half* (Figure 4.83). The shapes are first sloped half the intended slope amount, then rotated half. For example, to achieve a total slope of 20°, the shapes are sloped 10° then rotated 10°. This will often make the shape shorter, so some manual adjustment is required. Montalbano (2017) reports learning this technique from Benguiat, but does not use it. Ross (2018) reports learning it from Highsmith, but only uses it occasionally to prepare background shapes used as guides to manual drawing. His Italic Bowtie tool (Figure 4.78) will apply the transformations automatically. Other interviewees report knowing about this technique, but do not use it (Famira 2017). It seems that although this is a well known technique, no one reports using it regularly, mainly because of the extensive manual adjustments required to both shape and height.

· *Varying ratios*. Grace (2017) and Soskolne (2017) report using combinations of slope and rotation, but with varying amounts of rotation between projects and between individual shapes within a project. The amount is important, as using too much rotation can make shapes look odd, a style Soskolne calls 'rotalics'. Ross (2018) notes that there is a Robofont extension—Slanter (Berlaen 2015)—that will apply slope and rotation. It allows for custom values for each and will also move points to extremes. It will not, however, make needed manual adjustments such as restoring the angle of the bar on **e**. The flexibility of this approach seems to make it more appealing and useful to designers, as it would only be used when it is seen to be potentially helpful.

· *Calculating point locations.* Simonson (2016) reports ongoing success in using a technique documented by Briem (2001). The process involves sloping by half, rotating by half, adding extreme points then noting the coordinates of those points. That form is then discarded. The upright form is sloped again, this time by the full amount, extremes are added, then given the height coordinates of the discarded form (Figure 4.84). Briem notes that final visual adjustments may be needed, especially with large slope values.

A different approach is advocated by Famira (2017), based on specific point movements and no rotation (Figure 4.85). Famira claims that this works as well as slope and rotate techniques. The steps, learned from de Groot, are to:

· Slope the shape the full amount
· Move the top point of the curve 5 units to the left[59]

59 These values are based on a 1000 UPM grid and a letter height of 470–550 units. They would need to be adjusted for other sizes.

- Move the right point of the curve 5 units down and 3 to the left
- Apply corresponding changes to the bottom and left curves
- Add extreme points

The visual results of this non-rotational approach are different from the rotational ones, however they all address the same issues of stretching and stroke weight distortions.

The number of different techniques, the ways that they are individually adjusted and applied, and the widely varying results, hint that there is no general agreement on how these distortions should be fixed. It seems that optical correction becomes a very personal technique, based in some general principles, but fine-tuned by the individual. Responses from interviewees seem to support this idea. A few interviewees describe some technique they learned (usually involving rotation), but then say they no longer use it. Instead of using the preset formula or process, they use the knowledge developed over time. They then manually move points as necessary according to what they know works—a 'certain logic' (Montalbano 2017, Munch 2018, Ross 2018).

PROACTIVE APPROACHES

Interviewees also mention using proactive approaches to minimize the problem of optical distortion even before letterforms are sloped. Three examples illustrate the range of these approaches, from purely technical software solutions to user education methods:

- Montalbano (2017) reports that the IKARUS-M system for digital design had a very effective italic correction feature that would change the weight distribution of the outline before sloping. This minimized stroke weight distortions and reduced the amount of later manual adjustment required.

- Carter (2018) speaks about designing an upright that can survive being optically sloped—CRT Gothic.[60] It was designed for the Linotron 505 phototypesetter. Because switching between roman and italic on the Linotron was slow, users of the machine would often choose to slope the roman in use photographically rather than switch to the corresponding italic or oblique. Linotype did not feel they could prevent users from this practice. In an attempt to 'do some damage control' they asked Carter to design an upright typeface that would look acceptable even when sloped. He examined the effect that sloping had on the strokes, particularly the diagonals, and sought to make the results 'a little less objectionable'.[61]

- Matteson (2018) says that he has a special presentation prepared for clients to educate them about the problems of automatic sloping. His goal is to help them acknowledge the need for manually refined italics and obliques, and include those in project plans from the beginning. This enables him to manually avoid or fix any distortion encountered in the design process.

Conclusions regarding tools and materials

The experience of interviewees with tools used in the forming process is both positive and negative. Tools can stimulate and enhance personal creativity, but can also restrict the design process, cause unwanted distortion, and require creative intervention. Three conclusions stand out as significant results from interviewee responses:

60   CRT Gothic (1969) was later revised by Linotype and released as Video.

61   A few years later Unger (1979: 146) theorized that it was possible to design simple, basic forms that could withstand compression, expansion, and sloping with minimal distortion. These ideas were important to his designs, including Gulliver.

- *The use of tools—physical, imaginary, and digital—is very personal.* Techniques involving tools are often learned from others, but quickly become individually refined and applied. The role of learning in italic design is explored further in section 4.7.

- *Tool-related techniques tend to progress from the tangible to the abstract over time.* A designer may initially correct distortion through a predetermined set of steps or a software tool, but they often develop an internal sense of what works for them. Physical pen techniques are later abandoned in favour of imaginary stroke concepts. This can even happen over decades and generations as is shown by the absence of the flexible pen as a contemporary tool.

- *The influence of the Bézier curve on italic design is mostly negative.* Designers push against the technical bias towards simplicity. The drive for points at extremes adds extra work and affects the development of software tools. The Bézier curve is more like a demanding medium than a helpful tool.

These conclusions, along with those regarding design properties, letterform structures, and features/motifs, are further illustrated in the next section through an exploration of sketching.

4.4.5 *Sketching as a technique for shape discovery*

Only one quarter of interviewees regularly use calligraphic tools in their italic design process (see 4.3.3), however almost all (20 of 23) talk about using 'sketching' or similar processes. Interviewees use the term *sketching* loosely, but most use it to describe processes in which they use tools to prototype ideas for what individual letterforms might look like. These processes seem to have a key role in the forming stage and have a part in determining design properties, letterform structures, and features/motifs.[62]

Interviewees report using sketching for these purposes:

- *To record imagination and visualize ideas* (Highsmith 2017, Grießhammer 2017). For example, Simonson (2016) reports using it to 'spontaneously draw things' and take notes about what he's thinking for later use.[63]

- *To discover initial ideas* (Scaglione 2018, Smeijers 2017).

- *To exercise greater freedom than digital tools allow* (Carpenter 2018). Pen and pencil impose few restrictions and minimal 'friction' on the design process (Simonson 2016). The computer mouse and Bézier curves require much more effort and are better suited to production than design (Grace 2017, Matteson 2018). Simonson uses the example of drawing a spiral—a simple task with a pencil, but a very complicated task using Bézier curves.

- *To get an idea of the 'movement' in a shape* (Burian 2018). Slimbach (2018) and Hoefler (2017) describe sketching as 'gestural' rather than the work of a draftsman.

- *To solve problems and find solutions* (Famira 2017, Smeijers 2017). Smeijers uses the example of a lowercase **x** to discuss how sketching might be used to explore the possibilities of how that shape might be formed.

- *To test an idea to see if it is worth pursuing* (Slimbach 2018).

- *To help with making design decisions* (Majoor 2018). Majoor quotes Erik van Blokland as saying 'When in doubt, draw.'

62 These manual and digital methods of sketching are further documented by Meseguer (Henestrosa, Meseguer, and Scaglione 2017: 41–42).

63 Although Simonson's (2016) use of sketching seems to relate more to the experimenting stage (section 4.3) than the forming stage, other interviewees report using it mainly in the forming stage.

Figure 4.86. Stone's original drawings for Arepo Italic (top) and the finished digital letterforms (bottom). Stone (2018) is one of the only interviewees that uses highly-refined drawings as the source for some of his italics. The digital forms are, however, significantly different from the drawings. After scanning the drawings and producing initial digital forms, he felt 'that there was something wrong about the presence of the italic with the roman. It was too spiky or something.' He then rounded the serifs, lowered the joins, adjusted the slope angles, and made numerous other changes. Even when a sketched or drawn source is carefully prepared, the transition to digital can require changes. Image courtesy Sumner Stone.

In many cases, this sketching is done on blank paper using pens, pencils, brushes, felt markers, or broad-nibbed pens. This may appear similar to calligraphic techniques, however it seems that capturing the natural properties of the tool is of little or no importance. Interviewees describe this as 'drawing' rather than 'writing', whichever tool is used.

In other cases sketching involves printing out letters, typically in large size (60 to 72 point), that are then used as a reference or directly adjusted. Famira (2017) gives one example of this: finding a solution for the lowercase **k** by printing it out and modifying it using a white-out pen and marker. Matteson (2018) gives another example: printing out the roman and trying to draw what the italic would look like beside it, similar to a technique used by Stone (Figure 4.4). Matteson describes discovering this technique as a 'breakthrough' in his design process. Clymer (2017) says that the roman might even be a transformed roman that has been sloped and compressed, and the designer would sketch out the details. These processes turn an abstract digital letterform into a physical object that can be manipulated or compared with sketched forms.

These large size sketches seem to be rarely used as direct sources for letterforms. They are most often used as informal reference material, compared with shapes produced directly on screen, and later discarded or archived (Clymer 2017, Matteson 2018, Scaglione 2018, Simonson 2016). Even when the sketches are scanned and brought into design software they only serve as rough guides. The final letterforms may be significantly different from their sketched versions (Figure 4.86). Majoor (2018) and Smeijers (2017) describe a further use for scanned sketches—as a source of pieces and detail elements from which many letterforms can be constructed. These physical sketches are influential in the design of letterforms but only indirectly.

Interviewees report tangible benefits from sketching. Grießhammer (2017) notes that sketching is enjoyable. He describes it as being an efficient 'shortcut to thinking'. Slimbach (2018) uses a very similar description: 'a shorthand for quickly developing new ideas'. Smeijers (2017) describes the act of sketching as something altogether different from digital design:

> It is a different world. It touches different things in our brain. Like a grasshopper, it has different antennae.

The computer as a sketching tool

The process of sketching, as described by interviewees, is not necessarily limited to physical tools such as pen and paper. There are purely computer-based techniques that interviewees also describe as sketching. Carter (2018) muses about the possibilities, based on a conversation he had with Milton Glaser in the early years of digital design:

> Milton was saying 'The problem with computers is you can't sketch'. In the sense that he meant that I agree with him. You can't really produce a fuzzy line. On a computer it's a line. But there is a kind of sketching you can do on a computer which is not what Milton meant, but which is very significant to me. Try slanting it this angle. No good. Try slanting it this angle.... It takes seconds to do this. Grab this piece of this letter, stick it on here and see what it looks like. Oh it looks terrible. Okay. Flip it.... That kind of very coarse experimentation with forms is something that I do a great deal. I didn't do that on paper, but I do do it on the screen. So if I've got some shape that's emerged that I like, I get to see where else I can plant it, use it, propagate it.

SKELETAL STROKE   **WEIGHT ADDED**   **SEGMENTS TO CURVES**   **FINAL FORM**
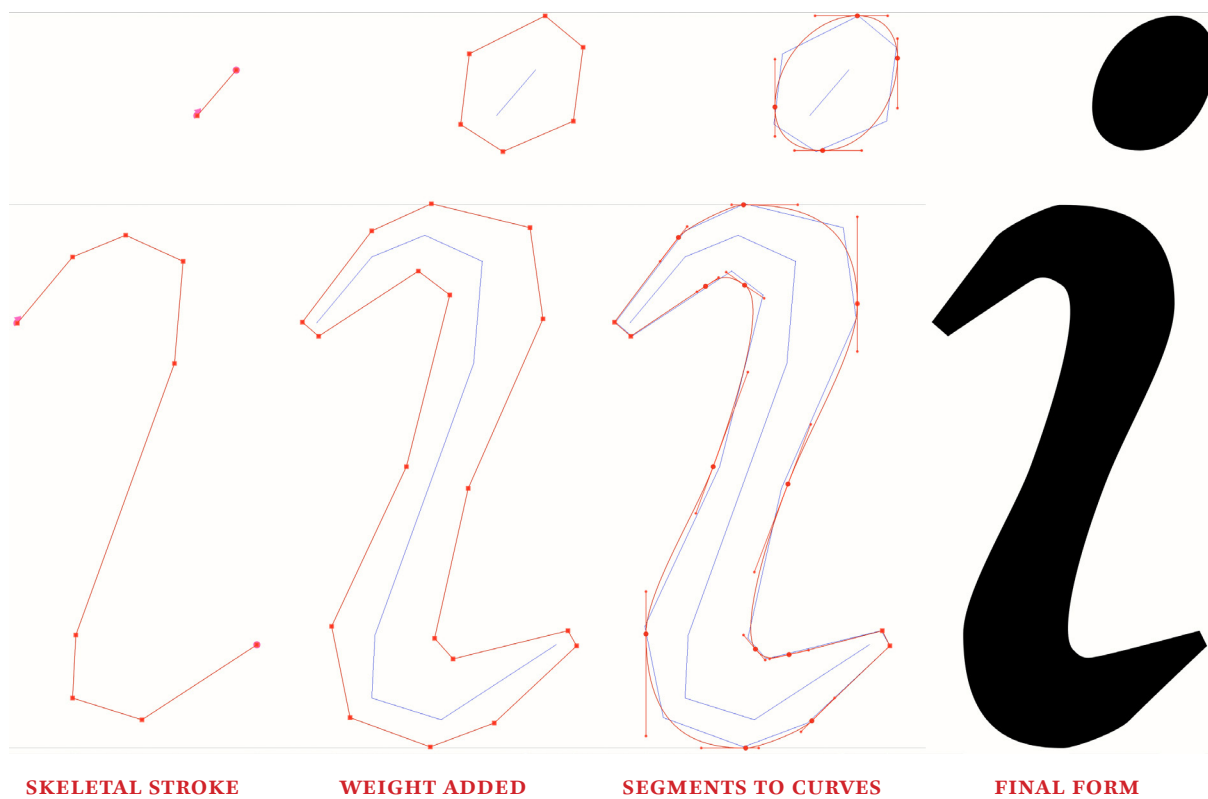
Figure 4.87. An example of a digital sketching process similar to that described by Clymer (2017). An initial skeleton is prepared using only straight line segments. Then weight is added by drawing an outline around the skeleton to add weight—again using only straight line segments. The points are moved around or deleted and segments turned into curves to create the final form.

Interviewees report similar processes—trying out different slope angles and horizontal scaling amounts—and distilling them down through an experimental 'sketching' process (Clymer 2017, Montalbano 2017, Soskolne 2017). Clymer describes his process (Figure 4.87):

> I learned something really early on. I saw someone do it. We're starting with straight line segments, just tapping out points without any curves, and making curves that way, and subdividing the straight line segments, and pulling points around to turn things into a curve. [...] I start loosely and just throw a little weight around and trace over it. It's still a lot of sketching—it's not like I'm starting into drawing a final letter. Maybe I will start with a little bit of a skeleton and build up from there. [...] With that way of working you're not worried about the actual curve yet—getting the Bézier points in the exact perfect position. You're moulding the shape in a way. It's still sketching but just without paper.

These examples illustrate the types of digital processes that interviewees think about and describe as sketching. However these techniques are not uniquely digital. Montalbano (2017) describes a type of sketching process used by Benguiat with film:

> If you ever saw Ed work he was working on the analog version of a editor. He'll make a positive. He'll cut it apart, tape it together, move it apart, get a negative, scrape and clean up the negative, get the positive, split it, move it apart. It's exactly what we do digitally. But he does it analog with film. But it's exactly the same process. He'll get lots of strips of horizontal lines, make a positive of it and use those for his cross-bar. It's so digital, but it's analog.

Conclusions regarding sketching

Sketching is regarded as a very positive, useful, and even necessary part of the design process (Grace 2017). It is a well-used technique in the forming stage, but is rarely used to directly establish the outlines of italic letterforms. It is used to discover design details and solve design problems. It seems to be more concerned with stimulating and exercising designer freedom than with the dynamics of any particular tool. Designers seem to use whichever tools they have at hand and find useful, whether physical or digital.

4.4.6   Conclusions regarding forming techniques

The forming stage for italics is characterized by an ongoing tension between maintaining a visual connection with the roman and yet sufficiently differentiating the italic from it. As noted in section 4.3.4, interviewees often begin an italic by transforming the roman and then applying whatever changes are needed to make it stand out as being different, as something that looks *italic*. In the forming stage the details of that differentiation are set though techniques related to design properties, letterform structures, and features/motifs.

These properties, structures, and features are closely intertwined and balanced. Decisions about one property, such as slope, are affected by others, such as width. The desired differentiation is achieved through a balanced mix of techniques. For example, a designer may use either the removal of certain serifs (a structural change) or a redesign of them (a motif) to establish a contrasting texture from the roman. In the case of

ABCDEFGHIJKLMN

ABCDEFGHIJKLMN

OPQRSTUVWXYZ

OPQRSTUVWXYZ

abcdefghijklmn

abcdefghijklmn

opqrstuvwxyz

opqrstuvwxyz

64   This need to balance slope and cursiveness was also noted in the design of Perpetua. Initial attempts to produce an italic counterpart based on Morison's sloped roman ideal met with little success, as the italic did not provide sufficient differentiation. In response, a new italic was drawn in 1931 with greater slope and fluidity (Mosley 1989: 57–58). Morison later commented: 'When the [sloped roman] doctrine was applied to Perpetua, we did not give enough slope to it. When we added more slope, it seemed that the fount required a little more cursive in it. The result was rather a compromise.' (Barker 1972: 343, quoted in Mosley 1989)

capitals, which are often only sloped versions of the roman, a small amount of slope (a property decision) may not provide sufficient differentiation. It may be necessary to introduce some alternate italic forms (a structural decision) to make them stand out.[64]

A desire for creative freedom and unique innovation seems to drive forming processes, even though few interviewees directly mention it. There are no standard values for design properties and only two expected italic letterform structures. Features and motifs are intentionally unique. The particular choice of techniques seems to be very personal to each designer, although a single designer may use a completely different set of properties, structures, and features for each project. Decisions about which techniques to use and how to apply them are often influenced by what has been learned from others, but remain strongly a matter of personal choice.

This underlying desire for personal expression and creativity can also be seen in the ongoing role that tools have in the forming process. Although physical tools are rarely used to create final letterforms, they are often used to find solutions for design problems or to try out interesting new features. They are also used to break out of the restrictions and biases of some design environments, such as Bézier-based font design software. The popularity of sketching as a design technique confirms that designers look to tools as a means of discovering new, creative solutions.

Tools and materials may be physical, imaginary, or digital, and there is a tendency for physical tools to become abstracted over time. Imaginary concepts of tools, such as pens, replace use of the physical tools as a designer gains experience. The abstract stroke properties of flexible pens have replaced the physical pen over a few generations. Digital tools, such as the sloped sidebearings provided by the Italic Bowtie, have become more commonly used than physical tools. Digital materials, such as the Bézier curve, have replaced stone, metal, paper, and plastic as the designer's medium. The freedom and creative range provided by abstract tools seems to have become more useful than the physical tools that inspired them.

The following sections explore the final two stages of the design process for italics, *harmonizing* and *adapting*, and the decisions made by designers regarding spacing and balancing within technical constraints.

4.5   Harmonizing

According to the five-stage model (see 3.1.2), the harmonizing stage involves three types of actions: provisional letterforms are brought into visual harmony, letter spacing is set, and letter interactions and behaviours are codified. Of these, interviewees say much more about letter spacing than other actions. They also speak about an additional type of harmonizing— bringing balance to the relationship between italic and its roman counterpart.

