Cuts and Tears as Justified and Unjustified Typesetting: From Bayer to the Kindle

Unjustified typesetting, described here as 'torn typography', produces columns of text with even and consistent spacing of words and letters, and a ragged right edge. Its appearance and semantic effect differ from justified typesetting – or 'cut typography'– in which the spacing between words or letters (or both) is expanded or contracted to create a straight and uniform right edge. The book *Visual Communication, Architecture, Painting* (1967) (Fig. 1), written and designed by the Austrian-American artist and designer Herbert Bayer, serves as a starting point to this study. Its main text is set using a combination of justified and unjustified lines of text within the same paragraph.[1] This book is the only example within Bayer's oeuvre to use this highly unusual method of typesetting.

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the history of our alphabet and any probing into its optical effectiveness expose a lack of principle and structure, precision and efficiency which should be evidenced in this important tool.
attempts have been made to design visually (to distinguish from aesthetically) improved alphabets. but redesigning will result in just another type face unless the design is primarily

Figure 1. Herbert Bayer, *Visual Communication, Architecture, Painting* (1967).

The text is justified, except where the last word of a line cannot fit within the available horizontal space. Instead of deploying hyphenation or tighter or looser spacing adjustments (the standard techniques for achieving fit), the word is taken over to the following line. The preceding line remains unjustified. This hybrid approach – both logical and experimental – creates a distinctive and unconventional typographic flow. Uneven texture is created at the ends of unjustified lines, juxtaposed with an overall even texture to the paragraph and page as the letter and word spacing appear even. The typesetting, specified by Bayer and executed by Graphic Arts Typographers Inc. in New York, used mid-twentieth century 'machine composition' technology, and was most likely set on a Linotype machine.[2] Set as galleys, pasted up into pages, then transferred photographically to printing plates, the book was printed using offset lithography at a time when letterpress was still the primary method used for mass production. Ben Bianco is credited for its layout and mechanical preparation. Additional typographic quirks are Bayer's use of lowercase letters throughout the book, and the deliberate insertion of quadruple word spaces following each full point to compensate for the absence of capital letters. Bayer defended this system by asking, 'why do we write and print with two different alphabets simultaneously?', and arguing that 'we do not speak a capital "A" and a small "a"'.[3]

Today's industry standard typesetting software, Adobe InDesign, applies a tagging logic to the formatting of text: paragraphs can be defined as ranged left, centred, ranged right or justified, but these tags cannot be combined within a single paragraph. Bayer's system can only be achieved today by manual intervention – inserting paragraph breaks at the end of each line that is not justified – rendering the process inefficient for modern digital workflows when corrections are frequently made, requiring text be repeatedly reflowed.[4]

Typography as language

Spoken language is inherently linear, unfolding sequentially as a continuous stream of sounds that we understand as words. Pauses and intonations provide a certain rhythm, allowing listeners to process the words' meaning and their intended positions in the structure of sentences. When transposed into written or printed form, language becomes subject to material and spatial constraints. Over time, visual conventions have emerged that cut continuous speech into relatively uniform lines stacked vertically from top to bottom – an arrangement that bears no intrinsic semantic function. Michael Twyman, Professor of Typography at the University of Reading from 1974 to 1998, classified this as 'linear interrupted text' within his schema of graphic language.[5] It represents the longstanding convention through which language is visually reproduced, from writing to print and then screen. Although this linear segmentation diverges from the natural flow of spoken discourse, readers have adapted to it as the primary visual system for linguistic communication of Latin scripts.

Typographers play a crucial mediating role in this process. As a specialised discipline within graphic design, typography is concerned with the design, selection, and arrangement of groups of letterforms (known as typefaces) across varying scales (from individual characters to large complex texts), and media (from business cards to billboards; from smart phones to cinema screens). The typographer's task is to determine the type size, line length ('measure'), and interlinear spacing (known as 'leading'), thereby shaping the reader's visual and cognitive engagement with the text. It is received wisdom amongst typographers that readers typically comprehend text most comfortably when each line contains between 50 and 60 characters (7–10 words),[6] however this is dependent on the typeface and the two other parameters of type size and leading. The relationship between type size, line length and leading is illustrated in Peter Burnhill's *The Dimensional Relationships in the Composition of Text*, in which the same paragraph of text is set in the same typeface at five sizes (8, 9, 10, 11 and 12 points) and three-line lengths (27, 20 and 13 picas).[7] Each parameter influences the others: the longer the line length, for example, the more leading required to avoid the same line being read twice. These variables collectively determine what is known as the 'colour' of the page, its tonal and spatial density when perceived as a whole. Typeface choice, paragraph length, and the hierarchical structure of headings and subheadings all influence the page's visual balance. The typographer's skill lies in manipulating these factors to achieve coherence and rhythm – not an exact science but rather a craft and a practice; an acquired sensitivity developed through experience, tacit observation, and continual refinement of visual judgement.

The paragraph is an important structural unit of written language. Its visual and spatial demarcation signal shifts in thought, argument, or subject. Such distinctions are typically achieved by one of two main methods: the use of vertical blank space between paragraphs, or the horizontal indentation of the first line of each new paragraph. The use of vertical space offers the clearest segmentation, but uses more space overall. The indentation of the first line of each paragraph, established through centuries of typographic practice, remains the most economical, practical, and widely adopted convention within editorial typography. It is straightforward to specify and implement, and is understood by the reader. The standard em-space indent – a wide blank space, the equivalent size of a capital letter M – creates a visual interval sufficient to mark the transition to a new paragraph without introducing unnecessary white space. Such typographic conventions have evolved to assist the reader in visually navigating text, signalling structural divisions without interrupting the reading flow. Subtle variations in these parameters – the length of indent or the amount of inter-paragraph spacing – might communicate a text's tone and reveal the designer's intention or graphic style. The British graphic designer Richard Hollis was known in the 1970s for his large indents and his placement of images directly within the text column, as in his work for Whitechapel Art Gallery in London and his design for John Berger's book *Ways of Seeing* (Fig. 2). [8]

Original paintings are silent and still in a sense that information never is. Even a reproduction hung on a wall is not comparable in this respect for in the original the silence and stillness permeate the actual material, the paint, in which one follows the traces of the painter's immediate gestures. This has the effect of closing the distance in time between the painting of the picture and one's own act of looking at it. In this special sense all paintings are contemporary. Hence the

Figure 2. John Berger, *Ways of Seeing* (1972), designed by Richard Hollis.