This section summarizes the responses of interviewees regarding the challenges of spacing italics and how techniques compare with those used for roman. It then explores how interviewees approach balancing the need to make italic different and contrasting from the roman with the need to keep them similar and visually related. Sections 3.2.2 and 4.3.4 address the influence the roman has on an italic. This section further identifies techniques preferred by interviewees to control that influence and manage the difficult tension between difference and similarity.

Figure 4.89. An example of the types of letter combinations used in setting spacing for Quarto Medium Italic, both with control letters and with sloped bars set at average slope (Soskolne 2017).

nofonfn/f/

4.5.1 Spacing italics

Multiple interviewees say that spacing is the most difficult task in italic design (Majoor 2018, Munch 2018, Smeijers 2017). Munch comments, 'You can have the most beautiful shape but it doesn't necessarily fit beautifully with everything else.'

Overall, the process of spacing italics seems to closely parallel the process of spacing romans.[65] It is not clear, even to interviewees, why this is so much more difficult in the case of italics. They mention struggling with the balance of colour and weight (Smeijers 2017). Even when the initial spacing is based on the roman, the process of sloping can require further adjustments in the width and spacing of letters, such as the **o** (Simonson 2016). Two common italic elements—asymmetric serifs and inconsistent angles—seem to cause the most difficulty.

In most italics there are serifs only on the upper left and lower right corners of letters. Because there is less 'traffic' on the baseline, the spacing may need to be tighter (Montalbano 2017). The design of individual serifs can also affect spacing. A 'pot-hook' serif can require more space, even when it is modest in size, as with Ibis Text (Figure 4.51). Highsmith (2017) says that shortening the upper left (incoming) serif is one way to reduce the need for extra spacing. Italic fonts need different spacing from their roman counterparts because the lettershapes are significantly different and often more complex.

A further factor is the dominance of curved and angular shapes in italic, combined with slope angles that may be inconsistent from letter to letter. Soskolne (2017) describes placing individual italic letters between control letters, such as **n** and **o**, but also between sloped bars set at the average slope of other letters (Figure 4.89). She says that 'things can go off the road pretty fast if you're just spacing italic glyphs with italic glyphs'. Tools such as the Italic Bowtie (Figure 4.78) are also helpful in mitigating the effect of slope.

The result of these factors is that italics require more 'eyeballing' than romans (Soskolne 2017). These decisions are based less on objective numerical values and more on subjective aspects of visual appearance.

4.5.2 Making italic different from roman

Type users seems to expect that an italic will be sufficiently different from the roman, and designers use changes to slope, structure, and other properties to establish this difference. Interviewees mention that the purpose is to indicate a distinct change in textual meaning—that there is 'something special going on' (Carpenter 2018, Smeijers 2017). Hoefler (2017) describes it as a 'change in weather'. Grießhammer (2017) says it should be distinct but not 'jarring'. The amount of difference may be related to how important it is that an italicized word or phrase stand out (Carpenter 2018, Maag 2018, Ross 2018, see also 4.3.1). Smeijers (2017) describes the intended magnitude of this effect:

> I think it should be such that in that moment as a reader if I want to see the italic I should see it right away. If I don't want to see it, it shouldn't present itself because then it's too strong. [...] Those cursive letters should communicate in such a way that I can simply continue reading as if nothing else happened. But at the same time I should be conscious of the fact that the letter changes so there is something else also going on but it shouldn't interfere with the process of reading.

65 A common technique is to establish the spacing between two control letters (typically **n** and **o**) and then set the spacing of others individually in relation to those. For example, a sequence of letters such as **noxonxn** might be used to test the spacing of **x**.

Interviewees focus on a few specific techniques they use to achieve the desired amount of differentiation. These techniques involve adjustments to the characteristics, properties, structures, and features of an italic (as described in sections 4.3 and 4.4) in order to make it look less like the corresponding roman. The following techniques are those most commonly mentioned by interviewees. They are ordered by how effective they seem to be in achieving differentiation (based mainly on reports from Carpenter 2018, Clymer 2017, Famira 2017, Hoefler 2017, Ross 2018, Smeijers 2017, and Stone 2018):

- *Adding slope*, with a greater slope increasing differentiation
- *Changing the letterform structure*, such as using cursive forms
- *Changing the texture* through italic-specific features
- *Adjusting design proportions*, specifically width
- *Applying a different imaginary tool or material* to the letterform construction or details

This list of effective techniques notably does not include changes to other properties, specifically weight and colour. Those properties may be different between a roman and an italic, but it seems that designers do not use changes to them as a common means of achieving textual differentiation.

4.5.3 *Making italic similar to roman*

Type users also expect that an italic will bear some visual similarity to the roman, and designers use techniques at both the global and individual letterform level to make the two styles appear related (Clymer 2017, Grace 2017). Interviewees mention that these expectations may come from historical associations (see 4.3.2) or style traditions (Carpenter 2018, Hoefler 2017, Smeijers 2017). Clymer (2017) and Famira (2017) say that an italic needs to look as if it could be applied in the same use situation as the roman, whether that be for a particular technology or at a certain text size.

Interviewees often describe the required sense of *connection* between roman and italic as having subjective or emotional aspects. When judging whether that connection is effective they ask the following questions, some of which describe the relationship in personal terms (see 4.3.3):

- Is there a similar aesthetic or design language? (Burian 2018)
- Do the details provide a similar flavour? (Hoefler 2017)
- Does it feel like a good companion? (Hoefler 2017)
- Does it feel like there is a relationship there? (Munch 2018)
- Is it comfortable? (Carter 2018)
- Is it a good marriage? (Carter 2018)

Interviewees describe using the following techniques to keep roman and italic related. They are listed in order from global properties to individual letterform details:

- *Compatible dimensions.* Using similar, if not identical, vertical proportions and dimensions such as x-height, capital height, and ascender height is a common technique (Burian 2018, Carter 2018, Highsmith 2017, Maag 2018). Other dimensions, such as stem widths, can be chosen to be visually compatible (Clymer 2017).
- *Similar weight, colour, and amount of contrast.* These properties seem to be used more to unify roman and italic than to separate them (Famira 2017, Hoefler 2017, Maag 2018, Soskolne 2017).

Figure 4.90. Candara Italic (top), Candara Regular (middle), Candara Italic expanded to 105% width and set more tightly (bottom). Although the individual letterforms of the italic are not directly based on the roman, they share similar proportions, as can be seen when the italic is stretched to the overall width of the roman.

abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

- *Related letterforms.* The use of sloped forms, particularly capitals, is a common way to connect roman and italic (Grießhammer 2017, Maag 2018, Matteson 2018, also see 4.4.2). Even when letterforms are not strictly sloped versions they can be related in structure and proportions. For example, the italic and roman forms in Candara differ substantially in many details, however their overall structure and proportions are similar (Figure 4.90).
- *Specific features and motifs.* The details of serifs—length, curvature, tip design—are used to provide similarity (Figure 4.39), as are other glyph details such as the height and position of joins (Famira 2017, Majoor 2018, also see 4.4.3).[66]

66 The importance of similarity in weight and serif treatment is mentioned by Warde (1933: 9).

These characteristics, properties, structures, and features used to establish similarity are complementary to those used to create differentiation. This allows designers to adjust for both needs separately and achieve an effective balance.

4.5.4 Conclusions regarding harmonizing

The harmonizing stage for an italic involves a spacing process that is similar to the process for romans, but is more complex and frustrating for designers. Slope introduces challenges of inconsistency and letterform reshaping. It adds the practical requirement that spacing be tested both with other letters and with slope indicators (sloped bars or sidebearing markers). The upper left/lower right serifs common in italic—and the lack of serifs in other locations—can add extra challenges in spacing. The result is that most designers describe spacing italics as being difficult and unpleasant.

The need to make italic and roman different but similar requires separate but compatible techniques. It seems to be possible to address both requirements in a careful balance. The following three-step process seems to model the common practice of interviewees:

- Use global dimensions (x-height, capital height), certain properties (weight, colour, contrast), and common structures (sloped capitals) to establish overall similarity and compatibility between roman and italic, and set boundaries for differentiation.
- Use slope, alternate letterform structures (such as cursive forms), and proportional changes (such as width) to make roman and italic dissimilar and achieve the needed amount of differentiation.
- Use details, features, and motifs (such as the design of joins and serifs) to reunify roman and italic and give the two styles a similar aesthetic or 'flavour'.

4.6 Adapting for technology

The adapting stage, as seen in past accounts of the italic design process, involves turning completed and harmonized designs into type well-suited for a specific technology (see 3.1.2). No interviewees report adapting previously-completed designs according to this strict definition, however many comment about the influence that technology has on their design decisions. This section explores the way in which designers adapt their designs to accommodate technological constraints, and shows that for current designers those decisions seem to be made throughout the design process.

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abcdefghijklmnopqrstuvwxyz

Figure 4.92. Abril Text Italic
(2011) (top) and Portada Italic
(2016) (bottom). Abril has strong
horizontal entry serifs and ball
terminals that will hold up at
lower resolutions. Portada has
less contrast and more subtle
features that require greater
resolution to be effective.

ghiknpruvwxy
ghiknpruvwxy

In addition to the role of digital tools discussed in section 4.4.4, interviewees report the influence of technology in two general areas:

- *Rendering technology.* Designs are adjusted to be more successful for particular rendering environments. The most common examples of this are for italics intended for use on computer and mobile device screens (see 4.6.1). Other examples include italics intended to render well on poor quality paper, such as Karmina (Figure 4.45), and adaptations for other materials, such as embroidered labels sewn into clothing (Famira 2017). These influences currently occur anywhere from the initiating to adapting stages.

- *Production technology.* Designs are planned in order to simplify production processes. Soskolne (2017) describes the production process for the upright weights of Ringside (Figure 4.48) as highly complicated, and says that the process for italics was simplified by adopting a common point structure across all widths.[67] Ross (2018) provides another example in his Input family of fonts (Figure 4.91). One reason for keeping the point structure consistent was his desire to copy the hinting[68] from one font to another. He also suggests that these types of simplifications will be increasingly important with new technologies such as variable fonts.[69] These production decisions seem to be made early in the design process, in the experimenting and forming stages.

The overall attitude towards technical constraints is that they are a challenge but not a major difficulty. Carter (2018) suggests:

> If you put a number on the difficulty of designing a typeface and you give it a 10, I would say that the technical aspects of it are maybe 1 or 2 on the same scale.

Some interviewees treat constraints as neutral or positive, referring to them as 'guidelines' (Burian 2018) or 'technical goals' (Soskolne 2017). Clymer (2017) talks about them as 'boundaries' that stimulate his creativity.

The nature and magnitude of adaptation changes over time as technologies evolve and improve. Unger (2016) and Stone (2018) talk about the freedom that digital italics had over the duplexing requirements of the Linotype and other early hot metal machines. Other interviewees report a similar increase in freedom between the constraints of the early digital italics and those intended for use on current high-resolution devices. For example, italics on the lower-resolution computer screens and printers of the 1980s and 1990s could often look misshapen due to the difficulties of rendering sloped strokes and curves on a coarse pixel grid. Designers took great care to adapt their designs to improve rendering (Carter 2018, Maag 2018, Majoor 2018, Matteson 2018).

Higher-resolution screens and printers of later years allowed italics to be more complex and subtle. Scaglione (2018) and Burian (2018) report that the influence of improved screen rendering can be seen in two of their italics: the strong features of Abril Text (2011) compared with the more subtle and playful Portada (2016) (Figure 4.92). These two italics demonstrate this difference even over only a five-year span.

A smaller proportion of technological adaptation occurs at the end of the design process than in the past. This shift seems to have begun in the early decades of digital type. For example, Carter (2018) reports that the foundational decisions behind the designs of Verdana (Figure 4.46) and

67 A common point structure enables a wide range of weights to be produced from a minimal set of design sources through interpolation. This greatly reduces the amount of development effort required.

68 Hinting involves defining a set of algorithms that are applied when rendering letterforms in lower-resolution environments. See section 3.1.2.

69 Variable fonts are a new OpenType technology that allows a range of fonts to be defined efficiently as a master font plus deltas that define how other fonts differ from the master (Hudson 2016).

Figure 4.93. Italics of Ibis Display (top), Ibis Text (middle), and Ibis RE (bottom) shown at the same point size (21 pt). The Text version is wider and set more loosely than the Display version. The RE version designed for screens adds additional width and space. The RE fonts are a rare recent example of completed designs later adapted for another technology.

A large fawn jumped quickly
A large fawn jumped quickly
A large fawn jumped quickly

Figure 4.94. Italics of Turnip and Turnip RE compared at equalized size. The RE version lacks the decorative ascending **p**. It is also wider in both letterforms and spacing.

abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz

Figure 4.95. Horizontal serifs in Lucida Bright Italic, a derivative of the original Lucida. The lack of diagonals and curves makes the serifs well-suited for low-resolution rendering.

abdhiklmnprtuvwx

Georgia (Figure 4.50) were driven by their on-screen appearance. The size, slope angle, stroke widths, and character widths were chosen for how they would render in pixels. The pixellated bitmaps were designed first and the outlines later wrapped around them. This concern for pixel rendering and good 'stepping patterns' also influenced more recent designs such as Open Sans (Figure 4.7), where the italic angle was chosen in the experimenting stage to provide a pleasant pattern on screen (Matteson 2018). Maag (2018) claims that the current prevalence of high-resolution screens (360 DPI and finer) means that, for the designer, 'pixels don't really exist anymore'. However interviewees report continuing to make significant design decisions early in the italic design process in order to maximize the quality of screen rendering. The following section describes some of the techniques interviewees use to adapt their design for screen use.

4.6.1 Adapting italics for screen use

Interviewees report a variety of ways in which they adapt their fonts for screen rendering. These are used both to establish basic design properties and to adjust for differences between print and screen rendering, such as on-screen thickening of hairlines (Munch 2018):

- *Widen.* Highsmith (2017) says that he makes italics for screen use wider than those for print—a similar technique to that used for italics that are intended to be used at small sizes. This can be seen in his Ibis RE Italic (Figure 4.93), one of Font Bureau's Reading Edge™ Series of fonts adapted specifically for screen use (Font Bureau 2012). Stone (2018) explains this further, saying that the more narrow the italic becomes the more vulnerable it is to rendering technologies that can cause shapes to fill in.

- *Simplify.* Interviewees say that simpler, less-decorated italics work better on screens. Simpler forms reduce variation between shapes (Clymer 2017). An example of this is the Reading Edge™ version of Turnip—Turnip RE (Figure 4.94)—in which Ross (2018) reduces the 'italicness' by replacing the ascending **p** with a simpler form.

- *Adjust features and motifs.* Examples of this: Maag (2018) suggests that joins, such as the upper left part of **n**, need to be more open to preserve the feature on screen. Munch (2018) takes the opposite approach with Candara Italic (Figure 4.90), choosing to minimize the space because it did not render well. Serifs, in particular, can render poorly. The straight serifs of Scala Italic (Figure 4.74) are intended to produce a more pleasant shape at lower resolutions (Majoor 2018). Another solution, used by Bigelow (2018) and Holmes for Lucida (Figure 4.95), is to make the serifs horizontal to avoid rendering problems.

- *Emphasize features and motifs.* Important features can also be emphasized to ensure that they will render clearly (Maag 2018, Munch 2018). The strong serifs of Scala Italic are an example of a motif introduced in response to low-resolution concerns (Majoor 2018). Maag says that these features cannot be subtle in screen italics and need to be 'almost brutalist'.

- *Adjust slope angle.* As noted in the previous section, interviewees report choosing particular slope angles to produce an attractive 'stepping pixel pattern'. They also may reduce the angle to reduce the number of 'steps'. An extreme example of this is Literata Italic

(Figure 4.29), where the slope is almost eliminated to minimize rendering problems (Scaglione 2018).

These examples show that designers use adjustments to all three forming categories—design properties, letterform structures, and features/motifs—to adapt their italics for screen use. That adaptation may happen very early in the design process or may be completed after the upright text fonts have been produced.

4.6.2 Conclusions about adapting

Designers continue to adapt their designs for particular technological environments, although the nature of that adaptation has adjusted over time. Improvements in screen resolutions have reduced, but not eliminated, the need to adapt designs for on-screen use. Adaptation continues for other rendering environments and to make production processes less complex.

The most significant change in recent decades has been that more adaptation is happening earlier in the design process. No longer is adaptation commonly happening in a post-forming, post-harmonizing stage. Designers seem to be more proactive than in the past about designing for specific rendering environments, and integrate those adjustments into their plans from the beginning, in the experimenting and forming stages.

The attitude of designers towards technological adaptation seems to be generally positive. Unlike their negative reactions to some software tools, such as the Bézier curve, the challenge of making an italic work well seems to inspire them and provides boundaries for creative solutions.

4.7 The experience of italic design

In addition to the activities of the five-stage italic design process, designers experience three further dimensions in italic design: learning, evaluating, and reflecting. These can occur before, during, or after the five-stage process, and have effects that reach over years and decades of a designer's career. This section explores these dimensions: how designers learn to design italic, how they test and evaluate their work and determine 'success', and what knowledge and lessons they would choose to pass on to other designers.

The responses of interviewees point to some significant findings: that *the italic design process is a distinctly personal experience*, that *learning, evaluating, and reflecting may be connected,* and that *the nature of the design experience may explain the lack of published documentation on the italic design process.*

4.7.1 Learning

Interview results suggest that italic design is generally not taught directly or formally from one person to another, but is rather learned primarily through personal observation and analysis. This self-study model can be seen throughout interviewee narratives and involves looking closely at the methods and processes used by others. This section explores how designers learn how to design italics and identifies two consistent themes that characterize the learning process.