Twyman distinguishes between what he terms *intrinsic* and *extrinsic* features of typesetting. [9] Intrinsic features are those shapes within the typeface – the design, proportions, and constraints – defined by the type designer. Extrinsic features appear in the arrangement and manipulation of these characters by typographers, such as word and letter spacing, justification method, paragraph layout, and overall page composition. Intrinsic characteristics are fixed; they are the immutable qualities of the typeface. Extrinsic qualities are variable and open to manipulation at both the micro-typographic level (spacing; hyphenation; alignment) and the macro-typographic level (page hierarchy; grid structure; relational balance). Through these extrinsic characteristics, typographers generate meaning and rhythm, shaping how longform text is read and experienced; hence the emphasis on 'communication' within the discipline. Typesetting therefore operates simultaneously as a technical process and an expressive visual language, mediating between linguistic content and visual form.

Paul Luna describes justification as 'a more traditional approach' to typesetting.[10] Well-executed, it results in even, cohesive blocks of text which continue to dominate conventions in book publishing, newspapers, and other professional printed materials. The adoption of justification as a typographic standard can be traced to Johannes Gutenberg's development of movable metal type in the mid-fifteenth century (Fig. 3). Gutenberg's invention emulated the balanced and symmetrical qualities of manuscript tradition, where scribes aligned text columns as much as they could to produce a uniform visual rhythm. Matthias Grünewald's annunciation panel for the Isenheim Altarpiece depicts a manuscript book showing straight leaded grid lines, although the text itself

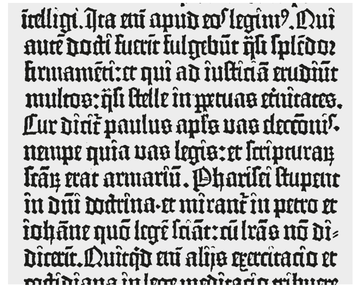


Figure 3. *The Gutenberg Bible*, Mainz (1456), printed by Johannes Gutenberg. Image retrieved from the Library of Congress.

Nowadays, architecture of this kind is earning listed or protected status from city councils and heritage bodies like UNESCO, which are keen to safeguard what they increasingly perceive as cultural heritage.[31] In many cases, modernist architecture is simply demolished so that urban developers can profit from the value of the land it occupies.[32] Somewhat ironically, the

1. Herbert Bayer, *Visual Communication, Architecture, Painting* (New York: Reinhold and Studio Vista, 1967).

2. The Linotype machine, developed by Ottmar Mergenthaler in 1884, revolutionized printing by casting entire lines of type quickly, dramatically increasing efficiency in newspapers, books, and mass communication.

3. Bayer, *Visual Communication*, p. 26.

4. See immediately below: Melaine Peacock, *Horror in the Modernist Block* (Birmingham: Ikon Gallery, 2023), designed by Fraser Muggeridge studio.

5. Michael Twyman, 'The Graphic Presentation of Language', *Information Design Journal*, 3.1 (1982), 2–22 (p. 9).

6. Jost Hochuli, *Detail in Typography: Letters, Letterspacing, Words, Wordspacing, Lines, Linespacing, Columns* (London: Hyphen Press, 2008), p. 32.

7. Peter Burnhill, *Dimensional Relationships in the Composition of Text* (Stafford: Stafford College of Art and Design, 1970).

8. John Berger, *Ways of Seeing* (London: Penguin Books, 1972).

9. Twyman, 'The Graphic Presentation of Language', p. 11.

10. Paul Luna, *Understanding Type for Desktop Publishing* (London: Blueprint, 1992), p. 640.

Figure 4. Matthias Grünewald, *Annunciation Panel: Isenheim Altarpiece*, 1516 (detail).

overruns the column edges (Fig. 4). The convention has persisted across centuries as a defining feature of Western typographic practice. As Robin Kinross observes, '[i]t is text made exact and formal, encapsulating the precision and authoritative nature associated with the printed page'. [11] With justified composition, the task of the typographer and the typesetter is to maintain an even visual texture. Historically, these roles would have been separated and were performed as distinct professions: designer (who specified the typographic parameters) and compositor (who physically typeset the text). Today both roles are performed by the same person: as well as designing the page, the designer is setting the type. Typesetting requires meticulous care and control over spacing and hyphenation to avoid excessive gaps between words or uneven distribution of white space, which can create disruptive visual patterns such as 'rivers' running through the text. Such irregularities compromise readability and the aesthetic balance of a piece of text.

Unjustified Typesetting

Unjustified typesetting (also known as range(d) left, flush left, justified left, left justified, or ragged right setting) is a relatively recent development in the history of typography, which came to prominence in the second half of the twentieth century. The shape of the paragraph – its 'rag' – reflects a more informal and expressive typographic sensibility. In *Diagrammatic Writing*, historian of the book Johanna Drucker performs both justified and unjustified typographic manoeuvres whilst reflexively describing the effect in her writing. For example, the phrase, 'ragged right breathes differently than justified text' is typographically performed on the page, shifting from a justified to a ragged edge.[12]

The American printer and typographic theorist Theodore Low De Vinne made the same visual comparison in 1904:

> Ragged endings at the right side of all the lines of the text, as is unavoidable in type-writing, is another novelty. This new mannerism lessens the labor of spacing, but it makes an unsymmetrical page that is unpleasing to the reader. Print is preferred to manuscript because it is symmetrical and orderly as well as more readable. To reproduce in print the irregularities of autographic work is an unwise rejection of the uniformity that is the great merit of letterpress printing. Lines of ragged outline may attract attention to an advertisement or an ephemeral pamphlet, but to the reader this raggedness seems slovenly.[13]