Interviewees report that they did not learn directly about italic type design through formal courses. This was certainly the case before dedicated type design courses, such as those at the University of Reading or the Royal Academy of Art (KABK), were established (Smeijers 2017). Students who did
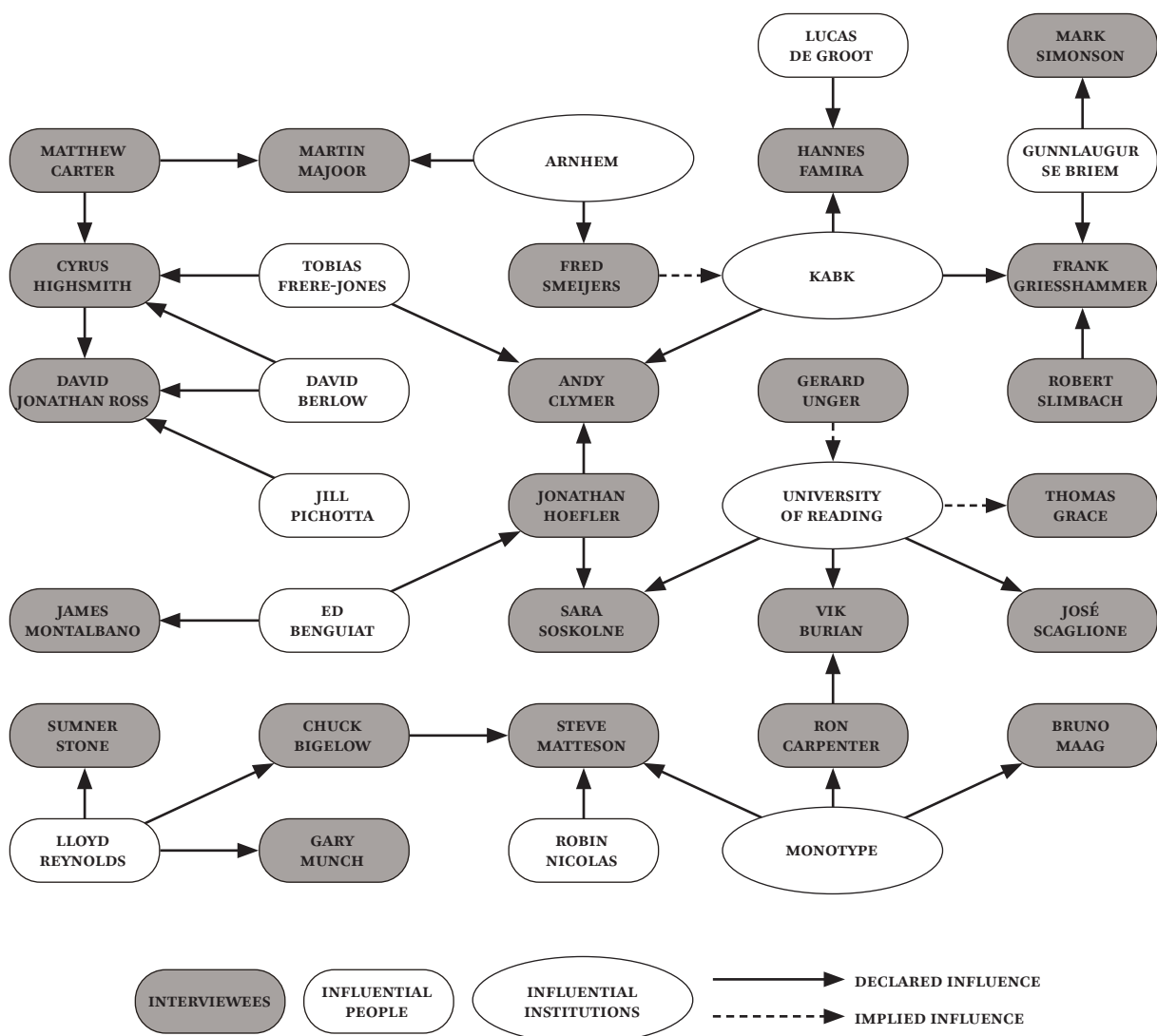
Figure 4.96. Network map of relationships that connect the complete set of interviewees regarding italic design influences. Shaded shapes indicate interviewees. Unshaded shapes indicate people or institutions mentioned by interviewees as influential. Solid arrows indicate influences specifically mentioned by interviewees. Dashed arrows indicate influence implied through formal teaching relationships. The amount and nature of influence varies. In some cases the people have had a strong personal or working relationship. In others the people have never met but the influence was noted by an interviewee. Additional influential relationships may exist between those listed, but are not included unless explicitly mentioned in interviews.

DESIGNING ITALICS

70 The University of Reading
*MA Communication Design:
Typeface Design* course (formerly
MA Typeface Design) does now
include exploration of italic
design.

71 Although type design
courses occasionally include
formal teaching in italic
calligraphy, most interviewees
who received formal calligraphic
training did not do so in a
type design context. Only two
interviewees mentioned learning
it in a type design course, and
specifically at KABK.

72 Noordzij (2005: 9) defines
calligraphy as 'handwriting
pursued for its own sake,
dedicated to the quality of the
shapes'.

attend those courses say that they were generally left to figure out how to
design italic on their own, or received only limited guidance[70], as Scaglione
(2018) reports:

> At Reading [in 2005] I don't think we paid much attention to italics
> until we had to do them. [...] There were certain things that were
> kind of mechanical. This is my perception. You make it more narrow,
> slant, select what kind of in-stroke and out-stroke, test it next to the
> upright, and that's it.

References in interviews to formal italic teaching are mostly related to
broad-pen calligraphic training or sketching (Grießhammer 2017, Majoor
2018, Munch 2018, Stone 2018). Although not intended primarily to teach
italic type design, those activities do have a strong influence on the way that
interviewees approach italic (see 4.3.3, 4.4.5).[71] Some teachers acknowledge
the connection, and feel that calligraphic training is a valuable part of
learning to design italic type (Bigelow 2018, Famira 2017). The experience
seems to be valuable even when an apparent goal of the exercise—to learn
how to write beautifully[72]—might not be achieved. For example, Matteson
says:

> I had [three years of] calligraphy training. I never got good at it, but I
> know what goes into calligraphic lettering. So I had to look at a lot of
> italic, a lot of italic handwriting.

In this case, the primary benefit of the calligraphic training was
observational—to train the eye rather than the hand.

The most broadly reported method of learning how to design italic
is self-study based largely on personal observation, analysis, and trial-
and-error. Only two interviewees (Grießhammer 2017, Simonson 2016)
report learning some italic design techniques directly from published
sources (books, journals, web sites). The large majority report learning the
most from looking at the work of others and studying it closely. For some
designers this involves finding overall inspiration in the work of particular
designers or designs that they like (Hoefler 2017, Munch 2018, Simonson
2016). For others it can involve careful analysis and measurement of design
properties: proportions, widths, stroke weights, and contrast (Grace 2017,
Matteson 2018). Interviewees also report that learning italic design involves
a large amount of trial-and-error (Grace 2017, Highsmith 2017), a process
that teachers actively encourage (Majoor 2018, Smeijers 2017).

Learning italic design is accomplished through personal effort, but
is often shaped through relationships with other designers. Interviewees
report being influenced through working with others and observing how
they approach italic design (Burian 2018, Grace 2017, Highsmith 2017,
Ross 2018, Matteson 2018). These relationships, both formal and informal,
can connect a broad group of people through a multi-generational network
of influences. Figure 4.96 illustrates the particular network of italic design
influences that connects all of the interviewees through both formal
working/teaching and informal, inspirational relationships.

The production environment of a type foundry or design studio,
in particular, can build relationships and provide opportunities for
observation and learning. It encourages active observation of the work of
experienced designers and provides exposure to a diverse variety of client
projects (Carpenter 2018). The emphasis is on learning through doing and
experimentation. The foundry environment can also provide access to

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ROMAN AND ITALIC SIDE-BY-SIDE

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SELECTED PHRASES   **SELECTED WORDS**

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We *look* at—*on* the *letter* level—*large* drawings *and* spacing *strings* between *controls* on *the* word *level*. Paragraphs *but* also *single* words *in* italic *amidst* paragraphs *of* roman *and* vice *versa*. Paragraphs *alternating* words *in* one *posture* and *the* other, *or* just *select* words *highlighted* in *one* posture *or* the *other*, or *sentence* alternating *as* well. *Those* are *all* useful *tools* in *terms* of *seeing* how *distinctive* they *are*, how *conspicuous* they are. You *can* detect *at* a *glance* easily *if* words *are* jumping *out* of *you* in *that* context. *I* also *find* that *as* many *real* world *examples* as *possible* are *useful*. For *years* we *were* running *proofs* where *we* take *an* entire *paragraph* and *set* alternating *sentences* in *italic* and *roman*. It *occurred* to *me* one *day* that *by* doing *this* you're *always* separating *the* italic *from* the *roman* and

ALTERNATING PHRASES AND SENTENCES   **ALTERNATING WORDS**

Figure 4.97. Example test layouts using Source Serif Pro. Side-by-side tests are useful when comparing overall weight and colour, or if the italic will be used for longer passages. Setting selected phrases or words in italic is useful for testing whether the italic is successful at marking differentiation, such as emphasis. Setting alternating phrases or words can provide some indication of both differentiation and harmonization. Based on tests described by Burian 2018, Clymer 2017, Grace 2017, Grießhammer 2017, Hoefler 2017, Maag 2018, Ross 2018. Text from Hoefler 2017.

useful materials, for example the drawings held in the Monotype office at Salfords (Matteson 2018).

Larger teams, such as those at Stempel and Monotype, can add further depth by encouraging the discussion of multiple opinions (Maag 2018):

> You would have a creative director overseeing all the work, but everything was a team effort. You would have influences from everyone. It's not like today where you have a single designer. That didn't exist. A good typeface was always the product of a team. You would have different opinions about how to treat an italic, then you discuss these opinions. It could be a blend of different opinions that would be fit for purpose. [It was] a quite industrial approach. Also a bit of the Bauhaus/Basel school of thinking.

Working together gives designers opportunities to learn from and evaluate the work of others. The responses of interviewees seem to indicate that this is a source of ideas gained through personal observation rather than a medium for teaching specific approaches to italic design.

Two themes characterize and summarize the experience of interviewees in learning and developing their approach to italic design:

- *Learning is primarily a product of personal observation and analysis.* This seems to be consistent throughout all environments and modes of learning, and is encouraged by mentors and teachers.

- *Learning is supported through networks of relationships*. Formal and informal experience, gained mainly through working together, provides opportunities to learn new techniques, share ideas, and evaluate their usefulness in real production settings.

4.7.2 *Evaluating*

Various types of evaluation occur throughout the italic design process. These are very similar to evaluation processes for roman designs, however there are some key differences, primarily the need to test the italic in context alongside the roman. Measures of success for italic types also seem to be quite subjective and highly influenced by personal taste. This section highlights how italic testing differs from roman testing, discusses the irrational and subjective nature of italic evaluation, and notes the dominant role of personal taste.

Interviewees say that italic testing has many similarities to roman testing. They share similar purposes, including: whether the design fulfils the brief and is readable, how the design appears in target media (print, screen, device), and the success of style characteristics and design properties (weight, texture, structure, rhythm, spacing). They use similar techniques: prototypes with limited sets of characters, standard and custom printed proofs, testing shapes within the context of control characters, tests that include real texts and layouts. This testing of both roman and italic also occurs throughout all five stages of the design process, from initiating to adapting—even after the design is considered complete (Carter 2018).

There are six ways in which italic testing differs significantly from roman testing and requires extra effort according to interview responses:

- *There are more variables to test.* Italics have additional characteristics (e.g. cursiveness), properties (e.g. slope angle), alternate structures (e.g. many versions of **g**), and features/motifs (e.g. more serif shape possibilities). Decisions regarding each of

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ORIGINAL SLOPE

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INCREASED SLOPE

Figure 4.98. An example of a layout using selected phrases and words to test the slope of Source Serif Pro. Decreasing the slope seems to make the italic blend in more with the roman, but begins to fail at differentiation, especially for single words. Increasing the slope is more effective at marking differentiation, but may provide more contrast than is required.

It occurred to me one day that by doing this you're always separating the italic from the roman and not merely by a word space, *but by a period or other punctuation mark.* That can conceal all kinds of differences in word spacing that were undetectable otherwise. *So changing that to more type proofing and less literary examples is useful.* Running sentences with punctuation removed helps reveal all kinds of things. *We also do things designers wouldn't end up doing.* Setting an entire paragraph in all caps and then select words in italic, *select sentences in italic,* alternating lines in italics. *And then vice versa with roman as the highlight words as well.*

ORIGINAL TEXT

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WITHOUT PUNCTUATION AND CAPITALS

Figure 4.99. Removing punctuation and capitals can provide a more even texture for testing the spacing of roman and italic. Text from Hoefler 2017.

WE'RE DOING A LOT THESE DAYS WITH LETTING THE PROOFING TEXT BE INFORMED BY THE TYPEFACE ITSELF ALONG WITH NEUTRAL ONES SO IF THERE IS ONE CHARACTER THAT IS ESPECIALLY ECCENTRIC WE'LL TRY PROOFING WITHOUT THAT AND WITH IT

ORIGINAL TEXT

HERE DOING O LOT THESE DENS PITH LETTING THE PROOFING TEST BE INFERRED BE THE TIEPIECE ITSELF LONG SITH NEUTRIL ONES SO IF THERE IS ONE CHORISTER THOT IS ESPECIEL ECCENTRIC HE'LL TRO PROOFING THOUGHT THOT END PITH IT

WITHOUT DIAGONALS A M V W X Y

Figure 4.100. Testing the rhythm and spacing of capitals in Hoefler Text. The heavily sloped diagonals and swash Y create a distractingly uneven texture. Removing them makes evaluation of the overall rhythm easier. Text from Hoefler 2017.

DESIGNING ITALICS

these can be difficult and require special test layouts and multiple iterations (Carpenter 2018, Carter 2018, Ross 2018).

- *More letters are needed to adequately test the personality of the design.* The overall visual effect of an italic depends on a wider variety of letters than the roman. Whereas the character of a roman may only require prototypes of 3–9 letters (e.g. **adhesion**, **videospan**, **HODhop**), an italic often requires more. This extends the experimenting stage and adds effort to the process (Soskolne 2017).

- *The apparent effects of size are exaggerated.* Interviewees report that with italics there is a greater disconnect between what is seen on screen at large design sizes and the result on paper at text sizes. A design that looks very dynamic and cursive on screen may look like a sloped roman on paper. It is more difficult to predict the effect of design decisions. As a result, italics require more testing on paper at text sizes (Carpenter 2018, Soskolne 2017).

- *Different types of tests are needed.* Interviewees suggest that there are 'blind spots' when running standard roman tests on italic. Italics can require unique test sequences and layouts, such as those illustrated in Figure 4.89 (Soskolne 2017).

- *Italics need to be tested in context alongside romans.* This requires additional sets of tests tailored to the intended usage (see further discussion below).

- *Success seems to be measured more subjectively.* It is more difficult to know when an italic is 'successful' or 'good enough' (see discussion below). This can stretch out periods of evaluation as a wider range of tests is completed through a larger number of iterations.

Testing italic with roman

Of these differences, the one that has the greatest impact on testing processes is the need to test roman and italic together in context. Achieving an effective roman/italic balance seems to be the most important measure of italic success and is the design goal that interviewees mention more than any other (Majoor 2018, Slimbach 2018). They stress how important it is for the italic to harmonize and blend in with the roman, to echo design ideas, and create differentiation that is disruptive but not distracting (Grace 2017, Maag 2018, Soskolne 2017, Unger 2016, see also sections 4.2.2, 4.5.2, 4.5.3). The balance—and the testing of it—is also affected by the intended usage: whether the italic is to be used for emphasis or as an alternative style (Carpenter 2018). If emphasis is important the italic should be tested within roman text. If alternation is important it may be more useful to test it side-by-side with the roman.

Interviewees, particularly Hoefler (2017), describe in detail the documents and layouts they use to test roman and italic. They use both side-by-side and mixed layouts to emulate potential real uses. Single or alternating words and phrases are set in italic within roman paragraphs. Figure 4.97 demonstrates a few common layouts used for testing. These layouts are sometimes used to test particular design decisions, such as slope angle, as illustrated in Figure 4.98.

The textual content of tests can also be used to test specific aspects of the italic or to filter out distracting elements. For example, many designers use real texts in their testing. The presence of punctuation, however, can hide spacing issues between roman and italic, especially in test layouts

using alternate sentences. Figure 4.99 illustrates how removing punctuation and capitals can provide a clearer test of spacing (Burian 2018). Another example (Figure 4.100) shows that removing certain distracting characters can be useful when testing overall rhythm (Hoefler 2017).

The subjective nature of success

Determining whether an italic is 'successful' seems to be a difficult and subjective task. Interviewees express frequent uncertainty about what determines that success. Even when the functional requirements of the italic are met there can be further subjective and emotional factors that become important. These factors seem to apply more to the design of italic than to other styles. They also reflect the dominant influence of personal taste on italic design.

A selection of responses from interviewees demonstrate their difficulty with evaluating italic and the subjective nature of their evaluation process. Interviewees express uncertainty about how to judge success:

> Something can be successful at emphasizing a word and not blending in with the roman. *Is that a successful italic?* Or can the italic be that extra seasoning to the roman and make it feel really different? Like it could give influence back to the roman? It can make you want to use more italics in a design. *So should that be the goal for success*—that someone would want to set half of the document in italics? It feels like it's not just the secondary style—not always. It depends on the design. Is it supposed to just be a neutral companion that just gives enough emphasis to look different? Or not? *I don't know.* (Clymer 2017, italics added to highlight significant phrases)

Interviewees say they make judgements on how things 'feel' or 'seem' rather than on objective criteria. This is notably the case when evaluating the relationship between roman and italic (see 4.5.3). They may not even be able to describe what they want (italics added):

> It's *quite difficult to actually put in words* what makes a traditional italic. (Maag 2018)

> It doesn't really make sense when I'm trying to describe it. *It's just a feeling you get* when you look at stuff. (Carpenter 2018)

> [Regarding slope angle] We test next to the roman quite early on. *It depends on how it feels. If that angle feels good then we stick to it.* If not, then we experiment. (Burian 2018)

> Having the same colour. Having a sympathetic rhythm and texture. Functionally working in terms of colour, rhythm, and so on. But also the kind of emotional ones. *Does this italic feel like a good companion for its roman?* That's a lot more subjective. (Hoefler 2017)

> There have been moments when [an] italic *has felt* too modern, too industrial, too manufactured, too calligraphic. These are different iterations of the same idea, going in different directions. None of these qualities are bad. The italics that they have yielded have been perfectly serviceable typefaces. They *just don't seem to share the same tradition* as the roman. It's like seeing a couple on the street that don't seem to match in terms of attire or something. *Something just doesn't seem right.* It's hard to pin down. (Hoefler 2017)

When asked how they know when an italic is successful, interviewees respond with emotional measures of success :

When it doesn't look like mine any more. When I feel I can look at it without wanting to change it. When no bells go off. When nothing else seems to jump out at me. (Munch 2018)

When it doesn't look bad. When I could convince myself that it's OK. (Montalbano 2017)

When I don't hate it anymore. It's often when the thing that you're making finally somehow catches up with the image you have in your mind of what you wanted it to be. (Soskolne 2017)

Soskolne (2017) summarizes this subjective, uncertain, and almost mystical nature of evaluating italics:

People tend to rationalize everything. I kind of understand it. There's a lot of stuff, especially about italics, where it's really hard to understand what's going on. We don't often know what's going on. They're a bit mysterious.

The influence of personal taste

The individual and personal qualities of these responses hint at another factor in evaluating italics—the dominant influence of personal taste. Famira (2017) and Highsmith (2017) say directly that some of their decisions are based on taste: 'Whatever I think looks better'. These tastes and preferences can be extreme, such as Soskolne's (2017) love for Granjon's Ascendonica Cursive or Grace's (2017) dislike of Caslon's italics.

Taste is developed over time through education or exposure to certain designs, often during a designer's formative years (Majoor 2018).[73] For example, Carpenter (2018) declares that his 'appreciation of italics is pretty much rooted in the second half of the twentieth century'. Ross (2018) shows that current cultural norms can inspire a negative, rather than positive, reaction. He comments that he was 'brought up in this environment [where] everything has to be a real italic' (see 4.3.2). However his reaction was to push against that dominant cultural trend. In each of these cases the popular styles of the time period had a role in forming a designer's sense of personal taste. Following that sense of taste can then become a habit that influences design, even in a subconscious way (Grießhammer 2017). Famira (2017) describes this ongoing process of developing personal taste with an analogy to beauty (see also 4.3.3 regarding aesthetic value):

I'm sure there is a theory about it but I haven't put the effort in to read about it. But I think that what we perceive as beautiful is informed by our taste. It's a shortcut that allows us to evaluate the properties of something on a subconscious level. We train this aesthetic muscle. So if my grandma has wallpaper with big flowers on it and my parents have wallpaper with small flowers on it, I go out in the world and pick my wallpaper and think 'flowers'. I've been trained to perceive certain things as beautiful. When designers go to art school and they try to solve problems they rearrange that aesthetic sense and they start favouring functionality over our cultural programming. And slowly, slowly, you start having an emotional reaction to things that function, and you think 'oh this is beautiful' which is the same stupid shortcut. And then we have to find out why is it beautiful.

In summary, the process of testing and evaluating italics is more complex and time consuming than for romans. There are more characteristics and properties to test, with more variables and options. The roman/italic

73 Unger (2007: 103–109) explores the effect of place and time on the character of a designer's work.

relationship is the focus of many test processes, although judging the balance between styles can be a subjective matter. Other aspects of italics, for example style and slope, are also evaluated subjectively and according to personal taste. As a result it is difficult, if not impossible, to identify exactly what makes an italic 'successful'.

4.7.3   Reflecting

A final area of investigation encouraged interviewees to reflect on their experience of designing italics—what they have found difficult and what advice they most wished to pass on to other designers (see appendix C.1). This section summarizes these reflections and identifies parts of the design process that potentially cause trouble, require extra effort, or that interviewees see as being critically important. It draws on, and begins to integrate, the themes, responses, and results from earlier sections.

An unexpected theme throughout many interview responses is the extent to which designers describe the italic design process in emotional terms. Four interviewees talk about it being 'fun' (Clymer 2017, Hoefler 2017, Matteson 2018, Soskolne 2017). Three people talk about the process or result as something they 'love' (Hoefler 2017, Montalbano 2017, Soskolne 2017). Others mention how 'fond' they are of it (Stone 2018), that it is a 'joy' (Majoor 2018), and that they 'look forward' to it (Carter 2018). They also refer to particular tasks as being enjoyable. For example, Hoefler (2017) says: 'The italic lowercase *z*? That's the cherry on the top. That's the best character to draw.' These subjective, emotional responses echo the subjective nature of success (see 4.7.2) and the particular aesthetic values associated with italic (see 4.3.3).

The challenges of italic

Designing italic can also be a stressful, difficult process. Some of the same interviewees that describe italic in loving terms also talk about hating it (Montalbano 2017, Soskolne 2017). It can be humbling, as Soskolne remarks about a recent project:

> I was feeling like 'I totally got this' when I finished the roman. I'm really pleased with it. Then the italics totally cut me down to size.

Even an experienced designer with decades of experience can occasionally find themselves 'defeated' by a project, as Stone (2018) reports about his unsuccessful attempts to design an italic for the slab serif Silica.

Interviewee responses suggest that most challenges of italic design are related to four specific aspects:

- *The cursive structure of italic.* The dynamic and continuous nature of italic letterforms introduces design challenges. For example, its pointed angles and unique negative shapes make it difficult to manage contrast (Famira 2017). Subtleties of slope make achieving an apparently consistent slope angle difficult (Scaglione 2018, see 4.4.1). Italic curves can be a challenge to define with Béziers and require extra effort and care (Carpenter 2018, see 4.4.4).
- *Letterforms with diagonal strokes.* Multiple interviewees report difficulty in designing italic forms that involve diagonal strokes, such as **k v w x y z** (Burian 2018, Highsmith 2017, Montalbano 2017). The stroke weights of sloped forms are troublesome (Figure 4.79) and there is a wide variety of alternate forms to consider (Figure 4.63, Figure 4.65). The letter **s** is also mentioned as being

particularly challenging with its curved diagonal spine (Matteson 2018, Scaglione 2018).

- *Spacing and colour.* Some interviewees consider spacing and related aspects (justification, rhythm, colour) to be the most difficult task in italic design (see 4.5.1).

- *Evaluation.* As discussed in the previous section (4.7.2), the evaluation process is more complex and time consuming for italics than for romans. There are too many variables, too many options, and making judgements becomes a highly subjective matter.

These difficulties are encountered throughout the italic design process and may require extra effort and attention. It is notable that interviewees do not offer any solutions or strategies in their reporting of these difficulties.

Advice for designers

When asked what advice they would give to a type designer new to italic design, interviewee responses are focused not on specific techniques but on overall perspectives and approaches. Here is a summary of their advice organized into four general areas:

BE DELIBERATE ABOUT THE PROCESS

- Begin the italic as early as possible, preferably alongside the roman. (Stone 2018)
- Do not get into details too early—focus on concepts, ideas, purposes. (Burian 2018, Scaglione 2018)
- Delay going to the computer and restricting yourself to the limitations of software tools. (Grace 2017)
- Test frequently and print constantly. (Scaglione 2018, Smeijers 2017, Soskolne 2017)
- 'Check every decision that you make—its effects in context and in small sizes.' (Soskolne 2017)
- Recognize that italic is 'a bit more work than you think'. (Smeijers 2017)

LEARN TO USE AND UNDERSTAND MANUAL TOOLS

- 'Work with the hand enough to know where the forms come from.' (Grace 2017)
- Understand connected vs. disconnected strokes and how in- and out-strokes work. (Scaglione 2018)
- Study calligraphy, brush lettering, drawing, etc. to enable the discovery of solutions. (Carpenter 2018)
- Pay attention to the gesture of the tool. (Montalbano 2017)

DEVELOP YOUR EYE AND SENSE OF JUDGEMENT

- 'Learn to look critically at what you're doing [...] and be very judgemental. Make sure that it feels right.' (Clymer 2017)
- Trust your eye, especially regarding the apparent slope of shapes. (Famira 2017, Scaglione 2018, Soskolne 2017)
- 'Practice, practice, practice.' (Slimbach 2018)

- Recognize that although italic is secondary it 'must be emancipated'. (Unger 2016)
- 'Try something ambitious. Try something daring.' (Hoefler 2017)

A significant theme in this advice is a distrust of digital design tools and processes. Designers are encouraged to explore manual tools, test on paper, and trust the eye rather than mathematical measurements. There is also a focus on creative solutions, particularly those discovered through the use of manual processes (see 4.3.3).

4.7.4 Conclusions regarding the experience of italic

The learning, evaluating, and reflecting dimensions of the experience of italic design provide further insight into the italic design process. They show that influences on italic design may have origins long before the five-stage model of a particular project has begun. This confirms the attitude towards history as described in section 4.3.2. The influence of a project may last for years afterward as a designer applies lessons learned to future projects. *These dimensions also demonstrate that designing italic is a distinctly personal experience.*

Learning is primarily a product of personal observation and analysis. It is supported through networks of relationships rather than through standard processes or documented procedures, but remains a very personal experience. Even when one person learns a technique from another they do not necessarily use it. They apply the ideas to the extent they are considered useful.

Evaluating is a highly subjective and emotional activity. It is difficult or impossible to determine whether a particular italic is 'successful'. There is no single process or method for successful italic design. There are more variables and options than can be accommodated with a standard approach. Personal taste plays a determining role.

Reflecting reveals that designers of italic often distrust automated digital processes and precise measurements. They put more trust in what they can achieve through manual tools and visual judgements. Creativity is valued more highly than mathematical consistency. The inherent challenges of italic design also force designers to make individual judgements.

The responses of interviewees suggest that these three dimensions may be connected. A learning process that is heavily based on personal observation and analysis encourages the development of personal preferences and tastes. In the absence of objective standards taught throughout the industry, designers have been free to develop their own subjective views on what makes an italic successful. This subjective, personal attitude makes one person's experience seem at most only slightly relevant for someone else. This may explain one of the larger mysteries of italic design (noted in section 4.1)—why there is such a lack of documentation or advice regarding italic design.

4.8 Summary of findings from interviews

Analysis of interview responses generally confirm that the five-stage model of the italic design process and the four main influences (usage, history, tools and technology, business) presented in chapter 3 accurately represent contemporary italic design practice. There are, however,

some significant findings that point to changes in practice over recent decades. The interviews point out the primary importance of the roman/italic relationship and the personal and subjective nature of the design experience. These findings support the development of a design framework based on methods of approaching italic design rather than a set of specific techniques.

This section summarizes the results of the interview process and highlights, *in italics*, the most significant findings relevant for current designers.

4.8.1   The italic design process

Contemporary practice seems to generally follow the five-stage model of the italic design process presented in section 3.1. It is very similar to the process for roman, and shares similar timing and sequencing (see 4.2.4). *Italic design is, however, more complex, with more design variables and challenges (such as the cursive structure) that make it more difficult and time consuming* (see 4.7.2, 4.7.3).

Designers often appear to be unaware of their own design process. Interviewees comment that they had not thought about the process before, and are inconsistent when describing their practice (see 4.1.4, 4.2.1). A possible explanation for this is that many aspects of the process can change from project to project. For example, almost half of interviewees report having no consistent process for initiating italic designs, and there is no common agreement on when they are begun in relation to the roman (see 4.2.1).

One change from the historical practice described in chapter 3 is that *designers seem to be more involved with and in control of all stages of the design process.* An example and result of this is that *technological adaptation efforts are less likely to be delayed until a post-harmonization adapting stage* than in historical practice. Interviewees report starting adapting efforts early in their projects and considering the technical environment when planning a project (see 4.6.2).

A further adjustment to the five-stage model is suggested by interview responses—*the addition of a parallel Evaluation process that spans the entire design process* (see 4.7.2). Evaluation occurs in all stages, and is a highly personal and subjective activity. The complexities of italic, plus the added need to test it alongside the roman, make the evaluation effort for italic difficult and time-consuming. These adjustments are incorporated into a revised diagram of the model applicable to the contemporary italic design process (Figure 4.101).

4.8.2   Sources of influence

Interviews confirm that usage, history, tools/technology, and business continue to influence contemporary italic design, but the nature of that influence shows changes from past practice.

Usage continues to drive designer decisions. For example, interviews confirm that the amount of differentiation required depends on the intended usage (see 4.3.1). A significant recent shift is that *there is a greater expectation that every roman will have a corresponding italic* (see 4.2.3). This is driven mainly by software interfaces such as the now-common 'I' button. Another change seems to be that *users and designers no longer expect that*

Initiating

Experimenting

Forming

Harmonizing

Evaluating
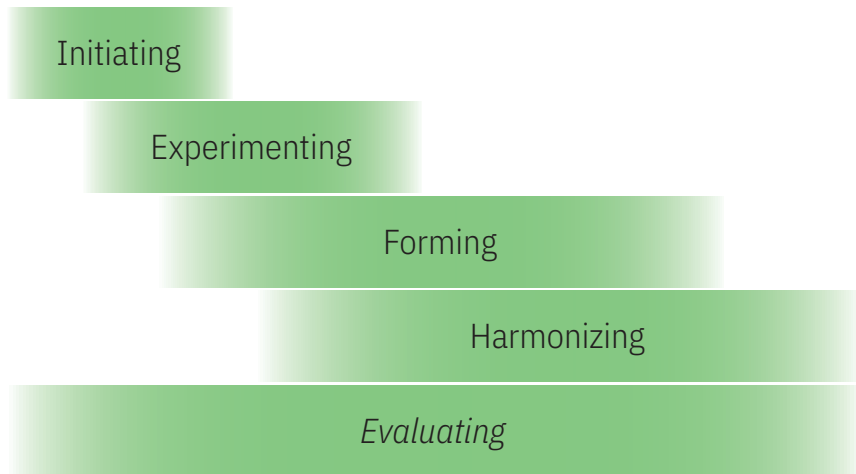
an italic will be lighter than the corresponding roman (see 4.4.1). This seems to be partially driven by the increasing importance of web fonts.

History continues to inform current designs, and the nature of that influence seems to be very similar to traditional practice as described in section 3.3. It remains primarily a source of inspiration and ideas rather than a constricting standard (see 4.3.2). Interviews do not suggest any reduction, increase, or change in this influence.

Tools and technology remain influential, with the main impact being the influence of physical, digital, and imaginary tools. Interviewees report, for example, that the influence of calligraphic tools and traditions is strong but indirect and not always helpful (see 4.3.3). Designers continue to occasionally use physical tools to discover new, creative solutions (see 4.4.6), however *there is a tendency for physical tools to become abstract over time* (see 4.4.4). For example, although italics are often inspired by the flexible pen tradition, few designers have ever written with one. The structures and curve modulation of the tradition have become aspects of an imaginary tool. Interviewees say that *the influence of digital tools, such as the Bézier curve, tends to be more negative than positive*, and can restrict and hinder the design process (see 4.4.4). *One particular tool-based technique— manual or digital sketching—seems to have a strongly positive and helpful influence* (see 4.4.5), particularly as a means of discovering ideas and solving design problems.

Business still has a powerful influence on italic design, mainly due to the effect of user and client priorities. For example, the timing and sequencing of italic compared to roman is highly sensitive to these pressures, despite designer efforts to educate and inform clients (see 4.2.2). In addition, there is pressure to release matched sets of roman and italic. Unmatched sets do not sell as well as matched ones (see 4.2.3).

Interview responses also suggest that there is another strong influence on italic design—learning (see 4.7.1). *Designers primarily develop their italic design processes and sense of individual taste through personal observation and analysis.* This explains why there are so many different opinions and practices regarding aspects of italic design (see 4.1.4). *This learning is supported through networks of relationships*, but designers still choose their own techniques and design according to their personal tastes (see 4.8.5). The long-term effect of individual learning experiences significantly influences italic designs, but mainly indirectly.

4.8.3   Balancing roman and italic

The primary criteria for determining italic 'success' seems to be an effective relationship between roman and italic (see 4.7.2). There is no clear definition of what makes that relationship effective, but it seems to relate to managing a balance between the need for italic to maintain a visual connection with the roman and the requirement that italic stand out as something different. The details of that balance are set by design priorities and can differ from project to project.

The design of the roman remains highly influential in the design of the italic, and designers use this influence to unify the two designs (see 4.2.2). This influence can occasionally be bi-directional, but that is rare. The roman may be used to set style expectations based on historical models. It may also be used as a direct source for letterforms that are digitally transformed to provide a starting point for an italic. For example, italic capital forms—for any style—are usually roman capitals that have been sloped and slightly

adjusted. Designers also use features and motifs to keep roman and italic connected (see 4.5.3).

Differentiation of italic from roman is achieved through a careful variety and balance of techniques (see 4.4.6). These techniques involve adjustments to the characteristics, properties, structures, and features of an italic (as described in sections 4.3 and 4.4) in order to make it look less like the corresponding roman. Examples are: adding slope, changing letterform structure, changing texture, adjusting design proportions (mainly width), and applying imaginary tool features. *Differentiation techniques favoured by interviewees notably do not include changes to other properties, specifically weight and colour* (see 4.5.2). The challenge seems to be to find the right balance of techniques that create differentiation without making the italic look too unrelated to the roman.

4.8.4   The personal nature of italic design

A result of interviews is that italic design is highly personal, subjective, emotional, and driven by a desire for creative freedom and innovation. It appears that decisions regarding every aspect of italic design, throughout all stages of the process, are partially or wholly based on personal preferences and taste. For example, the choice and use of digital and physical tools— such as how to correct optical distortion— is highly personal and is influenced by a designer's learning experiences. Techniques are learned from others, but are applied in unique, individual ways (see 4.4.4).

Decisions made as a result of evaluation efforts are often based on subjective criteria that designers cannot always explain and do not claim to understand (see 4.7.2, 4.7.3). There is at times a strong emotional component in these judgements. Creating something that expresses personal freedom and has aesthetic value seems to drive forming processes (see 4.3.3). *A culture of personally-driven learning leads to decision-making that is free from objective standards and encourages the development of personal tastes and processes. It may also explain the lack of documentation and advice regarding italic design.*

This personal nature of italic may be the most powerful overall influence in italic design as it affects how all other influences and techniques are applied.

4.8.5   Towards an italic design framework

This series of conversational interviews reveals contemporary italic design to be a complex and diverse activity. There are some overarching and useful ways of analysing the design process, such as the five-stage model, the four influences, and details of design aspects (style characteristics, design properties, letterform structures, features/motifs). However these do not directly take into account the experience of italic design, nor do they provide guidance for how a designer should, or could, approach the process.

This summary of interview responses points to possibly the most significant finding of this research: *that italic design is less about specific techniques than about methods of approaching the design process.* Any framework for discussion and analysis of italic design will need to address this combination of processes, influences, techniques, and experiences. It will need to acknowledge the personal nature of the italic design process and provide the means for sifting through the many options to discover appropriate methods for each situation. Development of such a framework is the focus of the next chapter in this thesis.

5 A framework for approaching italic design

The historical and contemporary research presented in previous chapters confirms that a comprehensive and robust approach is needed in order to adequately describe and discuss the italic design process. Prior to this research there has been no detailed description of the process, nor any framework, model, or theory that fully takes into account the particular considerations of contemporary italic design. A broad and inclusive approach could be useful to designers and educators as they consider and discuss existing and future italic designs.

This chapter proposes a new framework[1] for describing and discussing the italic design process as it relates to contemporary practice, including a fresh look at historical inspiration. It presents a method of approaching and analysing the design process and gives examples of how the framework might be applied in various contexts. Finally, it discusses the boundaries and potential limitations of the framework.

This framework is built upon the foundation of the historically-based general type design process model first presented in chapter 3 and refined further through interviews with designers (chapter 4). Figure 4.101 illustrates this revised model that more accurately reflects contemporary italic design practice.

Italic design also has particular considerations that extend beyond that revised model:

- The need to balance differentiation and connection between italic and roman
- A greater focus on working methods and the role of tools and techniques
- An expanded role for testing and evaluation due to the many contexts within which it may be used

This framework incorporates these additional design challenges and introduces two new concepts for describing designer decisions regarding differentiation and connection: *balanced differentiation* and *italic tension*.

5.1 Framework purposes and requirements

For a framework for italic design to be useful and accurate it needs to both fully describe the design process and be practical and relevant to designers and anyone interested in the italic design process. It needs to be broadly applicable in a variety of contexts and to the full range of italic designs. It needs to be comprehensive and address all aspects of and issues related to italic design. The framework proposed in this chapter addresses the following purposes and requirements.

5.1.1 Purposes

The most direct and minimal purpose of this framework, and of this research, is *to describe and document the design process for contemporary, Latin-script, secondary italic text typefaces*. In order to be broadly relevant

and useful, this framework is also designed to address a wider range of purposes, as described in chapter 1:

- To shed light on the italic design process and reveal previously undocumented sources, methods, and influences that shape the process
- To inform designers and type users of the unique requirements and issues of italic design
- To give type designers a comprehensive method of planning and approaching italic design that encourages confident exploration of the full range of design tools and techniques
- To stimulate and enable discussion and critical analysis of existing italics and provide a foundation for informed evaluation and improvement
- To provide a conceptual foundation for further research, such as the design process for other type styles or the development of secondary 'italic' styles for world scripts other than Latin

Section 5.3 provides examples of how this framework can be applied for some of these purposes and across a range of contexts.