De Vinne's opinion reflects a broader cultural resistance to this perceived disorderly typography. The rise of unjustified setting coincided with the spread of typewriters and mimeograph machines. Using these machines, material could be prepared and printed in a DIY manner rather than through professional printing services. Typewriters used a monospaced system, assigning equal horizontal space to every character. The lines produced were inherently uneven as there was no method for justification. This was not seen as a problem since the primary role of these machines was in the production of manuscripts and letter correspondence. Typewriting has perhaps more in common with handwriting than printing: typewriting and typesetting are not the same. Following the Second World War, cultural connotations of setting unjustified text began to emerge. No longer associated solely with technical limitations, this type of informal arrangement began to signify freedom and self-expression. In 1946, 'Über Typographie' promoted Swiss designer Max Bill's ideas on modernism, set entirely unjustified in a lower-case sans serif, a departure from the previous layouts of the journal in which it appeared.[14] As Kinross has observed, the aesthetic of unjustified text could be described as 'free, informal, self-determining: the social overtones are clear'.[15] Its adoption reflected a broader modernist and postmodernist impulse to question conventions of order and symmetry in visual communication.

The First International Seminar on Typographic Design was held in 1958 at Silvermine Guild of Artists, Connecticut and the World Affairs Center, New York City. The event was attended by renowned typographers at the time: Will Burtin, Ottl Aicher, Max Huber, Yusaku Kamekura, Willem Sandberg and Herbert Spencer. Max Huber advocated that typography should appear unforced and that

> [t]he typographic character today should be employed with freedom and nonchalance... Personally I believe that when the word falls at the end of the line, it should not be separated. A new line should be started, without breaks, with simplicity and a free ragged right composition. Furthermore, line-lengths should vary according to the meaning of the text.[16]

This process leads to the third point:
just as the length of the lines is determined by their rhythm,
the quantity of text or illustration is determined by the rhythm of the pages.
These – superordinate – functional criteria lead predictably
to the typographic "aesthetic of empty spaces":
there is a maximum length fixed for the lines (86 letters)
and also for the pages (33 lines).
The empty spaces occur because the material is not made up
according to these formal margins but according to its content.

Figure 5. Karl Gerstner, *Compendium for Literates: A System of Writing* (1974).

This so-called 'Phrased' or 'Spaced Unit' typography, in which each line ends where a thought ends, seems logical but can only be achieved when the structure and the way the text is written are in dialogue with the method of composition. The additional amount of work required in typesetting, and the additional space needed on the page, led to only a small number of implementations, notably *Compendium for Literates: A System of Writing* by Karl Gerstner (1974) (Fig. 5). Gerstner's entire book is produced with the length of lines determined by their rhythm, creating a typographic 'aesthetic

11. Robin Kinross, *Unjustified Texts: Perspectives on Typography* (London: Hyphen Press, 2002), p. 289.

12. Johanna Drucker, *Diagrammatic Writing* (Eindhoven: Onomatopee, 2017), p. 3.

13. Theodore Low De Vinne, *Modern Methods of Book Composition* (New York: The Century, 1904), p. 105.

14. Max Bill, 'Über Typographie', *Schweizer Garaphische Mitteilungen*, 65.4 (1946), 193–200.

15. Kinross, *Unjustified Texts*, p. 289.

16. *World Seminar: Ideas Directions Points of View* (New York: Type Directors Club, 1958), p. 8.

17. Karl Gerstner, *Compendium for Literates: A System of Writing* (Cambridge, MA: MIT Press, 1974), p. 137.

18. Maria Lonsdale, 'Typographic Features of Text: Outcomes from Research and Practice', *Visible Language*, 48.3 (2014), 29–47 (p. 42).

of empty spaces'.[17] Researchers who have compared the legibility of these two different typesetting methods have not reached any definitive conclusions. 'When comparison was made between the two type settings, no differences in reading times were found when a medium line length was used'.[18]

There are also differing opinions on what is the most efficient mode of setting. Justification requires work in terms of where and when to break words to create an even effect; in traditional setting, adding in space by hand would have been an arduous task. Unjustified setting brings into issue the shape of the right edge of the column, the rag, and the decisions which need to be made in dealing with the shape of the line endings. For Swiss book designer Jost Hochuli, 'perfect unjustified setting is very demanding and difficult to achieve and is thus rarely encountered'.[19]

Simultaneous Justified and Unjustified Typesetting

The simultaneous use of justified and unjustified typesetting within the same text block or paragraph presents a conceptual and technical paradox. These two systems are regarded as mutually exclusive, representing opposing principles of order and irregularity. American designer and educator Ellen Lupton encourages mixing justified and unjustified settings as part of typographic hierarchy for separate parts of text: 'It's fine to mix alignments if the reader can see why. Justify the main text, but let sidebars or lists go ragged – they'll feel more open and less dense'.[20] Robert Bringhurst, author of a canonical book on typography, adds that 'different alignments can coexist harmoniously if each serves a distinct role. The main text may be justified to create calm texture, while notes or quotations may be set ragged to signal change in voice'.[21] Newspapers such as *The Guardian* in the UK mix the two systems to delineate between formal and informal articles on the same page (Fig. 6). The viewer registers the difference in tone before reading. The peculiar example of Herbert Bayer's *Visual Communication, Architecture, Painting*, with which this text began, reveals

> there can be no doubt that our writing-printing-reading methods are antiquated and inefficient as compared to the perfection attained in other areas of human endeavor.
>
> the history of our alphabet and any probing into its optical effectiveness expose a lack of principle and structure, precision and efficiency which should be evidenced in this important tool.