5.1.2 Requirements

In order to fulfil these purposes and represent the breadth of italic design practice, this framework:
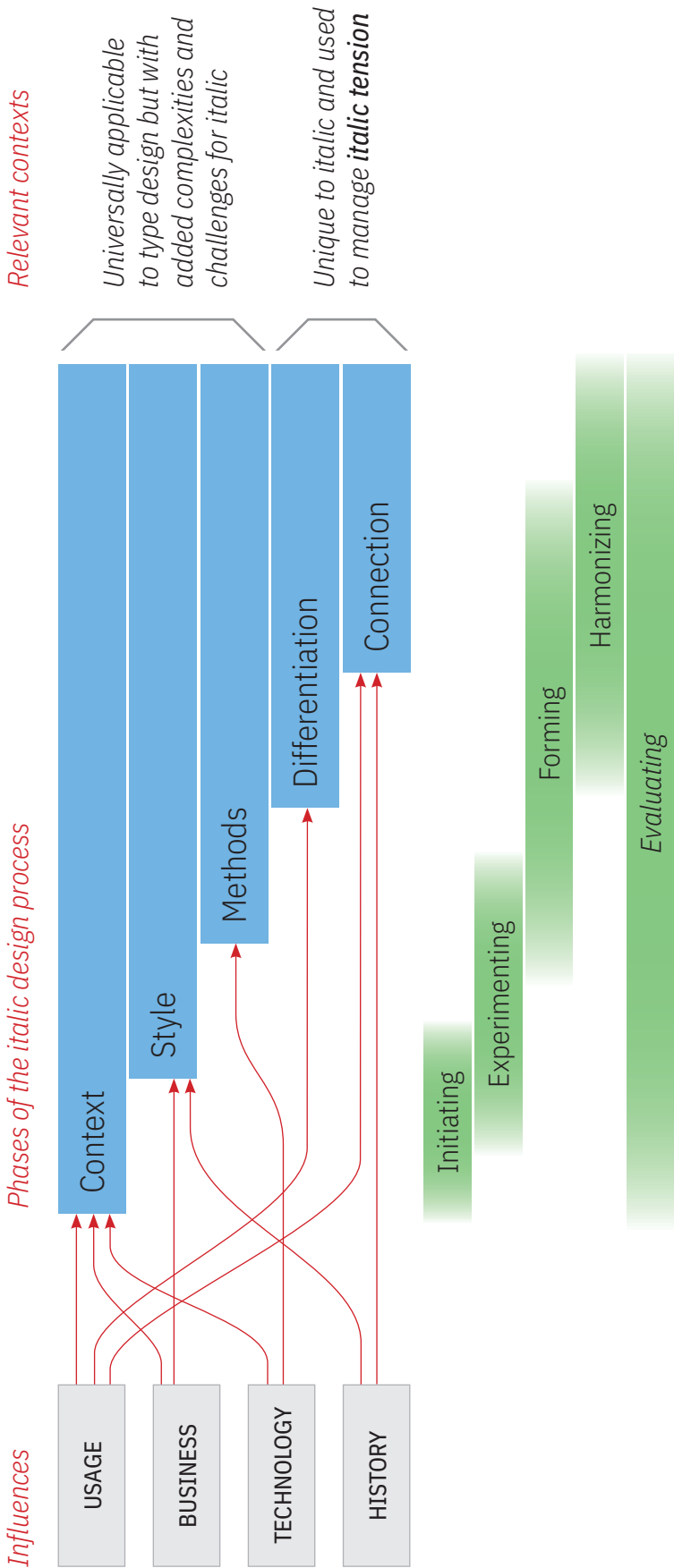
- Considers the complete design process, from initiation to final harmonization, including testing and evaluation
- Presents the phases of the process in their most common sequence, but recognizes that the process is not always sequential
- Identifies the major influences on design decisions and which phases of the process they affect
- Avoids restrictive or prescriptive assumptions (e.g. that all italics should be slanted or cursive)
- Acknowledges the full range of design techniques used to create italics
- Highlights unique aspects of the italic design process and how it differs from the more general type design process
- Describes current designer practice but recognizes the foundational role of history in forming that practice
- Represents the experience of a broad range of designers from different backgrounds and places

5.2 A decision-focused italic design process

This framework consists of a description of the contemporary italic type design process in five phases, including a new approach to historical inspiration and introducing the concept of *italic tension*. It provides examples of designer decisions that relate to each phase, an examination of relevant influences, and examples of how the framework can be applied.

The italic design process (Figure 5.1) has five phases that each reflect specific types of decisions made by designers. This focus on decisions reflects the definition of a *designer* as anyone who participates in making

Figure 5.1. A decision-focused italic design process. The phases of the italic design process reflect the most common sequence of design decisions. For example, establishing the context for the italic is the first phase of the process and continues to affect decisions throughout development. Managing italic tension—the level of differentiation and connection with the roman—tends to occur later in the process and parallels the Harmonizing stage of the general type design process. Related stages of the general type design process are based on the model presented in section 3.1.2 as revised to reflect contemporary italic design practice (see 4.8.1). Influences on the italic design process are presented with arrows indicating common paths of influence (see 3.2–3.5).

Influences

USAGE
BUSINESS
TECHNOLOGY
HISTORY

Phases of the italic design process

Context
Style
Methods
Differentiation
Connection

Relevant contexts

Universally applicable to type design but with added complexities and challenges for italic

*Unique to italic and used to manage **italic tension***

Initiating
Experimenting
Forming
Harmonizing
Evaluating

Related stages of the general contemporary type design process

design decisions (see 3.1.1). It recognizes that design activities are driven by decisions, and that influences on the design process primarily affect decision-making rather than particular actions.

The five phases are described as groups of related decisions. The first three phases are universally applicable to non-italic type design processes. Italic, however, introduces further complexities and challenges:

- *Establish context.* Determine the purposes and boundaries of the design, based on intended use, business priorities, and technical requirements, and how those limit the range of design options.
- *Identify style influences.* Assess how historical patterns, user expectations, current trends, and competition will affect the design, including issues of personal taste and style.
- *Decide on working methods.* Decide which design techniques and processes to use, both manual and digital.

The final two phases are focused on managing *italic tension*:

- *Choose differentiation techniques.* Determine how to achieve *balanced differentiation*—the particular mix of techniques that will provide the needed amount of differentiation from the roman.
- *Determine connection with roman.* Decide how to provide a perceived sense of relatedness between italic and roman while maintaining the needed amount of differentiation.

These phases are presented in a sequence that reflects the most common order in which kinds of decisions begin to be made. Although the practice and experience of italic design is highly diverse and reflects the unique personal background, preferences, and taste of the designer, it would be inaccurate to model such a process as a rigid set of sequential actions. The decision-making process, however, does seem to cluster into five phases and in an order common to the practice of most designers. Once a phase of the process has begun (for example, *Establish context*), decisions related to that phase may continue alongside decisions from other phases.

Decisions in these five phases are affected by the four main influences on italic design: usage, history, technology, and business (see chapter 3). Details of this influence are presented within descriptions of each phase.

The following sections describe each phase of the italic design process. Examples of specific questions a designer asks and the decisions they make are presented on facing pages alongside the descriptions.

5.2.1   Establish context

The initial decisions a designer makes when considering a secondary italic relate to its purpose and usage. These establish a context for the design: why it exists, how it will be used, and what technical requirements and limitations need consideration. This context may limit the range of design possiblities but may also may inspire creative solutions (see 4.3.1). The roman design itself provides a further visual context. Figure 5.2 lists some examples of the questions a designer asks during this first phase of the process.

Due to user expectations and business pressure, a secondary italic has become a basic requirement for most roman text typeface families (see 4.2.3). As a result, the first design decision made about an italic is often how much textual differentiation (contrast) is required—how much a single word or phrase needs to stand out within a body of upright roman text.

Will every roman weight need a corresponding italic?

What will be the primary uses for the italic?
How much will it be used for single words and short phrases in text?
How much will it be used for whole paragraphs or articles?
Will it be used on its own, without the roman?

How important is it that the italic 'stand out' and draw attention?

What technical constraints or requirements need to be considered?
What is the intended medium: print, screen, web, mobile?
What is the target range of type sizes?
What will be the effective resolution of rendered letterforms?

What design properties need to be established from the start?

What letterform structures will be most appropriate?

Are there features that should be emphasized?

What proportions will come directly from the roman?
Will the capital proportions be based on the roman capitals?

Does the italic need to look equal in strength to the roman?

This provides an initial scope for the design and a later means of evaluating effectiveness (see 4.7.2). Two examples illustrate important context requirements that may affect decisions regarding differentiation:

- *The length of italic text spans.* Short spans, such as individual words, may require more differentiation in order to be noticed whereas longer phrases or passages may require less. If the italic will be used for whole passages or alone then differentiation becomes less important.
- *The semantic importance of the contrast.* Situations in which contrast is critically important or where the implied emphasis is vital to understanding (e.g. medical instructions, emergency procedures) may require high amounts of differentiation. This may also be needed if there is a change of meaning or speaker (e.g. editorial remarks). Less contrast may be required when the italic is used only for stylistic conventions (e.g. book titles, foreign words) as the semantic importance is usually low.

In this phase the designer also begins to consider the technological context.[2] This includes the intended publishing technology (letterpress, offset, laser, photo, electronic), medium (paper, low-resolution screen, high-resolution screen), text size, and effective resolution. These contexts can affect preliminary decisions about design properties (e.g. slope angle), letterform structures, and the importance of distinctive features. For some contexts, such as italics intended for screen or low-resolution environments (see 4.6), these decisions are often made early in the design process.

The upright roman provides a visual context that establishes basic boundaries for the italic early in the design process. It sets vertical parameters that also apply to the italic: line height, ascender height, capital height, initial x-height, descender depth. It establishes a general sense of proportion—whether both roman and italic should seem compressed or wide. This is particularly applicable to the design of italic capitals, which may have letterforms based directly on upright capitals.

A related decision is how strong or heavy the italic needs to appear in comparison to the roman. An italic is traditionally slightly lighter in weight than the corresponding roman, however if long passages in each are set side-by-side the italic text can look weaker or less important. This may be useful if the text is secondary in nature (e.g. translation, commentary), but becomes a problem if the passages are to be considered equal in stature or authority (e.g. French and German texts in a multi-lingual EU official document). A notable trend in contemporary design is that italics are less likely to be lighter than the roman (see 4.4.1).

5.2.2 Identify style influences

The second phase of the italic design process involves identifying style influences. The overall style is often driven by user expectations and business concerns, and may be rooted in a particular historical tradition. It is further shaped by current trends and the designer's personal style and taste. Examples of the types of questions a designer asks related to style and the decisions they make are listed in Figure 5.3.

Style can be described as a combination of subjective characteristics, design properties, letterform structures, and features/motifs (see 2.3). At this point in the design process the focus tends to be on choosing and prioritizing the more subjective characteristics: cursiveness, dynamic

2   In the past some adaptations for specific technological contexts could not be applied until late in the design process, such as adjustments for particular hot metal or phototypesetting technologies (see 3.1.2). This continued into the digital era with hinting—traditionally considered to be a production rather than design activity. However hinting is now well-integrated into design tools and workflows and can happen earlier in the process.

What style characteristics are most important in this italic?
What style characteristics are least important?

Does the italic need to follow a specific historical tradition?
Does it need to follow the same tradition as the roman?
What indirect historical influences need to be reflected?
Should it instead push against an expected historical model?

What will users expect the italic to look like?

What style of italic will be most effective for the expected use?
Are there specific use requirements that demand a certain style?

What role will the italic play in establishing a type family identity?

Does the italic need to be a virtuosic showpiece or a subtle workhorse?

How will this italic compare to the competition?

What characteristics are likely to be present due to personal style?
How can my personal style and taste be expressed?
What personal characteristics should I be careful to avoid in this italic?

texture, personal quality, creative freedom, and aesthetic value (see 4.3.3). Certain properties (e.g. slope angle) and structures may also be important and distinctive elements of the chosen style.

An important style consideration is to what extent the italic will follow or push away from historical traditions. In most cases, the style of an italic is inspired by the same historical tradition as the roman. For example, a Didot-like roman may have a Didot-like italic. However that is not always the case, and there is a need for a fresh method of describing the complex nature of historical inspiration.

History provides a valuable—and inescapable—context for style decisions (see 4.3.2). Individual traditions provide preconfigured combinations of subjective and objective design characteristics and properties that the designer can consider. These are usually treated as a source of ideas rather than strict specifications, although the approach to historical inspiration varies widely.

A fresh and more nuanced method of describing inspiration arises from the analyses of past and current designer practice presented in earlier chapters. These analyses confirm that there are five distinct approaches to historical inspiration (see 3.3):

- *imitative*—replicating the style and its details as closely as possible
- *connotative*—creating a similar though not identical style
- *partial*—taking only certain elements from the style
- *indirect*—emulating other current designs that follow the style
- *contrary*—intentionally choosing to differ from the style

The choice among these approaches is not always a deliberate, conscious decision. The designer may feel that a certain type of italic fits with the roman without acknowledging that the sense of appropriateness is shaped by familiarity with a particular typographic tradition.

User expectations have a strong influence on style decisions, including historical inspiration. Users may expect a certain level of historical consistency. For example, a user may choose a roman based on its style similarity to a historical tradition (e.g. Garamond) and be frustrated if the italic does not match the expected style (e.g. is a sloped roman or humanist sans). That type of style departure may defeat the user's intended purpose. Users may also have other expectations related to intended use that are unrelated to historical consistency (e.g. effectiveness when used for small captions). When these expectations are known, the designer can consider them when making style decisions.

Business purposes can be an additional factor. Most italics are products for sale, bundled as part of larger type families. The creative freedom and dynamic texture of italic may be used to give the larger family a unique character or flavour. Italics are used as showpieces to grab the attention of type consumers and get them to buy the product, or used by typographers to draw the attention of readers. The promotional and functional roles of italic motivates designers to take into account current design trends and pay attention to the style of italics that potential competitors are producing.

An internal influence on italic style decisions is the designer's own personal taste and style. The increased freedom and personal quality of italic compared to roman provides a designer with a potentially greater opportunity to express their creativity and demonstrate their own personal taste. However, the designer needs to balance this expression with practical and business requirements and choose a style that will address user expectations, even if that means deliberately avoiding some preferred personal style characteristics.

Figure 5.4. Questions a designer
asks and decisions they make
related to working methods.

When do I need to begin working on the italic?

How much of the roman needs to be completed beforehand?
Might the italic have an influence on the roman?

Will the italic be a sloped roman?
If so, what further adjustments will be needed?
If not, will a sloped roman be used to set initial letter proportions?
Or to be a rough template for sketching?

Will draft shapes be produced on screen or on paper?
What role will manual sketching have in the design?
Will sketches be scanned as guides for digital design?
Will digital sketching have a role?

What type of tool logic will influence the design?
Will it involve use of calligraphic tools?
What calligraphic elements, if any, will be present in the design?

5.2.3 Decide on working methods

In the third phase of the italic design process the designer decides on a strategy and method for producing the italic through digital technology and manual tools. This usually involves either transforming the roman to produce draft letterforms or using tools to sketch or prototype ideas. The designer may mix these digital and manual methods to discover and refine final letterforms. The decision of which of these strategies to use depends on a variety of factors: chosen style, personal preferences, training, established habits, and the nature of the tools and technology itself—whatever seems to be the most effective and appropriate method for the particular project. Figure 5.4 provides examples of the types of questions a designer faces related to working methods.

Many designers choose to begin their italic by digitally sloping, and optionally compressing, the roman forms. This assumes that the roman forms are already in a reasonably final form. If the chosen style is to be a purely sloped roman, the designer will often adjust the resulting forms to correct optical distortions. The final slope and compression values for these are then adjusted in later phases of the process (*Differentiation* and *Connection*) to achieve the desired contrast with the roman. These sloped and corrected romans are common in some styles (e.g. geometric sans) and for some character ranges, particularly capitals. Even if the intended design is not a sloped roman, the designer may use sloped forms as the starting point for a design, gradually adjusting the forms to give them more italic qualities.

The designer may instead choose to begin with 'sketching' (see 4.4.5). This is often used when the italic forms will have no direct shape or proportional similarity to the roman. It can also be begun at any time as it does not depend on a completed roman. Most sketching seems to fall into one of three types, although the borders between the types can be indistinct:

- *Calligraphy*. Using tools (broad-nibbed pens, flexible pens, brushes) to write out draft letterforms based on the natural shapes produced by the tool. This rarely results in final letterforms but is used to discover and establish common italic style characteristics (cursiveness, dynamic texture), thick/thin stroke relationships (contrast), and tool-related features/motifs.
- *Drawing*. Producing abstract shapes on paper with pencil and eraser or other tools, typically by building them up through a series of strokes that eventually produce a letterform. This can produce shapes that are not bound by calligraphic tool limitations and demonstrate the creative freedom that is often associated with italic letterforms.
- *Digital sketching*. Using on-screen digital techniques to prototype and refine shapes. The purposes—and in some cases, the techniques—are similar to manual drawing, however the pencil/eraser dynamic is replaced with manipulating bézier curves and applying digital transformations.

As seen with digital sketching, the tools and techniques of manual methods can be applied in alternate, abstract ways. A designer may use their knowledge of 'tool logic'—the shapes and curves that a tool naturally produces—to apply aspects of the visual behaviour of a tool without manual effort.

What level of differentiation is required?
Does the chosen style provide a sufficient amount? Or too much?

What will be the average slope angle?
Will slope remain consistent among individual letters?
Will it be the same for the range of optical sizes?

How cursive will it be?
Will it be more interrupted or continuous?
Will the forms connect in some way?

What italic alternate forms will be used?

Will it have the serifs of the roman, no serifs, or italic entry/exit strokes?
How heavy, long, and angled will the serifs be?

Will the italic be compressed in relation to the roman? How much?
How similar will individual letterform proportions be to the roman?

What balance of differentiation techniques will be used?
Does intended use suggest or discourage any particular techniques?

Digital and manual techniques are often used together, maximizing the benefits of each. The results of manual techniques eventually need to be reinterpreted into digital outlines, whether that is done through a process of scanning and redrawing or by using the manual results as a rough visual guide. The manual to digital process can also be reversed. The designer may slope the roman forms, print them out, and sketch over them to replicate the roman's proportions, spacing, stroke weight, or unique features/motifs.

The choice of a working method does not directly predict the resulting forms, as the designer can later make adjustments. Nor may the particular method used be identifiable in the end product. However the designer may choose a working method because it is the most effective means to achieve a particular style or appearance.

5.2.4 Choose differentiation techniques

The fourth and fifth phases focus on managing *italic tension*—establishing a perceived sense of connectedness between italic and roman while maintaining the required amount of differentiation. These requirements often pull a design in opposite directions.[3] The practice of designers seems to indicate that:

- *A high level of differentiation may need to be paired with a high level of connection for the designs to seem related* (high tension).
- *If the level of required differentiation is low, then little effort is required—or desirable—to maintain a sense of connection* (low tension).
- *If the level of differentiation can reasonably vary, then the designer can choose the amount of tension by increasing or decreasing both differentiation and connection by similar amounts.*

This section and the next describe the techniques commonly used to manage italic tension.

The fourth phase of the process focuses on choosing the particular mix of design techniques that will be effective in providing the required amount of differentiation from the roman.[4] This differentiation is accomplished through decisions about style characteristics, design properties, letterform structures, and features/motifs (see chapter 4). The challenge is to achieve *balanced differentiation*—a balanced mix of techniques among the many possibilities. Examples of these decisions are listed in Figure 5.5.

Interviews with designers indicate that there are six techniques commonly used to make an italic appear different from the roman.[5] The designer chooses which of these six techniques to use, and to what level for each, in order to achieve the required amount of differentiation. No technique is strictly required, nor is any one typically used alone, except slope. These are, in order from most to least used (see 4.5.2):

- *Slope.* This is the design technique most closely associated with italic, and usually ranges from 7°–13°, although italics can be upright (0°) or extremely slanted (20° or more). Slope may vary between widths and optical sizes, or between individual letters, or certain groups of letters (e.g. capitals). The general principle applied by designers seems to be to use no more slope than is necessary, and in proportion to its importance to the visual appearance of the design (see 4.4.1).

3   Differentiation and connection are, however, not strict opposites, as the techniques used to achieve them are not symmetrically matched (see 5.2.5).

4   The required amount of differentiation is driven by usage and usually determined earlier during the *Establish context* phase.

5   There are other ways in which an italic can differ from the roman, but are not included here because they are either infrequently used to achieve differentiation (e.g. weight) or are only used to compensate for optical effects (e.g. height).