Figure 7. Herbert Bayer, *Visual Communication, Architecture, Painting* (1967).

a rare and deliberate synthesis of both modes within the same paragraph (Fig. 7). The structural discipline of justified text is combined with the natural irregularity of unjustified, producing an unexpectedly coherent, yet unconventional visual rhythm to the text. The book makes numerous statements regarding typographic form but offers no explanation for its own setting method. Bayer claims the text in the book is set unjustified: 'the "flush left, vignette right" method of setting type refrains from letterspacing. this is the first known application. it is now widely accepted. this method of setting type has been used throughout the text pages of this book'.[22] A clue to the reasoning behind this typesetting appears three years previously in *Typographic Directions: Trends in Visual Advertising*, where Bayer states, '[e]ven if a flush ending at the right is to be maintained, I prefer to end lines short of the full length instead of letter spacing some words to fill the line. It appears as if emphasis were put on the letter-spaced words.'[23]

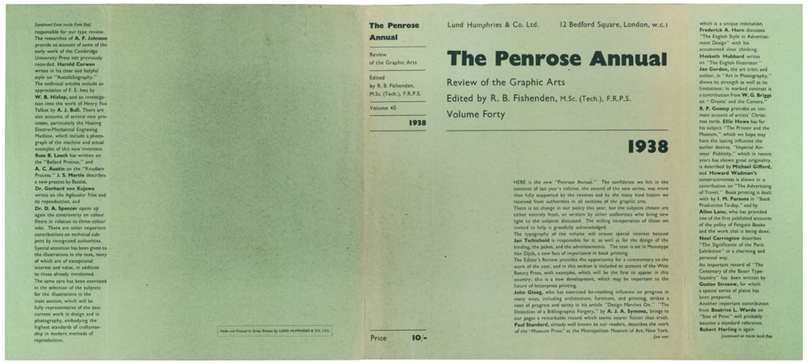
Experimental avant garde literature from the early twentieth century offers examples of pages which employ unusual typesetting compositions with multiple forms of arrangement (justified, unjustified, centred and ranged right) occurring at the same time. Hollowed-out white shapes within the multi typographic arrangement 'Pablo Picasso' calligram by Apollinaire from 1917, evoke the contours of objects one


News
United States

New Orleans suspect had posted recordings a year ago expressing extremist views

'Why here?' City's grief masked by resilience in face of tragedy

Figure 6. *The Guardian* (3 January 2025).


The Penrose Annual

Review of the Graphic Arts

Edited by R. B. Fishenden, M.Sc. (Tech.), F.R.P.S.

Volume 40

1938

Lund Humphries & Co. Ltd. 12 Bedford Square, London, w.c.1

The Penrose Annual

Review of the Graphic Arts

Edited by R. B. Fishenden, M.Sc. (Tech.), F.R.P.S.

Volume Forty

1938

Price 10.-

Figure 8. *The Penrose Annual*, Volume 40 (1938), cover designed by Jan Tschichold, courtesy of the German National Library.

might assume belong to Picasso's paintings. A more measured example appears in *The Penrose Annual* of 1938, whose cover and dustjacket were designed by Jan Tschichold (Fig. 8). The approach reflects a refined interpretation of the principles associated with the 'New Typography', which Tschichold had articulated so influentially a decade earlier. The body text on the cover is set justified, while the continuing text on the front and back flaps of the dustjacket follows the widely-accepted convention of using unjustified setting in narrow measures, to avoid rivers – uncommon in Tschichold's work. This publication exemplifies typographic theory put into practice, combining both justified and unjustified setting within the same piece of text. In *An Essay on Typography* (1931), Eric Gill states that 'even spacing is of more importance typographically than equal length'.[24] Gill composed the book's text like a scribe writing lines of unequal length, as opposed to a compositor setting justified lines. If the end of the line was either too long or too short, a portion of a word within that line would be set in a smaller size – a form of superscript abbreviation. Gill borrowed conventions from justified setting, such as increasing or reducing the word spacing of individual lines to create a more even or semi-justified effect. Twenty years later, in 1952, Dutch designer and Stedelijk Museum director, Willem Sandberg, featured Gill's typesetting in the article 'Must line-length be uniform?', published in the British journal *Typographica* (Fig. 9).[25] Sandberg's text juxtaposed a justified left-hand page with an unjustified right-hand page, suggesting that uneven line length imparts a 'dynamic, instead of a static, character'.[26] This layout embodies a visual dialogue between both systems (albeit not within the same paragraph): the traditional practice on the left and the new alternative on the right. The German designer and artist Dieter Roth designed an issue of the Icelandic literary journal *Birtingur* in 1957 (Fig. 10). While the text initially appears unjustified (highly unusual in the Icelandic context, where justification was ubiquitous), closer analysis reveals that lines which get very close to the end of the measure become justified. This is due in part to the Linotype composition method, designed and built for text justification, which was unable to add in such a small amount of space at the end of the line, forcing long lines into a justified setting. This is not noticeable to the naked

19. Hochuli, *Detail in Typography*, p. 36.

20. Ellen Lupton, *Thinking with Type*, 2nd edn (New York: Princeton Architectural Press, 2010), p. 79.

21. Robert Bringhurst, *The Elements of Typographic Style*, Version 4.2 (Vancouver: Hartley & Marks, 2013), pp. 137–38.

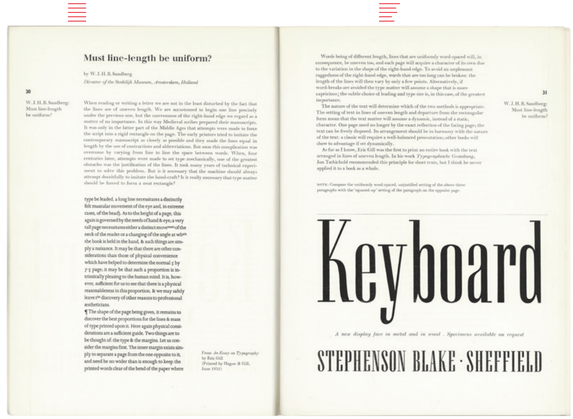
22. Bayer, *Visual Communication*, p. 21. The original lower-case typesetting has been preserved.

23. *Typographic Directions*, ed. by Edward M. Gottschall (New York: Art Directions Book Co., 1964), p. 139.

24. Eric Gill, *An Essay on Typography* (London: Sheed & Ward, 1931), p. 89.

25. Willem Sandberg, 'Must Line-length Be Uniform?', *Typographica*, 5, ed. by Herbert Spencer (London: Lund Humphries, 1952), pp. 30–31

26. Ibid., p. 31


Must line-length be uniform?

by W. J. H. B. Sandberg

Director of the Stedelijk Museum, Amsterdam, Holland

Keyboard

STEPHENSON BLAKE · SHEFFIELD

Figure 9. Willem Sandberg, 'Must Line-length Be Uniform?', *Typographica*, 5 (1952).

eru á annað borð einhvers nýtar. Satt er það, að formbreyting ein saman getur ekki bjargað leiklistinni frá hnignun. Það er lítið gagn í því að vera frumlegur, ef frumleikinn hefur ekkert listrænt takmark, og þegar er of mikið til af listamönnum, sem sakir andlegrar fátæktar reyna að

Figure 10. *Birtingur* vol. 3 (1957), designed by Dieter Rot.

eye and wouldn't have been specified by Roth. This example of setting text justified and unjustified at the same time is more technical quirk than design statement. Other examples of unjustified typesetting from the same period (1950–1980) show similar characteristics (Figs. 11–13). This hybrid setting occurred within a period of constant technical and aesthetic negotiation between typographer, typesetter and machine, while justified composition remained the prevailing norm. A similar typographic approach emerged in the UK in the 1980s at the advertising agency Cogent Elliott, [27] where semi-justified text was specified intentionally to achieve an effect similar to that of *Birtingur*.

Lust, written and designed by the artist and writer Paul Buck, deploys a style of paragraph setting in which the point at which the last word of a given paragraph ends, arbitrarily determines the horizontal indent of the first word of the following paragraph (Fig. 14).[28] This is described as 'dropline' paragraph setting by Robert Bringhurst in *The Elements of Typographical Style*.[29] An electronic typewriter with a monospaced font was used as the method of composition, with each character taking up the same amount of horizontal space. Three out of five of the line endings on the second paragraph of page 17 appear justified as they happen to be the same number of characters in each line, to form an accidental example of justified and unjustified happening at the same time. An extreme example of this effect being self-consciously produced is found in Han Duong's *Super Metroid Speed Guide and FAQ* (1996), a 17,500-word ASCII text in which every line contains exactly seventy-five characters (Fig. 15). Written in a monospaced text editor, the guide achieves full visual justification through the writer's careful word choice rather than by mechanical spacing. Duong reworded sentences so that they fit, effectively performing manual justification within the constraints of a basic text software.

> I figured if I was already going to put the effort into writing a helpful guide, I may as well make it look nice as well. Back then, many of the guides were in plain text. The problem was that back then, plain text was THE way to publish such types of guides. My only issue was that many of those guides just didn't look as nice due to the lack of right-hand justification. I decided full justification was a necessity. How was it done? It was really just a choice of words. If the initial text didn't fit, I would go back and try to reword my sentences so that they did.[30]

This absurd work intentionally combines justified and unjustified principles through its extreme linguistic constraint.

Figure 14. Paul Buck, *Lust* (1976).

Figure 15. Han Duong, *Super Metroid Speed Guide and FAQ* (1996) <https://gamefaqs.gamespot.com/snes/588741-super-metroid/faqs/10114> [accessed 6 February 2026].

Figure 11. *Introduction a la peinture moderne en belgique* (Vielsalm, arts et culture, 1968).

Figure 12. *Carl Andre / Marcel Broodthaers / Daniel Buren / Victor Burgin / Gilbert & George / On Kawara / Richard Long / Gerhard Richter* (Palais des Beaux-Arts, 1974).

Figure 13. *Europe in the seventies* (The Art Institute of Chicago, 1977), designed by Everett McNeal.

Figure 16. Christian Bök, *Diamonds* (2003), designed by Nick Shinn.

A similar approach can be found in *Diamonds* by the Canadian poet Christian Bök, a text in which small stanzas are set as a mosaic of fragments in the monospaced font 'Panoptica', designed for the project by Nick Shinn (Fig. 16).[31] Each line has the same number of characters so that even when set unjustified, it appears justified. Its text is made to fit its typography. Twenty-six characters make up each line, a reference to the numbers of letters in the Latin alphabet. It's a typeface, a book, and a type specimen set simultaneously justified and unjustified.

Semantic Poetry and Internal Vertical Justification

In the late 1940s, Stefan Themerson developed a typographic system to convey the aesthetic and semantic meanings of a given text, typically poetry, whose reflexive approach has been described by Stuart Bertolotti-Bailey as simply 'semantics = aesthetics'.[32] 'Internal vertical justification' (IVJ) appeared in Themerson's novel *Bayamus and the Theatre of Semantic Poetry* as an attempt to make type arrangement more diagrammatic of the text's content – more planar than linear – and therefore more comprehensible.[33] IVJ broke sentences into clusters of words, based on their syntax, which could then be spaced horizontally or vertically.[34] These two systems were born from Themerson's attempt as a writer and poet to strip language down to its 'true reality' (Fig. 17).[35] In describing the system in the *Penrose Annual* in 1965, he writes:

> you may read a musical score HORIZONTALLY, following the melodic line, and you may read it VERTICALLY, following the structure and arrangement. Why shouldn't it be the same with poetry? Typographical topography of a printed page is two-dimensional, is it not? If I have a number of words that form one entity, why shouldn't I write them as I would write the notes of a chord: ONE UNDER ANOTHER INSTEAD OF ONE AFTER ANOTHER? Internal vertical justification (I.V.J.) is the answer to my problem.[36]

Themerson illustrates this theory by re-typesetting a speech – *Printers and Designers*, by Herbert Spencer, as given to the Double Crown Club in 1963 – using IVJ.[37] Using an IBM typewriter he was able to drop down a line without having to return to the left edge of the text column. Crucial to this, and the broader work of Themerson's Gaberbocchus publishing imprint, was the fact that the editing (sometimes authoring), design, paste-up and publishing were all done in-house. Only with every aspect of production, from manuscript to print production, coordinated in this way do certain aesthetic outcomes become possible.