Figure 5.6. (below) Diagram of applying the balanced differentiation model to a project. Each differentiation technique is given a scale used to record the level to which that technique is applied, from a base level at or close to the roman to a reasonable extreme very different from the roman. The overall level of resulting differentiation can then be roughly approximated by adding the magnitudes of the six levels together. In this example, the italic described has moderate slope (10°) and cursiveness, minimal alternate forms, no serifs or terminals, a high level of compression (20%), and proportions only moderately different from the roman. If the level of one technique (e.g. compression) is changed others (e.g. cursiveness, alternate forms) must be adjusted in order to retain a similar level of differentiation.

	0°	5°	10°	15°	20°	25°
slope						

	none	slight				fully connected
cursiveness						

	none	a and/or g	few			many
alternate forms						

	roman	none	small/short/flat			large/long/steep
serifs/terminals						

	none	2%	5%	10%	20%	more
compression						

	roman					different
proportions						

levels indicating movement away from roman

levels indicating movement closer to roman

	all					none
shared structures						

	roman					different
height						

	many					none
features/motifs						

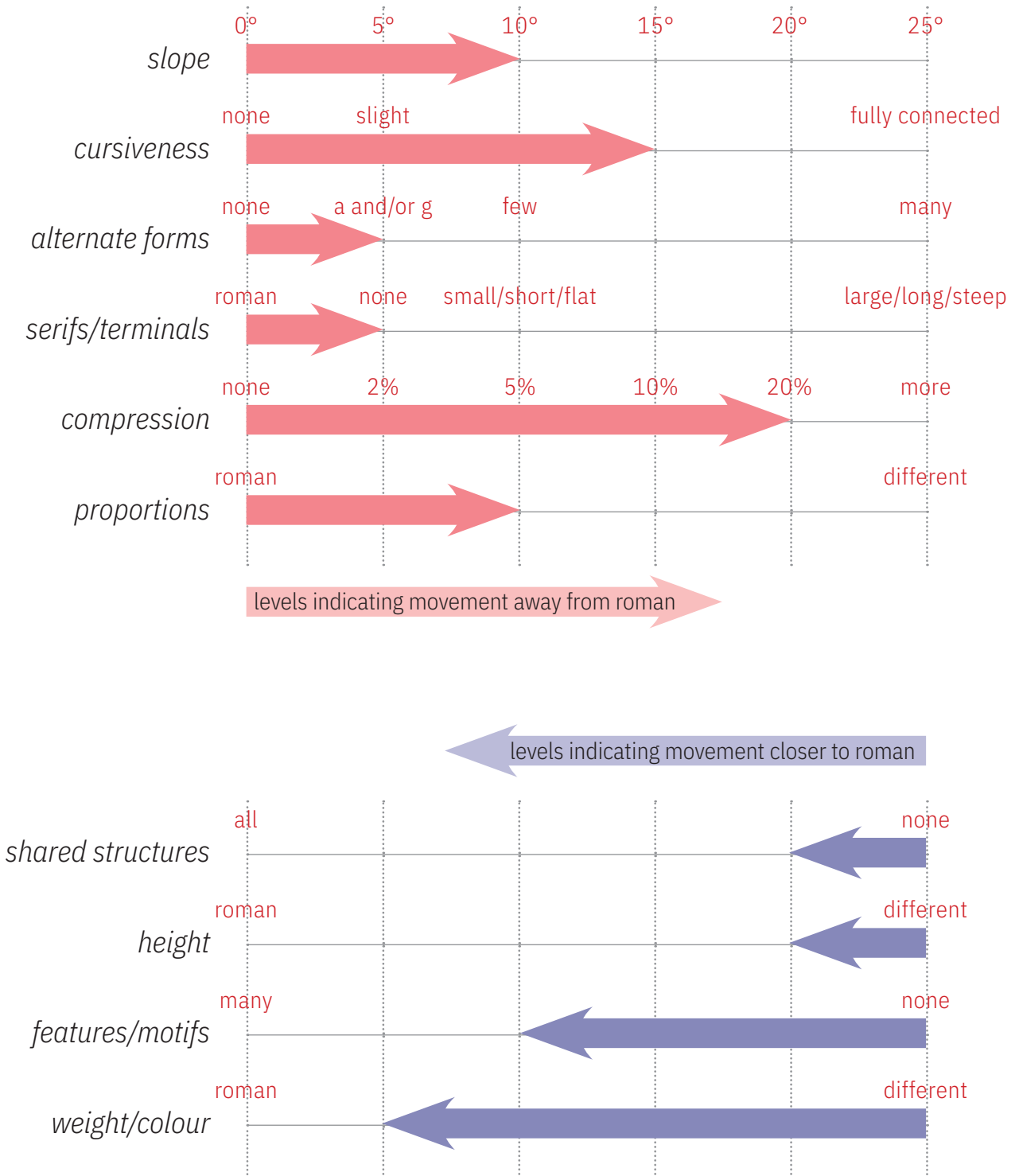|	roman					different
weight/colour						

Figure 5.7. (above) Diagram of applying connection techniques to a project to manage italic tension. It is similar to the balanced differentiation model, but with levels moving towards the roman. In this example, the italic shares very few structural similarities to the roman, possibly only the capital forms. It differs in height from the roman, but is closely balanced in weight and colour. The connection with the roman is then strengthened by incorporating roman features and motifs.

- *Cursiveness.* This style characteristic describes qualities shared with calligraphic forms: real or implied stroke connections between letters, uninterrupted (continuous) letter construction, a flowing or running or dynamic texture, and greater stroke curvature (see 4.3.3). Designers find these to be highly effective in establishing contrast, as they are rarely found in roman forms and are strongly associated with italic. The amount of cursiveness cannot be objectively measured, however it can be subjectively judged on a scale from none (same as roman) to fully connected.

- *Alternate forms.* Designers use differences in letterform structure to increase contrast with the roman (see 4.4.2). The most common and expected—but not required—of these are the single-storey **a** and **g**. Additional alternate forms strengthen differentiation and may come from historical traditions or be uniquely creative.

- *Serifs/terminals.* Designers often replace the flat serifs of roman with terminals in the italic—entry and exit strokes from the calligraphic tradition that appear on the upper left and lower right corners of the letter. The strength of these terminals may range from small to large, short to long, flat to steeply angled, independently resulting in increasing levels of contrast with the roman. The serifs of the roman, however, may be retained unchanged or removed without replacement (see 4.4.2).

- *Compression.* Italics are usually slightly compressed (2–4%), but can range from uncompressed to extremes of 20% or more (see 4.4.1). This change in texture has historical precedent and is also used to offset optical effects related to sloping. In some cases, compression is not appropriate (e.g. monospace designs) or not desirable (e.g. for screen use).

- *Proportions.* Some italics, particularly sloped romans, share the same relative letterform proportions as the roman. This is even possible when other aspects (e.g. cursiveness) are changed. Designers may alter these proportions to increase differentiation, accommodate changes to terminals, or to follow a historical style.

A particular mix of these techniques may be suggested by the choice of style, as is often the case with historically-inspired designs. The designer may choose to follow the expected style aspects closely or to intentionally break away from them. They may iteratively experiment with various techniques, review the results, and make adjustments until they find a good balance. A decision to reduce use of one technique may require an increased use of other techniques for the italic to remain distinct.

This framework proposes a new iterative model for describing these decisions: *balanced differentiation* (Figure 5.6). Each technique is given a scale used to record the level to which that technique is applied, from a base level at or close to the roman to a reasonable extreme very different from the roman. The overall level of resulting differentiation can then be roughly estimated by adding the magnitudes of the six levels together.

Interviews suggest that the designer chooses one or more techniques to apply at an initial level, based on context and style choices. The resulting design is then tested.[6] If that mix of techniques and levels does not provide enough differentiation then more techniques are used, or the level of one or more techniques is increased. If there is too much differentiation then levels are decreased. The design is tested again and readjusted until the differentiation matches what is required, providing a balanced mix. Later

6   This testing is often informal, in limited contexts, and possibly with a reduced character set—using only what is needed to judge the result.

Figure 5.8. Questions a designer
asks and decisions they make
related to determining the
connection with the roman.

How closely does the italic need to resemble the roman?
How will the roman and italic be visually related?

Will some aspects remain consistent throughout the type family?
Are there certain characteristics that are important for family identity?

Are there established historical traditions that can imply a connection?

What techniques will be used to strengthen the visual connection?
Will the italic have similar letterform structures?
Will it have any sloped roman forms?

Will capital forms be based on the roman?

Will the italic share the same perceived heights/depths as the roman?
Will the italic need to be scaled up/down to visually balance the roman?

What features/motifs from the roman could be applied to the italic?

Will the italic have the same perceived weight and colour?

What balance of these techniques will be most effective?

How will the amount of connection balance with differentiation?

adjustments to the level of one technique then need to be balanced by adjustments to other techniques in order to keep the total amount similar.

The diagram in Figure 5.6 provides a visual tool for documenting the techniques and levels used. It illustrates the types and effects of decisions made by designers, such as:

- *What might I increase to raise the overall level of differentiation?*
- *If I increase compression what might I need to reduce?*
- *Should I use all six at a low level, or only two at a higher level?*

The model is not intended to be used in a strict, quantitative manner. The difference in effect of a one-level change in one technique does not objectively equal the effect of another.[7] However the model does illustrate that changes to the use of one technique need to be balanced with changes in others, and that there is no single combination of techniques that provides an ideal balance.

5.2.5 Determine connection with roman

In the final phase of the design process the designer works to keep the italic connected and in harmony with the roman and other members of the type family in order to manage *italic tension*. The techniques used to establish a perceived sense of connection are different from those used to create differentiation. The goal is to produce a final italic that is perceived to be related to the roman but is different enough to be effective. Figure 5.8 lists some of the questions a designer asks and decisions they make in this phase of the process.

Designers seem to use four primary techniques to achieve a sense of relatedness or connection, although the goal is often a perceived rather than an objective relatedness. These are in order of most to least used (see 4.5.3):

- *Shared structures.* Designers may use similar or identical letterform structures to establish a strong connection with the roman. The most common example is for capitals, where the italic is often a sloped roman, even in highly cursive styles. Intentional use of roman structures can be useful for individual lowercase forms, particularly the use of double-storey **a** or **g**. The similarity may instead be more subtle, such as using a common interrupted construction.
- *Height.* Equalizing perceived height was one of the earliest techniques used to connect roman and italic (see 3.2.3), and remains a standard technique. Sloping and other differentiation techniques can make letterforms appear to have a different height than their roman counterparts, so a designer may slightly reduce (by 1–3%) the x-height of the italic so it is perceived to be equal to the roman.[8]
- *Features/motifs.* The designer may choose to incorporate specific features or motifs of the roman into the italic, such as details of serifs (length, curvature, tip design), the height and position of joins, a certain curve construction, or elements such as ball terminals. Designers use these to give the roman and italic a similar aesthetic or 'flavour'.
- *Weight/colour.* Equalizing the overall colour or weight with the roman increases a sense of connection. Contemporary designers seem to be using this technique more often (see 5.2.1).

7   For example, it is unlikely that the effect of a 5% change in compression would be exactly equal to the effect of a 5° change in slope.

8   Capital, ascender, and descender heights are commonly also set to complement the roman, although the visual effect is less significant since they are less frequent than x-height forms.

The effectiveness of these techniques may be affected by usage, with some becoming less effective in certain contexts (e.g. small or low-resolution text).

Although not a technique in itself, historical traditions can have an effect on perceived connection. Certain roman styles (e.g. Garamond) have generally expected and accepted italic style counterparts (in this case, Granjon). A purely sloped roman would be the expected style for a geometric sans serif. If the designer does not follow these conventions, a higher level of connection techniques may be needed to strengthen the perception that the designs are related.

Figure 5.7 illustrates how the four connection techniques can be used to push a design back towards the roman in the process of managing *italic tension*. As with *balanced differentiation*, the level of each technique can be documented and iteratively adjusted until the overall level of connection provides the most effective balance (tension) with the roman.

In summary, the early phases of the italic design process focus on decisions related to context, style, and methods. In the final two phases, as the design of an italic approaches completion, the designer faces the challenge of managing *italic tension* between differentiation and connection. Although differentiation is often the initial goal, the designer is soon faced with making decisions about how to retain a sense of connectedness, and balancing the two needs.

This five-phase framework both describes designer decision-making and provides a method of approaching the design process. The next section explores how the framework can be applied for both analysis and project planning.

5.3 Applying the framework

This framework can be used to accomplish the purposes listed in section 5.1.1: to document and shed light on the italic design process, inform, provide a planning method, stimulate discussion, and enable further research. This section provides three examples of applying the framework, then discusses the boundaries and limitations of its use.

5.3.1 Three ways to use the framework

Three examples illustrate how this framework can be used to plan, analyse, and evaluate italic designs and the design process.

Planning the development of a new italic design

A designer faced with developing a new design could use the framework as a planning tool. This would be particularly helpful for designers new to the design of italics, but might also provide focus for the work of experienced designers.

The designer could review the five phases and identify which decisions need to be made in each phase, paying attention to the influences that are most relevant. They might focus first on establishing the usage, business, and technical context. Decisions about style influences and working methods would follow. The final letterforms could then be designed within these boundaries and evaluated on their effectiveness in providing both differentiation and connection. The lists of questions and decisions could be used as an informal checklist of issues to consider and address. These might also make it easier for a designer to document their decision-making process for a project and share it with others.

An important characteristic of the framework when used for design planning is that, although it describes in detail the potential decisions a designer could make, and suggests a common sequence of decisions, it does not prescribe any particular method or sequence, or place limits on designer decisions.

Analysing an existing italic design

The framework could also be used by both type designers and type users to analyse existing italic designs. The goal would be to identify particular characteristics of the design and discover possible reasons for each design decision. This could be used in designer education and typographic research to enhance understanding of the processes of past designers and reflect on current, evolving practice.

An analysis process might proceed backwards through the phases, first identifying what characteristics the italic shares with the roman, then noting the levels of differentiation techniques used. This detailed visual analysis could shed light on possible working methods. The combination of techniques used could be compared with historical designs to identify specific style inspirations. Finally, the techniques could be studied for how they address known context requirements, or to hint at possible context influences.

Using the framework for analysis may produce inconclusive results, or fail to establish that a certain feature or design characteristic had a distinct purpose. The framework, however, enables a greater depth of analysis than is commonly applied, and provides a robust and systematic method. The process of detailed technique analysis may result in greater insight and thoughtful investigation. The framework may also help to identify and describe unique and notable instances where designs depart from common practice.

To evaluate the potential effectiveness of an italic design

Evaluating the potential effectiveness of a italic is difficult, as the nature of evaluation is highly subjective and strongly influenced by personal taste (see 4.7.2). This framework, however, could provide more clarity and directed analysis, encouraging rational judgement with regard to how well the italic meets the needs for specific contexts, such as use on mobile devices.

An evaluation process informed by this framework could initially use the questions in the first *context* phase to identify and document the full range of needs and establish a set of requirements and boundaries. It could then focus on the specific mix of techniques used in the differentiation and connection phases to determine whether that combined set of techniques met the requirements. That process might also identify specific characteristics that make the design more or less suited for the identified contexts. If the italic was still in the design process, such analysis might give the designer highly useful feedback from which to improve the design. Although this use of the framework can provide additional information for evaluative analysis, it cannot guarantee any higher level of quality or accuracy in evaluation.

The following section addresses some of the inherent limitations of the framework and its application.

5.3.2 Boundaries and limitations

As with any framework, this one has boundaries and limitations that may restrict its usefulness in some situations and point to areas that deserve further research and investigation.

The framework may not be fully applicable for italics designed before or in parallel with a corresponding roman. There is an assumption that design decisions are made in the context of an existing roman design (as noted in 5.2.1). The framework cannot be assumed to fully describe the design process for italics designed independently or prior to a corresponding roman, although some of the decisions and actions may be similar.

It may not accurately model the process for italics driven primarily by designer creativity and self-expression rather than practical use. The framework is based on the results of interviews with designers who described projects that, in almost all cases, were intended for a specific use, business, or technological context. Even though that was not strictly the case, it is assumed that design decisions are driven initially by context. The framework may still be useful without a context phase, but possibly with limited usefulness.

Despite efforts to make it generally applicable, the framework is necessarily distilled down to describing common paths in historical and contemporary practice. Interviews confirm that projects may occasionally depart from the process described in the framework. Type design is inherently personal and difficult to codify, as it relies heavily on visual judgements and individually-developed practices. However this framework acknowledges that there can be variations in methods, techniques, sequencing, and parallel phases of development. Additional discussion of variations in process and methods is addressed in chapters 3 and 4.

The framework is not designed, nor intended, to be used for establishing standards for design process development. It does not prescribe a set of decisions that must be made—or made in any particular sequence. Some questions and decisions are irrelevant for certain contexts or can only be addressed at a different point in the process. The designer needs to consider how and when to address relevant decisions suggested by the framework for their individual projects.

In the present form, it is only intended to apply to Latin-script italics. This research project was not intended to gather enough information regarding 'italics' for other world scripts. It may be possible to extend the framework to make portions of it relevant for other scripts—a possibility discussed in more detail in the next chapter.

These limitations were reasonably expected and mostly anticipated in the initial research questions (see 1.2).

5.4 Summary

The decision-based framework proposed in this chapter describes the italic design process as it relates to contemporary practice and in the light of historical tradition. It presents a five-phase method of approaching and analysing the design process:

- · Establish context
- · Identify style influences
- · Decide on working methods
- · Choose differentiation techniques
- · Determine connection with roman

It acknowledges the four main influences on italic design (usage, history, technology, and business) and introduces two new concepts for describing how designers achieve both differentiation and connection with their italics: *balanced differentiation* and *italic tension*. It then gives examples of how the framework might be applied to plan, analyse, or evaluate an italic design.

The next chapter reflects on the overall results of this research project and explores how those results may be extended to have a broader impact, including application to world scripts other than Latin.

6 Conclusion

The aim of this research has been *to describe and document the design process for contemporary, Latin-script, secondary italic text typefaces.* A set of fundamental research questions shaped this investigation:

- How do designers approach the design of italics?
- What influences these designs?
- What creative techniques and processes do they employ?
- How do technical and usage considerations inform design?
- What are the roles of culture and tradition?

This research has sought to answer these questions through a thorough analysis of both historical and contemporary practice. Historical practice and traditions were approached through the study of published accounts, articles, promotional material, reviews, and direct analysis of italic typeface characteristics (chapter 3). Contemporary practice was documented and analysed through interviews with 23 currently-active designers who represented a broad range of training and experience (chapter 4).

This strategy proved to be effective and provided a rich set of material useful for documentation and analysis. It uncovered previously undocumented processes and techniques. It enabled comparison between historical and contemporary practice and analysis of changing trends. This information sufficiently addressed the primary research questions. In addition, further analysis enabled the construction of a practical framework for description and discussion of italic designs (chapter 5).

While focused on the italic design process, this research has revealed and refined useful ideas and models that may have wider relevance to the general type design process, methods of design research, and linguistics. The following sections discuss these contributions to knowledge and explore potential future applications, in particular, to other secondary styles and scripts beyond Latin.

6.1 The general practice of type design

It is not surprising that this research led to a deeper investigation into the general past and present practice of type design, as that is foundational to the specific study of italic type design. This investigation produced some significant insights into the general process that may have relevance for other research.