The Shape of Unjustified Text

Unjustified typesetting inherently produces lines of unequal length – the rag – whose arrangement into a satisfactory order requires conscious decision-making. The appearance of columns as text with irregular edges – whether free and unstructured or controlled and nuanced – has an influence on the tone and legibility of a piece of text, reflecting both cultural conventions and the typographic preferences of the designer, author and publisher.

In British typographic practice, each paragraph is considered a unified visual unit. A discrete undulating contour on the text's right edge is known as a 'fuzzy D-shape' (Fig. 18).[38] This was taught in the Department of Typography & Graphic Communication at Reading University, an influential institution in the national context of the UK, from the 1970s

> In Kapoor's art, in fact, as the title of the exhibition reminds us, the unreal is mixed with the untrue, transforming or negating the ordinary perception of reality. Thus we are invited to explore a world in which the boundary between true and false is dissolved, opening the doors to the dimension of the impossible.

Figure 18. Anish Kapoor, *Untrue Unreal* (2023), designed by Fraser Muggeridge studio.

27. Jim Williams, *Type Matters!* (London and New York: Merrell Publishers, 2012), p. 72.

28. Paul Buck, *Lust* (Hebden Bridge: Pressed Curtains, 1976).

29. Bringhurst, *Elements of Typographic Style*, p. 40.

30. Email correspondence with the author, 5 August 2025.

31. Christian Bök, *Diamonds* (Toronto: Coach House Press, 2003).

32. Stuart Bertolotti-Bailey, 'So-called Ephemera', *Bulletins of the Serving Library*, 11 (2016), 28–54 (p. 48).

33. Stefan Themerson, *Bayamus and the Theatre of Semantic Poetry: A Novel* (London: Editions Poetry, 1949), pp. 50–54, 69–83, 91.

34. Aleksandra Gomuczak and Piotr Lesnieski, 'Analogies and Language. A Study in Stefan Themerson's Semantic Poetry', *Studia Metodologiczne*, 37 (2016) 223–240 (p. 225).

35. Rathna Ramanathan, 'Conversations with the Themersons', *Ultrabold*, 6 (2009), 4–11 (p. 10).

36. Stefan Themerson, 'A well-justified postscript … Typographical Topography', *Penrose Annual; Review of the Graphic Arts*, 58 (1965), 334–44 (p. 336).

37. Ibid., (p. 337–343)

38. Paul Stiff, 'The End of the Line: A Survey of Unjustified Typography', *Information Design Journal*, 8.2 (1996), 125–52 (p. 145).

Figure 17. Stefan Themerson, 'A well-justified postscript … Typographical Topography', *Penrose Annual* (1965).

to the present. Short words at the end of a line are carried over to the next line to avoid them seeming detached from the paragraph, and falling off a metaphorical cliff-edge. The result is an edge that feels relaxed, with an organic rhythm.

In my design practice this activity is referred to as 'doing the line endings', representing a balance between control and informal expression. My intention is to acknowledge the visual aesthetic of the rag while maintaining care and consistency throughout the setting. Adobe InDesign incorporates algorithmic systems to manage line breaks and spacing. The default mode for specification is the Paragraph Composer, which evaluates an entire paragraph holistically, calculating the line breaks which will yield the most even overall spacing and fewest hyphenations. This approach can produce a certain visual harmony, particularly in long passages of text. However, it can pose challenges during editing, as even minor textual changes may alter the line endings of the entire paragraph. In contrast, Single-Line Composer mode analyses one line at a time, producing more predictable outcomes with greater control for the designer, particularly when managing manual line endings or short text extents. These digital developments illustrate how the creation of a typographic rhythm has shifted from a manual, craft-based operation to a semi-automated computational one. Yet the typographer's main objective remains to guide the reader's eye fluidly along the line, while maintaining visual coherence at the right edge of the text. This edge becomes a site of subtle design decision-making, embodying the tension between automation and authorship, efficiency and typographic expression.

Novel approaches to line ending shapes can be found in contemporary art publications that encourage experimental and playful strategies. For example, the book *The Grinberg Mystery*, designed by James Langdon derives its line-ending forms from the silhouetted shapes of a character's hands within the book itself (Fig. 19). This integration of typographic detail becomes an illustrative motif conceptually and visually, in dialogue with the content of the publication.[39]

When I stood up, Sister Gaby wrapped me in a sheet of shiny silk, which was stained brown on all sides. I did not dare ask. In his book, Grinberg describes the white mantle that Pachita used to cover his patients. With time it had become red on account of all the blood.

After a prayer, the questions started.

Figure 19. Rodrigo Ortiz Monasterio, *The Grinberg Mystery* (Bom Dia Boa Tarde Boa, 2019), designed by James Langdon.

39. Rodrigo Ortiz Monasterio, *The Grinberg Mystery* (Berlin: Bom Dia Boa Tarde Boa Noite, 2019).

40. Udo Wermuth, 'An Attempt at Ragged-Right Typesetting', *TUGboat*, 41.1 (2020), pp. 73–94.

41. Willi Kunz, *Typography: Formation and Transformation: A Handbook for Designing with Type* (Sulgen: Niggli, 2003), p. 85.

42. *Satztechnik und Typografie. Band 2: Satztechnische Grundlagen*, ed. by Richard Frick (Bern: comedia-Verlag, 2003). pp. 38–40.