1   Most notably the work of Southall (1997, 2005).

While most studies of type processes[1] have focused on design as applied through production processes, this thesis has offered an alternative approach based on analysis of design decisions and a broad consideration of the role of the *designer*. (see 3.1.1). This approach produced a five-stage model of the historical design process (see 3.1.2) that is applicable to all eras and identifies the specific decisions that are considered in each stage. Analysis of contemporary practice enabled refinement of that model into four stages that reflect recent changes in practice (see 4.7.2). These analyses provide a foundation for investigation into the type design process that is free from the limitations of models based purely on production processes.[2]

2   Although this thesis does not attempt to address the specific limitations of production-based models, one example is their lack of accommodation for design decisions not influenced by technology, such as historical style inspirations.

One particular insight into contemporary practice has been the identification of a separate *Evaluation* process that spans the entire design process (see 4.7.2). The past role of evaluation and testing remains unclear from the historical record, however interviews provided sufficient and useful information on current practice, including specific techniques and the significant subjective role of personal taste and expression.

An additional finding has been a greater understanding of the ways in which history has informed and influenced design. The five approaches described in the framework (see 5.2.2)—*imitative*, *connotative*, *partial*, *indirect*, and *contrary*—provide a more granular way to describe historical influence in type design than has previously been applied. This analysis may have usefulness in other areas of design research beyond type design.

A final significant finding of this research regarding the general type design process has been clear evidence that the process evolves through changes influenced by technological developments and trends in style and usage. Examples of this include the influence of the pantograph on the development of sloped romans (see 3.4.2) and the trend towards complete, matched roman/italic type families (see 4.2.3).

6.2 The nature of italic and the italic design process

The primary contributions of this research are related to the italic design process. These include methods for describing italic designs and documentation of specific tools and techniques. The most practical outcome of this research, however, may be the development of the five-phase italic design process framework, including the concept of *italic tension*. The most significant conceptual outcome may be the identification of the multiple identities of italic and how each influences italic design.

The working definition of a *secondary italic* proposed in 2.3 proved useful thoughout this research. It provided a useful focus for both historical research and for contemporary interviews, in which it indirectly guided discussion towards practical text typefaces rather than independent designs inspired primarily by personal creative expression. Research also confirmed that the definition was appropriately inclusive of the wide range of italic styles.

Analysis of the four categories of visual italic characteristics—*style characteristics*, *design properties*, *letterform structures*, and *features/motifs*—was useful and effective in enabling detailed study of individual italics and specific techniques. It provided a strong structure for documenting the responses of interviewees and the complex interactions between characteristics, such as *slope* and *width* (see 4.3, 4.4). This approach to describing visual characteristics may also have relevance to the analysis and discussion of other styles and scripts.

A significant contribution of this thesis to the understanding of italic design has been the documentation of specific concepts and techniques used by current designers (chapter 4), including the role of three types of tools (*physical*, *digital*, *imaginary*, see 4.4.4) and the use of *sketching* as a tool for shape discovery (see 4.4.5). These constitute the most comprehensive collection of italic design techniques available.

A minor, but related, finding has been a possible explanation for the lack of documentation regarding the italic design process to date. This research has documented the personally-driven nature of learning italic design—a culture that led to decision-making that was free from objective standards and encouraged the development of personal tastes and processes

(see 4.8.4). This may have discouraged the publication of guidance regarding italic as the techniques and processes were seen to differ between designers. This research has shown, however, that it is possible to develop a unified description of the italic design process that accommodates the wide range of styles, personal tases, and practices.

The italic design process framework (chapter 5) has been the most practical outcome of this research. Based on the extensive study of both historical and contemporary practice, it identified five stages of the process and relevant decisions that relate to each stage. This has direct relevance and application for designers seeking to create a new italic design as well as those seeking a deeper understanding of existing designs. The practical value of the framework has been enhanced through four key factors:

- *It is non-prescriptive.* It does not tell a designer how to proceed, nor does it recommend particular design techniques. It rather reveals the broad set of decisions that a designer may need to address.
- *It is inclusive.* It is applicable to a broad range of italic styles and does not limit itself to a particular tradition or point of view.
- *It reveals potentially relevant influences.* It encourages designers to consider the full range of influences from style traditions to technological requirements.
- *It recognizes the need for balance.* The concepts of *balanced differentiation* and *italic tension* provide designers with practical approaches to addressing the competing needs for *similarity* and *difference* between italic and roman.

These factors have enabled the framework to be potentially useful in a wide range of contexts.

The framework has also relied heavily on the most conceptually significant findings of this research—identification of the multiple identities of italic (see 2.1) and the corresponding influences on italic design (see 3.6). This thesis has demonstrated a direct connection between each identity (e.g. linguistic and typographic usage) and the design decisions that are a consequence of that identity. The complexity and diversity of these identities and influences have also validated the two implications of multiple identities suggested in 2.2:

- *That a formal classification system of italic types is neither practical nor useful.* Although this thesis has shown that it is possible to describe the visual characteristics of an italic in both subjective and objective terms, that description involves a complex set of interrelated factors. Classification by visual characteristics alone would also have limited usefulness due to the importance of usage, historical inspiration, and business considerations. Adding more layers to account for these factors would increase the complexity of an already complex system. The framework has offered a much more useful and practical method of describing and discussing italics than any classification system is likely to provide.
- *That there is no 'ideal italic'.* This thesis has confirmed that there is no particular characteristic or set of characteristics that makes an italic 'ideal' for all purposes. Nor is there a single sequence of actions or techniques that constitute an ideal italic design process. Instead, this framework has provided a five-phase model that accounts for diversity in approaches and the influences that result from multiple identities.

Finally, the research process has documented information on the use of italics that has potential application to both typographic design and linguistic research. The list of historical and current uses of italic (appendices A.1 and A.2) is more comprehensive than any other available list, and importantly does not prescribe use but rather documents the recommendations of style manuals from five centuries.

6.3   Methods of design research

This project has developed and refined methods of design research that may have broader application beyond italics, and may be useful in documenting and constructing practical, useful theories of design practice.

The need to document both contemporary design practice and relevant historical context led to an approach that combined study of historical materials with investigation of contemporary practice through interviews. Primary and secondary historical sources rarely discussed the motivations behind design decisions, however comparison of documented accounts with the typefaces themselves and how they were used often revealed connections between influences and design characteristics.

It was important to consider the bias of some sources, for example a type specimen produced by a foundry to promote their new product. The risk in this approach was that there was no way to confirm that inferred motivations and influences were valid. This risk, however, turned out to be less significant than expected and was mitigated by two factors:

- *The research goal was not to conclusively determine the motivations behind historical design decisions, but rather to establish a context in which to examine contemporary design.* The study of historical design practice informed the approach used in interviews (topics, questions, etc.), and identified important areas of investigation. Any inaccuracies regarding interpretation of historical influences, however, would not have invalidated the responses of interviewees.

- *The responses of interviewees confirmed whether or not certain influences or design motivations inferred from the historical record were representative of contemporary practice.* Differences might have been due to changes in practice or incorrect interpretations of past practice. In either case the comparison was useful and highlighted areas for deeper investigation. In the great majority of cases, however, there was strong agreement between historical and contemporary practice.

This approach may be useful for other studies of design practice, even those outside the realm of typography and graphic communication. It uses the historical record to give context, depth, and focus to the study of current practice.

An additional strategy proved to be very useful—the identification of the multiple identities—or roles—of the subject matter. In this research, knowledge that the subject matter (italic) was both a historical marker and a business product was useful in identifying and separating the influences that each identity placed on the design of Garamond Premier Pro Italic (see 3.3.1, 3.5.1). An understanding of how an author views the subject (its identity) was helpful in interpreting narratives about the subject. This separation of identities made it easier to identify influences and recognize source biases.

This approach seems to have been more practical and useful than other methods of analysing design practice. Harkins (2018) took a strongly theoretical approach to describing the type design process, and focused on current practice, with limited reference to historical context. He also interviewed designers, but applied the rigorous methods of high-level Grounded Theory to analysing interview transcripts. The result seems to be reasonably accurate in describing the type design process at a high conceptual level[3], however practical application of his model to type design practice is difficult due to the abstract nature and complex terminology of his theoretical approach. The rigorous text analysis required may have also placed limits on the size and breadth of his interview group (only 10 interviewees).[4]

In contrast, the approach used for this research allowed for more breadth and practical application. A methodology that avoided deep text analysis techniques (see 4.1.3) made it possible to interview a larger and more representative sample of the design community (23 interviewees). A combined historical/contemporary approach provided a context for discussion of evolutionary changes in practice. The emphasis on influences, characteristics, and techniques enabled the results of this research to be more readily applied to the practice of design, as demonstrated by the framework presented in chapter 5.

6.4 Extending the framework

The framework developed in this thesis was specifically intended to be applied to the design of Latin-script italics (see 5.3.2). However, it may be possible to extend or adapt the framework for analysis and discussion of other type styles and scripts.

6.4.1 Other styles

The structure of the framework could be reasonably used to explore, for example, the design of bold typefaces used as a secondary style:

- Establish a context based on how bold weights are used, and identify how that usage influences design decisions.
- Identify style influences based on historical traditions and established paradigms.
- Decide on possible working methods based on the techniques and tools used to design bold weights.
- Choose differentiation techniques that are effective in making the bold stand out from the roman.
- Determine how the bold remains visually connected with the roman.

The specific issues and questions appropriate for bold would likely be different to those for italic, however the general approach could be similar. In both cases the subject of study is a secondary style, used for differentiation, and that has historical traditions of use and design that may affect decision-making.

3   The three *categories* of Harkins' analysis can be loosely compared to the model of the type design process in this thesis. *Trajectorizing*: Initiating and Experimenting. *Homologizing*: Forming, Harmonizing, Adapting. *Attenuating*: Evaluating. These theoretical categories seem to have limited usefulness as they appear to have only indirect connections to actual designer actions or decisions.

4   Harkins' work was not available until after interviews and analysis for this research were completed, so its methods and results could only be compared retrospectively.

6.4.2 Other scripts

A similar approach could be applied to secondary styles within scripts other than Latin. If the intention is to study the design of a well-established secondary style within the script tradition (e.g. Cyrillic italics), then the framework may readily be applied, as with bold for the Latin script. This use of the framework seems most appropriate and useful when applied to an existing secondary script tradition.

If the intention is to explore what might be an appropriate design approach to creating a new non-Latin 'italic', then additional questions and issues need to be considered. Italic is an inherently Latin-script tradition, and it would be presumptuous to assume that certain characteristics of Latin-script italics (e.g. sloped, cursive forms) would be appropriate for other scripts. An effective and culturally appropriate non-Latin 'italic'—if it is intended to be identifiably 'italic' in some way—needs to balance faithfulness to script traditions with references to the Latin italic tradition. The nature of that balance would certainly differ between scripts, but may also differ for a range of typeface styles for a single script (e.g. Arabic *kufi, naskh,* and *ruq'ah*) depending on the context and purpose. Certain characteristics of Latin italics may or may not fit within that balance. The framework alone cannot address this balance or guide exploration for how a new secondary style, analogous to italic, could be constructed.

This research method demonstrated in this thesis, however, offers a possible way forward. The designer of a new non-Latin 'italic' would need to manage diverse and competing influences, just as the designer of a Latin-script italic needs to consider multiple identities and influences. A useful starting point might be to take the five identities of italic (see 2.1), reflect on to what extent—if any—the non-Latin 'italic' would share each identity, and explore how that might influence design decisions. For example, the designer of a secondary 'italic' for a particular Devanagari typeface might consider the following questions:

- *Language feature:* Are there secondary styles of Devanagari that have historically been used to indicate linguistic differentiation, for example, to add special meaning to a word or phrase? How does its usage compare to how italic is used in the Latin script? Is there a desire in the language and script community to establish an 'italic' paradigm that parallels Latin-script usage?

- *Typographic element:* Are secondary styles used within text also used for typographic purposes (e.g. hierarchy, navigation, ornamentation)? How has that usage influenced their design? Is there interest in using a new 'italic' style for some of these purposes? How might that affect their design?

- *Historical marker:* To what extent might a new 'italic' need to reference pre-existing Devanagari styles? Are there precedents or expectations that should be considered? What style characteristics of historical Latin-script italics (e.g. cursiveness, creative freedom) might be usefully applied? Which Devanagari style characteristics might be appropriate?

- *Design object:* How have writing or lettering tools influenced Devanagari type? How might they influence a new 'italic' style? Which particular design properties (e.g. slope, weight, width) of Latin-script italics can be appropriately applied to Devanagari? Are there some that would seem odd or out-of-place? What properties

might users expect? Are there alternate letterform structures that could be applied? What features/motifs might be used to unify the normal and 'italic' styles?

- *Business product:* How will the new 'italic' style(s) be packaged with other Devanagari fonts? How do users expect to activate the style in publishing software? If this is through a user interface *'I'* button, does that imply any certain expectations on the style? Are there business benefits to promoting sale and use of the new 'italic' styles? Will those influence their design?

It may be that the process of addressing these questions reveals additional or alternate identities that will influence the design. As with this thesis, the goal of this exploration would be to identify the range of possibilities rather than to discover an 'ideal italic'.

It is hoped that other researchers, particularly those who have a deep understanding of individual scripts, will find this approach useful, and will begin discussions within language and script communities to explore what 'italic' might mean within their cultural contexts.

6.5 The future of italics and italic research

This research has produced a robust foundation of information on the use and design of secondary italics. It has also revealed potential topics for future research into italics.

The linguistic and typographic use of italics. Although this thesis has identified and documented the use of italics over 500 years, the intent has been to discover the influence of that use on design. It would be valuable to more thoroughly investigate the role of italic from a linguistic perspective as a structural element of written language. It would also be productive to study the role of italic in typographic systems, particularly in contrast to other methods of typographic signaling.[5]

The continuous history of italic styles, particularly through the twentieth century. The historical designs mentioned in this thesis are limited to those that demonstrate or illustrate significant influences on the design process. This research has not attempted to trace the evolution of italic designs in detail, nor to identify italics that were the first of their type or became informal models for later designs (e.g. Flora for sans serif italics, PMN Caecilia for slab serif italics). The rapid technological and cultural changes throughout the twentieth century, in particular, were accompanied by rapid style changes. Deeper research into the history of italic styles could reveal significant moments and turning points in italic design and provide insight into the nature of style influences.[6]

The complex relationship between handwriting and italics. This thesis has documented designer attitudes and practices regarding the use of writing tools in italic design. There seems to be a definite but indirect influence of calligraphy on italic type. However this relationship deserves further investigation, including issues of handwriting education[7] and possible reverse influences of italic type on handwriting.

The reader's experience of italics, including studies of meaning, evaluation, legibility, and readability. This thesis has focused on the designer's experience. The potential scope for research on the reader's experience is broad and varied: How do contemporary readers interpret the meaning of italic? What styles or types of italic are preferred by readers? What characteristics (style, slope, weight, cursiveness, etc.) make an italic more effective as a secondary text typeface, for marking distinctions from

5   Crystal's essay on 'Toward a typographical linguistics' (1998) is a forward-looking example of this type of research.

6   *Kursiv* (Weber 2010) and *Die Kursiv* (Stresow 2001) are examples of historical overviews but are limited in length and depth.

7   The work of Sassoon, and *Handwriting of the twentieth century* (1999) in particular, points toward this complex relationship.

an upright (roman) type? Are certain types of italics more legible than others, and how do they compare with other methods of marking text? These questions could be addressed by cognitive research built upon the understanding of design characteristics described in this thesis.[8] The results could be very useful to type designers and typographers and indirectly improve reader experiences.

The future of italics in a digital world. Interviewees spontaneously expressed opinions on how current generations regard the typographic use of italics and what the future may hold—especially in digital environments. Although some participants noted movement away from the use of italics in recent decades (Maag 2018, Montalbano 2017), others said that italics remain useful and will not go away (Burian 2018, Carpenter 2018, Hoefler 2017, Stone 2018). Reduced use of italics may have been related to poor on-screen appearance (Maag 2018), however Carter (2018) notes that use of italic on the web seems to be increasing. The current and future use of italic, particularly in digital contexts, is unclear and uncertain, and could be a potentially useful area of research.

The history, use, and design of italics for specific scripts. This may be the most important and significant focus for future research. The rapid globalization of type has put pressure on foundries to broaden the range of scripts they support, including with their 'italic' styles (Maag 2018). Language communities are facing the introduction of 'italic' styles into their writing systems, in some cases with limited voice into their design (Grießhammer 2017). These typographic communities need well-informed research, specific to their cultural context, that can help guide the design of new 'italics'.[9]

It is hoped that this research project will be a catalyst for future research into these areas, and that the methods, models, and framework developed in this thesis will inspire and enable future researchers.

Appendix A—Uses of italic

The following table documents the various uses for italic as recommended or observed in style manuals and other typographic guides, including examples and references (see 2.2, 2.3). Those uses marked with † are considered archaic and may no longer be appropriate. References are listed in chronological order.

A.1 Linguistic uses of italic

EMPHASIS		
Stress in speech (loudness, surprise, anger, emotion, whisper)	Come here *this instant*!	Crystal 1994, Ritter 2002, Clayton 2013, seen in Sterne 1759
Importance	The *cause* of the crash	Moxon 1683, Chicago 1906, Chicago 2010
Distinction	I've lost my *red* slippers	Moxon 1683, Crystal 1998, Spiekermann 1993, MHRA 2013
REFERENCE		
People (address lines, formal positions)†	*Ladies and gentlemen Associate Professor*	Chicago 1906
Ships (and other named transport)	*USS Enterprise*	Hart 1907, Hart 2000, Ritter 2002, Chicago 2010
Books (and other long works of literature)	*Counterpunch*	Moxon 1683, Chicago 1906, Hart 1907, Hart 2000, Ritter 2002, Chicago 2010, MHRA 2013
Theatrical works (Plays, films, TV series)	*Hamlet*	Chicago 1906, Hart 2000, Ritter 2002, Chicago 2010, MHRA 2013
Musical works (operas, ballets, symphonic poems, oratorios, overtures, albums, CDs)	*The Mikado*	Hart 2000, Ritter 2002, Chicago 2010
Artistic works	*Mona Lisa*	Hart 2000, Ritter 2002, Chicago 2010, MHRA 2013
Periodicals (magazines, newspapers, blogs, podcasts)	*The Fleuron*	Chicago 1906, Hart 1907, Hart 2000, Ritter 2002, Chicago 2010
Navigation (to other content and illustrations)[1]	*Figure 23* *See also...*	Steer 1951, Hart 2000, Ritter 2002, Chicago 2010
DEFINITION		
Technical terms (esp. the first mention of it)	The branch called *semiotics*	Ritter 2002, Chicago 2010
Examples	The phrase *I could care less*	Chicago 1906, MLA 1980, Ritter 2002, Chicago 2010

[1] Navigation may be considered both a means of linguistic differentiation and typographic function.