43. Email correspondence with the author, 25 January 2025.

44. Email correspondence with the author, 11 June 2025.

45. Email correspondence with the author, 21 January 2026.

The *Flattersatz*

A distinctive approach to unjustified typesetting emerged in Switzerland during the late 1980s as designers practicing digital typesetting assumed greater control of their work.

It later spread to and is currently practiced in Germany, Italy, and parts of France. The name comes from *Flattern*, meaning 'to flutter', and *Satz*, meaning 'typesetting'.[40] This approach seeks to achieve an intentional rhythm within the right ragged edge of text. Unlike more spontaneous or unregulated forms of unjustified composition, *Flattersatz* utilises precision, balance, and craft. It insists on an alternating in-out, short-long rhythm along the right edge, creating a visually harmonious effect:

'Depending on the intended effect, the line rhythm may be subtle or pronounced'.[41] The layout and typesetting manual *Satztechnik Typografie* illustrates the common errors to avoid with this method:

1. Stepped ladder shapes that extend inward or outward.
2. Bulging rounded shapes.
3. Typographically and linguistically poor hyphenations.
4. Isolated words.
5. Poor rhythm.
6. Holes that are created by individual lines that are too short.
7. The rag parameters are too short.
8. The rag parameters are too long.
9. The short and long lines are the same length.
10. Linguistically illogical line breaks.[42]

The process of creating a *Flattersatz* involves a significant amount of manual labour, adjusting word spacing or character tracking to ensure each line reaches its optimal length to maintain the effect. In some cases, the horizontal or vertical scaling of letterforms is also manipulated, with the resulting minor distortions intended to remain imperceptible to the reader (Figs. 20–21). In this context, a poorly balanced rag is regarded as evidence of insufficient care or craftsmanship.

La proposta più visionaria dell'architettura radicale si trasforma così in un prodotto reale. Aurelio Zanotta decide di presentare i nuovi mobili a Parigi nel 1972. Per l'occasione, lui stesso e tutti i dipendenti presenti in fiera indossano giacche bianche a quadretti realizzate appositamente per l'occasione.

Quaderna rappresenta il punto d'incontro tra la filosofia di Superstudio e quella di Zanotta, una visione volta a rifiutare il perseguimento di uno stile per dare alle persone la libertà di crearsi il proprio. La casa rappresenta il ritratto autentico di chi la usa, dove gli arredi hanno il compito di connettere le persone e non di imporsi per la loro estetica.

Figure 20. *A Chequered World, Fifty Years of Quaderna and the Legacy of Superstudio* (2022), designed by Think Work Observe.

The brutalist movement, which emerged in the context of 1950s post-war reconstruction, was strongly linked to the idea of deploying architecture to help democratise society. The central tenets of brutalism—staying true to materials, transparency, and rendering structures visible—also permeate the Theater St.Gallen's architectural idiom. Concrete is not concealed or embellished but left just as it is, with all its traces, unevenness, and idiosyncrasies. Rather than using this materiality simply as a backdrop, Karikis turns it into a protagonist. The slow-moving camera hovers over the theatre foyer's grey concrete walls, floors, and ceilings. This probing gaze reveals the traces of the wooden formwork that characterize the raw, unadorned material;

Figure 21. Mikhail Karikis, *Voices, Communities, Ecologies* (2025), designed by Kasper-Florio.

Swiss Professor Rudolf Barmettler advocates for the creation of lines that 'actually flutter':

> It's all about rhythm. And the rhythm must be long, short, long, short, long, etc. It could also be long, long, short, short or long, long, short, long, long, etc. That's rhythm too – but even here, a reader might begin to wonder: what's the purpose of this rhythm? Typography, in this context, should not draw conscious attention. It's similar to dancing: it's about whether one can follow the rhythm of the music, and whether the dance becomes a pleasure for the pair. In terms of maintaining rhythm in ragged text, you can't suddenly switch from foxtrot to rock 'n' roll mid-dance – that would confuse your dance partner and the audience alike.[43]

Marietta Eugster and Giliane Cachin teach a similar theory to graphic designers in the Typesetting / Grid Systems module during the first semester at ZHdK, Zurich, Switzerland (Fig. 22). Swiss designer and letterpress printer Dafi Kühne further articulates the complexity of this approach, outlining multiple layers of decision-making that inform a successful *Flattersatz*:

a) the overall visual density of the spread;
b) the contour and shape of the paragraph's right-hand edge;
c) the alternation of long and short lines to establish rhythm;
d) variations within these long and short lines;
e) the management of hyphenation and linguistic rhythm, which may differ across languages; and
f) the acceptable degree of flexibility in word spacing or typeface stretching.[44]

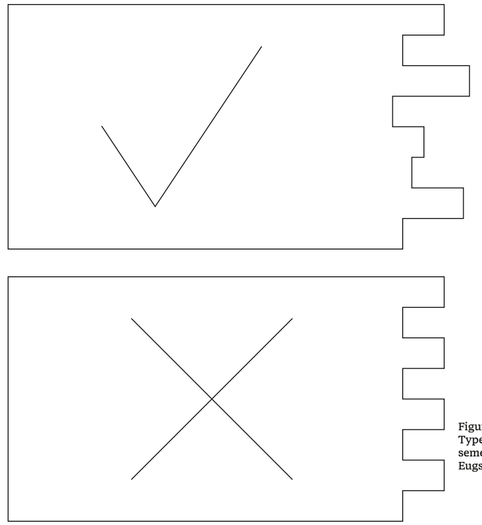


Figure 22. Excerpt from a handout for the Typesetting / Grid Systems module, first semester, ZHdK, Zurich, taught by Marietta Eugster and Giliane Cachin since 2021.