Words as words	The word *scone* is pronounced The bowl of the letter *b*	Chicago 1906, MLA 1980, Ritter 2002, Chicago 2010, MHRA 2013

CULTURAL HERITAGE

Foreign words[2]	*Au revoir* A sense of *hygge*	Luckombe 1771, Chicago 1906, Hart 1907, MLA 1980, Vachek 1989, Hart 2000, Ritter 2002, Chicago 2010, MHRA 2013
Latin origin (but not certain abbr. as in e.g., ibid.)†	*ante, infra, passim, post, supra*	Chicago 1906, Hart 1907, Hart 2000, Chicago 2010, MHRA 2013 (but only *sic* and *circa*)
Pre-decimal currency (based on Latin terms)†	*£, s., d.*	Chicago 1906, Hart 1907, Hart 2000

SPEAKER

Quotations	*There is nothing to fear...*	Ritter 2002
Conversational	Hello. *Hello.*	Dowding 1966, seen in Defoe 1719
Editorial	*The following should be considered...*	Ritter 2002, Chicago 2010, seen in Hart 1907

SPECIAL DOMAINS

Parties in legal cases (Law)	*Brown* v. *Board of Education*	Ritter 2002, Chicago 2010 (prefers full case name in italics), MHRA 2013
Part of speech markers (Dictionaries)	Typeset (*v.*)	Luna 2000 (referring to Johnson 1755, Webster 1828), Ritter 2002
Alternative language text (Dictionaries)	Amat, *il aime.*	Luna 2000 (referring to Thomas 1550, Webster 1828), Delsaerdt 2011 (referring to Estienne 1543)
Rhyme schemes (Literature)	*abab cdcd efef aa*	Chicago 2010
Stage directions (Theatre)	[*Exit, pursued by a bear*]	Simon 1945, Hart 2000, MHRA 2013
Words spoken by leader; instructions (Ritual)	*It is indeed right...* *This prayer may be said*	Seen in Morgan 2003
Volume and style indications (Music)	*pp, mp, p, mf, f, ff* *allegretto*	Hart 2000, Chicago 2010
Theorems and formal statements (Mathematics)	*The prime number theorem* *If p and q are distinct*	Hart 2000, Chicago 2010
Literal symbols (Mathematics)	$|(x+y)/3|$	Lynch 1859, Chicago 1906, Phillips 1956, Wishart 1988 (referring to Harriot 1631), Hart 2000
Refs. to items in illustrations (Mathematics)	At the point *A* above...	Chicago 1906
Latin names (Biology)	*Primula vulgaris* *Homo sapiens*	Chicago 1906, Hart 2000, Ritter 2002, Chicago 2010
Certain prefixes (Chemistry)	*p*-diethylbenzene	Hart 2000, Ritter 2002

2   Many style manuals provide a list of anglicized words that should not be italicized, such as 'naïve'.

A.2 Typographic uses of italic

HIERARCHY

Section headings
(sub-headings, crossheads) | Literature review
Style guides | Luckombe 1771, Williamson 1983, Black 1990, Bringhurst 1996, MHRA 2013

Sideheads
(that begin paragraphs) | 10. *Roman and Italic.*—In | Luckombe 1771, Chicago 1906, seen in Hart 1907, Bringhurst 1996

Sidenotes
(including captions for figures, tables, illustrations, legends) | *† Further argument follows...*
Figure 23. An example of... | Bringhurst 1996, Pettersson 2003

Numeration in lists | (*a*), (*b*), (*c*) or *a*), *b*), *c*) | Chicago 1906, Ritter 2002

NAVIGATION

Running heads/feet
(in page header/footer) | *Writing about italic type / 17* | Chicago 1906, seen in Hart 1907, Williamson 1983

Repeated headings
(for tables on multiple pages) | Foreign words (*contd.*) | Seen in Hart 1907, Hart 2000

Visual references
(to other elements) | *top, bottom, above, below* | Chicago 2010

Directions
(for the reader) | *opposite, overleaf, continued* | Chicago 1906, Ritter 2002

METADATA

Publication metadata
(title page, other matter) | *Thirty-ninth edition* | Seen in Hart 2000

Chapter synopses
(in table of contents or beginning of chapter) | *In which Piglet is entirely...* | Seen in Simon 1945

Appendix B—Tweets about italic

The following public Twitter messages are chosen from a manually collected set of tweets from 1–21 November 2015. All tweets from that period containing the words 'italic' or 'italics' were reviewed, of which 959 referred to italics in some typographic sense, excluding retweets. Of those, 301 expressed a desire to use italics in text messaging and social media.

B.1   Representative tweets

These tweets represent the breadth of messages regarding italics. Some of them are only one of many messages that express a similar point of view, or that are of a similar type.

'I can't wait for Twitter to give us italics. I NEED them.'
    (LAinPDX, @lainpdxor, 1 November 2015) *207 similar*

'it's 2015 and I still can't text in italics'
    (dal shishkabob, @dm_absh , 14 November 2015) *6 similar*

'It's almost 2016.. Why can't we use italics in text messaging'
    (beks, @Bek_Banana , 16 November 2015) *4 similar*

'Twitter needs italics for emphasising purposes'
    (lou, @frankie_relax , 20 November 2015)

'Need bold and italics features on Twitter so people can really understand my tone in my tweets because NOBODY GETS ME'
    (Eric M. Hammer, @TheEricHammer , 19 November 2015)

'I need italics so I can show the difference between "too perfectly" and "too perfectly".'
    (CipherHero, @CipherHero , 10 November 2015)

'@AlongsideWild Italics! I want correctly formatted scientific names!'
    (Aly Baumgartner, @kyrietree, 4 November 2015)

'I wish twitter had italics so I could say less & mean more'
    (jordankaiwong, @wongeezus , 15 November 2015)

'i want to be able to put things in italics, bold, underlined, all that on here. maybe you'd FEEL me then.'
    (cristopher, @CrisPayne , 10 November 2015)

'I feel that my tone would be better understood if I could text in italics. You really can't tell how sarcastic I am without them.'
    (Jasmine Smith, @hasmeen137 , 14 November 2015) *30 similar*

'I wish iPhones could type in italics... Sassing abilities would be tenfold'
    (Carina, @carinalinley , 14 November 2015)

'@trevortimm @noahmccormack if only Twitter would let you write the claim in bold and the reality in tiny italics'
    (Parker Higgins, @xor , 17 November 2015)

'I would write all my tweets in Italics if I could'
    (The Goike(ster), @umplsstop , 21 November 2015)

'I'm Grace, and I'm addicted to italics for emphasis.'
    (Grace, @thatgracegirl , 21 November 2015)

'How come I can tweet an emoji of a dancing monster, but I still can't use italics on social media?'
    (Jennifer Spiller, @jennspiller , 21 November 2015) *23 similar*

'We have 347 emojis but no italics.'
  (Animisha, @anymysha, 2 November 2015)

'@ twitter why can we now do polls but can't use italics'
  (sophie, @ultran0l, 7 November 2015) *2 similar*

'I don't want more than 140 characters, I just want italics.'
  (Simon, @intruth, 4 November 2015)

'We've walked on the moon and harnessed water and solar power, but we still need to use asterisks to signify *italic* type on social media.'
  (Naomi LaRose, @Naomi_LaRose, 5 November 2015)

'@alanapaints I WANT ITALICS SO I DON'T HAVE TO USE ALL CAPS.'
  (Sarah E Brehmer, @sarahekite, 3 November 2015) *17 similar*

'Can they make italics for text so I can emphasize a word without looking like I'm YELLING'
  (Natasha †, @NatashaMizi16, 5 November 2015)

'Yes Italics help in some cases. But if overused they look like being shouted and lead to an unpleasant... #Schriftbild in #English? @rascality'
  (Sonja Knecht, @sk_txet , 21 November 2015) *32 similar*

'Some of Gill's beautiful working drawings for Perpetua Italic. I've always especially liked the... https://instagram.com/p/-GvF8xyBbA/'
  (Kim Vousden, @kimvousden , 15 November 2015) *43 similar*

'One observation on designing italic typewriter typefaces is that there should be less slant than in proportional fonts #typedesign #plauType'
  (Plau Type & Design, @PlauStudio , 13 November 2015)

'Why would someone use a font family with no italics style for body text :/ #lazy #dontlikeit'
  (Lucijan Blagonić, @lblagonic , 21 November 2015)

'@tapbot_paul But I'm thinking just parsing and displaying certain tags, like: I'm thinking more like _italics_, **bold**, and `code`.'
  (Chris Foresman, @foresmac, 3 November 2015) *29 similar*

'@Domstercool Do we "globally" put titles in italics?'
  (Simon Lundmark, @SimonLundmark, 4 November 2015) *19 similar*

'Capote's use of italics is masterful.'
  (Gracie Folds, @Graciegirlfolds , 13 November 2015)

'She feels in italics and thinks in CAPITALS. – Henry James'
  (think.Mindful, @think_mindful , 11 November 2015) *5 similar*

'Italics are going through a lean spell.'
  (Sixth Form Poet, @sixth_form_poet , 11 November 2015) *30 similar*

B.2 Tweets using plain text to represent italics

Here are examples of 40 different methods used in the collected tweets to mark text as italic, grouped by type of marking.

ENCLOSING CHARACTERS

'*wishes Twitter let me tweet in italic so I could do away with these asterisks*'
  (ben thomas payne, @benthomaspayne , 18 November 2015)

'@mikkel5en I use forward slashes (I just forgot what they're called omg) like /italics/.'
  (Catty ∞, @Herbcitty , 12 November 2015)

'@SlackHQ don't you be so bold with me. Can't you see, that ~this~ has a special place, that italics, bold, strikethrough can't serve?'
  (Paul Curry, @cr3 , 16 November 2015)

'Battling with some xslt and italics ... I will _get_ you!'
  (Leonieke Aalders, @leonieke , 16 November 2015)

'My wife -in italics-'
  (Bonfires, @bonfiresband , 17 November 2015)

ENCLOSING TAGS

'@akridgewyd thanks for hanging *italic*up*italic* in my tweet but i don't need strangers'
  (alex, @joannalexxxxxis , 16 November 2015)

'They aren't all :italics: that :italics: tight.'
  (Wood, @ArtistRyanWood, 7 November 2015)

LIKE HTML, CSS OR TEX

'@edbatista Exactly. Glad you picked up on that. If Twitter had italics: <i>back in the day</i>'
  (Richard Winters MD, @drrwinters, 1 November 2015)

'Additional note: Reading a tech book really <italics> isn't </italics> easy.'
  (LingJie, @Pigged , 20 November 2015)

'GUESS MY FAVORITE FLEETWOOD MAC SONG! (italics) The answer may surprise you!
  (/italics)'
  (benja, @cafebenjata , 15 November 2015)

'#towerofpisa {font-style: italic;} #CSS #pun'
  (Hannah Kwiatek, @ibox_hannah , 16 November 2015)

'Why can't we text/tweet/etc with \emph{italics}'
  (201Ponies, @201ponies , 17 November 2015)

PREFIXES

'@Casmilus I think you mean [italics] clichéd'
  (friends, @fr__nds , 19 November 2015)

'@selfmanMMA but I (boldface, italics, underline) want one <emoji frowning face>'
  (as told by ginger, @lyssaamichellee , 10 November 2015)

'Dear New York, Your sympathy is racist. Best regards, (In italics) Ronda Q. Internets'
  (el winnie pooh, @_White_Austin , 16 November 2015)

'everything hurts. *italics* everything.'
  (Mel G, @MelaniGaldamez , 18 November 2015)

'you are (36 pixel)(italic) unpleasant'
  (um e o, @SORAlRO, 1 November 2015)

SUFFIXES

'Homo procrastinus (Italic font)'
  (Maryom, @Maryom554159391 , 11 November 2015)

'lose a life if your profession (italics this) isn't modelling. grins.'
  (@JCKJAEYOUNG , 10 November 2015)

BEFORE OR AFTER

'[imagine the word "italics" in the following tweet is italicized]'|
  (Dennis Roberts, @dennyroberts , 14 November 2015)

'Pretend I used like italics and an underline on the word "Ironically" because I don't want
  people to get the wrong idea'
  (Mercury Crusader, @MercuryCrusader, 4 November 2015)

USING HACKED UNICODE

'Running a *test* of Twitalics to see if it works. Chrome's not making much out of the Unicode
  letters.'
  (Loony Lizard, @LoonyLizard, 4 November 2015)

DESCRIPTION

'(whispers in italics) myoelectric prosthetics are automails you can't take that away from me #headcanonconfirmed'
(Vanessa Hojda, @VanessaHojda , 13 November 2015)

'@cammsano oh gawd....this is where I drew the line... TOO much drama. Can I get an italics on the "too"'
(Claudia, @cloudiescano , 21 November 2015)

'@ConorTripler i just do it like this (picture that last word in italics)'
(Citizen Wokespierre, @historyinflicks , 17 November 2015)

'@hungerknock REALLY!! (Read in italics)'
(William Hall, @willster3818, 4 November 2015)

'Why do breakups always resort to "look who I am without you" (in italics)'
(John, @helloimjohn , 15 November 2015)

'@MMFlint you know damn well this problem was created BEFORE 9-11. Iraq exacerbated the problem. Exacerbated, in italics.'
(Cheryl Nichols, @Cheryl_Nichols , 15 November 2015)

'@peternelleva @buds2tall @GlendaBurgess @TWalk @RealGabbyHayes I'm in Europe, not invisible (italics mine).'
(Amy Scheibe, @zelda64 , 21 November 2015)

'Startup idea: Production specifies 'the different relations between different moments' (our italics).'
(Hottest Startups, @HottestStartups , 15 November 2015)

'@yehwellmetoo [yells in italics]'
(ALDI WINE PAPI, @lachycc, 1 November 2015)

'Artificial intelligence: 'Homo sapiens will be split into a handful of gods and the rest of us' -Use italic font plz https://apple.news/Ai-hYaJhqQhmv5u6-cPR00g ...'
(Yun YAN, @yun2yan, 9 November 2015)

'Cud someone find me an erwin smith please, please (with italic font and all that).'
(Fatimah Zahra Anwar, @imaxanwar , 18 November 2015)

'Great visit with BHS alum and author of "Eden's Wish" (imagine italics instead!) @mtaracrowl'
(Blaze Library, @BlazeLibrary , 21 November 2015)

'so i've been watching a crapton of The Walking Dead, and it hit me last night that nobody who even ATTEMPTED (caps for lack of italics) to'
(Ricky Evans, @RickyEvans1096 , 10 November 2015)

MIXED

'*develops a crush* \italics\ soon after *is crushed*'
(sterling toblerone, @_agentstarling , 20 November 2015)

'@elenachippie yes, dangerously *dangerously in italics*'
(Maggie, @margaret__marie , 17 November 2015)

'@Legenndaary Will you go up to the church *today*? (** meaning italics)'
(Michael Blake, @michaelsmyname, 7 November 2015)

'@Pimarashian it's one of the /softest/ you know. *that's in italic.*'
(Heropii, @CestHero, 7 November 2015)

'If I ever meet someone like her again, I'd still want /her/. "Like" doesn't cut it. Those are italics.'
(Lord 6, @Lord_6inger, 6 November 2015)

Appendix C—Interview details

C.1   Sample interview questions

Here are examples of questions that were used in interviews, although the particular questions used in each interview varied according to the participant's experience and expertise.

Timing and sequencing

When do you first begin to think about the italic?

Inspiration

Where do you look for inspiration for what an italic should look like?
Do you use sketches or calligraphic tools to explore design ideas?

Design features

Do you have specific opinions regarding the design aspects of italics, such as slant, weight, width?
How do you 'connect' your italic with the corresponding roman?
How have technical limitations influenced your work—negative restrictions or positive constraints?

Specific techniques

What is the first step you take in designing an italic?
What manual or digital techniques, if any, do you use?

Evaluation

How do you know if your italic is 'successful'?
Which italics by others do you feel are successful, and what features contribute to their success?
How do you go about testing your italic?

Learning

How did you develop your ideas and processes for italic?
Did you learn them from someone else or develop them yourself?
Who was most influential in how you design italics today?
What opportunities do you have to share your thoughts about and processes for italics with others?
What would be the most useful advice or technique you would share with a new type designer?

General

What do you find the most difficult aspect of italic design?
What experience, if any, do you have in designing non-Latin italics, and what were the challenges?

C.2 Participant factors

Five factors were considered when compiling an initial list of potential interviewees. The goal was to have balance within each factor. The final distribution of participants within each factor is provided and demonstrates that the group of participants can be considered to be reasonably representative of the industry.

Current primary digital design tool

The choice of design tool might have an influence on working techniques and processes. For example, techniques used for spacing italic glyphs in comparison to roman might differ depending on whether the tool offered angled width markers. In order to get a broad viewpoint, and consider a breadth of techniques, it was important to have a balanced representation of the four most common design tools.

The number of participants that used each tool as their primary tool is listed below. Some designers used multiple tools, however only their primary tool was counted. Which tool was primary in each case was also somewhat subjective:

3 Fontographer
9 FontLab
7 Robofont
4 Glyphs

Technology experience

It was important that the group of participants reflected a broad span of experience, so that the viewpoints of both those relatively new to type design and those who had been designers for many decades were represented. Because working methods could be closely tied to technology, the most useful measure of breadth of experience was in which era of modern typeface design they had their earliest design experience. This was more useful than age or number of years of experience, and avoided gathering confidential personal information. It was not practical or important to maintain an even distribution—only to ensure that all eras were represented.

The earliest design experience of participants was spread between five technological eras:

2 Metal type, both hand-cut and machine cut
3 Types for film-based photocomposition
6 Early digital types for proprietary machines
4 Early PostScript types for laser printers and imagesetters
8 Types designed using current digital tools

Foundry size

Potential participants have worked independently, or for very large foundries, or for mid-sized companies. This difference in foundry size might have had an influence on their processes, so it was important to maintain a reasonable balance.

Some participants had worked in multiple foundry sizes, but the numbers below reflect only their most recent experience. The foundry sizes and examples below are based more on industry reputation and corporate culture than purely on the number of staff:

5   Large (Monotype, Dalton Maag, Adobe)
5   Medium (Hoefler & Co., TypeTogether)
13   Small (Individual/Independent)

Source of training

Training in typeface design, both formal and informal, was expected to significantly influence design practice, so participants were chosen to reflect a broad range of education types (on-the-job, university) and locations (Reading, The Hague).

Participants had received training through the following institutions and methods. Some had been trained in multiple venues, but these were the primary locations. No single institution was represented by more than 4 participants:

3   Royal Academy of Art, The Hague (KABK)
4   University of Reading
9   Other institutions teaching design (Basel, Rietvelt, RISD, RIT)
5   Training in font foundries (Monotype, Autologic, Font Bureau)
2   Self-taught

Current geographic location

There was no reason to expect that geographic location would have a bearing on techniques or processes. Experience and training were expected to have greater influence. A broad distribution of participants would, however, balance out any unanticipated influence.

All participants but one were working in Europe or the USA. This reflected the dominant role that these regions have had in the typeface design industry over the last five decades, although a wider geographic range might have provided further useful information. The number of UK participants was also limited by the exclusion of those who had been involved in University of Reading italic design workshops. The final sample of participants was distributed among these locations:

6   Continental Europe
2   United Kingdom
6   United States (New York)
8   United States (Other)
1   Other (Argentina)

C.3 Interviewees

The following people were interviewed for this research.

Charles Bigelow
Veronika Burian
Ron Carpenter
Matthew Carter
Andy Clymer
Hannes Famira
Thomas Grace
Frank Grießhammer
Cyrus Highsmith
Jonathan Hoefler
Bruno Maag
Martin Majoor
Steve Matteson
James Montalbano
Gary Munch
David Jonathan Ross
José Scaglione
Mark Simonson
Robert Slimbach
Fred Smeijers
Sara Soskolne
Sumner Stone
Gerard Unger

Works referenced

The works listed are only those directly referenced in this thesis. This list is not intended to be a comprehensive bibliography on italic design.

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The following list includes typefaces mentioned in this thesis along with their primary designers and years of production or appearance in printed material, where easily known. Years, where listed, are only approximations for comparison and should not be considered authoritative. Historical designs commonly identified by designer name are preceded with and sorted by that name, as in (*Fournier*) *Gros Texte Italique*. *Italic* or *Italique* is included in typeface names only when the italic is a separately identified or released product, as in *Petit-parangon italique*.