The cumulative effect of these decisions is subjective, depending on the designer's intention and sensitivity to visual rhythm of each line. The adoption of *Flattersatz* is as much an expression of individual authorship as it is a manifestation of typographic discipline. When heavy-handed alterations have been made to achieve the *Flattersatz* effect, even lay readers can become aware of it, to the detriment of the text. Contemporary practitioners have parodied and created techniques for automating the *Flattersatz* rhythm, with German designer Lucas Luccini inserting a blank box on every second line, so that text can be set to justified while still preserving the characteristic short-long look (Fig. 23). This playful execution blurs the distinction between hand-crafted irregularity and programmed precision. American designer Alex Lin arrived at the same solution in dialogue with a client: 'When we showed the curator the justified type blocks, he felt it was too straight and rigid, then we did flush left and he said it felt too messy. So we came up with the justified rag!' (Fig. 24).[45] Designer Kia Tasbihgou pursued a more expressive variation, deliberately exaggerating line lengths to convey textual meaning, while maintaining overall visual coherence (Fig. 25). And in 2019, the Swiss design studio Norm developed a refined iteration of Luccini's concept, by setting the line length to alternate between four standard widths (Fig. 26). The result appears natural and organic, yet it is entirely mechanical – a case for the most fitting expression of the spirit of justified and unjustified at the same time.

Im Bus hat sie keinen festen Platz. Sie findet es albern, sich eine Präferenz für einen Platz zu halten. Alle Menschen sollen beim Einsteigen schließlich jeden Tag aufs neue die Chance haben, überrascht zu werden. Sobald sie sitzt, holt sie die Zigarettenschachtel aus ihrer Tasche und zählt nach. War es ein sonniger Tag, ist die

Figure 23. *Student project* (2016), designed by Lucas Luccini.

in or around 1989, he started to photograph Tokyo and Yokohama from the top floors of six skyscrapers in the metropolis and created bird's-eye-view photographs of the city. The resultant series Untitled (discussed on page 131 in this volume; pages 158–67), comprising photographs shot over fifteen years and installed in a grid (of 48, 70, or 96 photographs), presents a timeless topographic map or mural of man-made structures composed of concrete that can be traced back to the lime hills that Hatakayama had photographed earlier. Over the years, he returned to the same skyscrapers and photographed numerous neighborhoods repeatedly at different times of year. Thus the

Figure 24. Naoya Hatakeyama, *Excavating the Future City* (Aperture, 2018), designed by Studio Lin.

After moons rolled across the cold stone of ancient night—expressing time; whittling a slight foothold at the base of the ascent to prediction, to elucidation and up to calculation… Whatever beauty is, some of it hides in that cool light that inhabits the dark, that paints itself in restless white strokes across black rivers—revealing a depth to the otherwise barely visible. Fragments of text—preserved in the soil of fertile memories, excavated from the soil itself—traverse centuries, survive millennia, enduring despite the absence of the whole; their fragility their strength, their incompleteness their hermetic allure, their elisions invitations.

Figure 25. Rupert Clervaux, *After Masterpieces* (2019), designed by Kia Tasbihgou.

tional in universes of synthesis. They establish mediating textures and diplomatic condensates that allow for the provisional interoperability of codes of sonic conduct. Sonic tensors elaborate complex syntheses of domains of sound. As with poetic composition, their structuring forces may not be immediately obvious, they may do violence to certain treasured forms of tonality and ideas of ears. As a complex of sounds, their relation to the mathematical or computational entities and procedures they in part arise from, or that model and track them, may necessarily imply something of an obfuscated semiotic; but it is their proposition, and their manifestation that subtly induces mental ears as an act of imagination and sensual intellection as they encounter a sound, a sound, a sound, a sound, a sound.

Figure 26. Florian Hecker, *Halluzination, Perspektive, Synthese* (Sternberg Press, 2019), designed by Norm.

in the elective subject department, the discipline of photography was regularly present in the course catalogue. Barbieri, a former Austrian cavalry officer, had studied chemistry at the Polytechnikum in Zurich and received his doctorate from the neighboring University of Zurich. He was considered a well-rounded scientist and talented mediator. In the context of his teaching assignments he offered "Photography Lectures" and "Photographic Internships." In 1886, when the new chemistry building opened on Universitätsstrasse, photography received its own quarters. The Photographic Institute was founded with the basic mission, "of giving students requiring photography for their subjects a concise introduction and furthermore, to be able to carry out photographic commissions requested from within

Ans_02471-009. Barbieri-Schüler im Hörsaal des Photographischen Instituts im Naturwissenschaftlichen Gebäude der ETH Zürich, ca. 1920. Ansichtensammlung. / Barbieri students in the lecture hall of the Photographic Institute in the building of the Institute of Natural Sciences of the ETH Zurich, ca. 1920. Collection of views.

Figure 27. Monika Burri, *Forschung im Fokus/ Science in Sight* (Scheidegger and Speiss, 2013), designed by Hi (Megi Zumstein & Claudio Barandun).

when viewers ask themselves the crucial question of what is inside or outside, then the confusion is complete: many a visitor then imagines him- or herself to be taking a stroll in the middle of the villa and yet outdoors. Then it is as if one is meandering through the streets of a Potemkin village on a sunny fall day; as if one is on the move as a voyeur, however who only occasionally catches a vague glimpse into private space. For all intents and purposes, looking into almost any of the windows is prevented by an opaque covering, a patterned blanket, or a floral curtain. However, mental reframing has always been an effective remedy for incipient frustration: Should the stroller's gaze wander through the actual windows out onto the reality of Delmenhorst, onto the rich green treetops, urban space, or through the (cinematic history-laden) rear

Figure 28. Fredrik Værslev, *Fenstermalerei, Städtische Galerie Delmenhorst* (2019), designed by Kasper-Florio.

Further Approaches

Swiss designers Megi Zumstein and Claudio Barandun developed a system where text is justified only when it is adjacent to an image, in order to maintain visual consistency between the edge of the text and the image (Fig. 27). Text, even in the same paragraph, then becomes unjustified when it extends below the image. Because InDesign cannot apply both alignment modes to the same paragraph, this effect requires manual intervention, reinforcing the labour-intensive work of this design. *Rausatz,* translated as 'rough setting', is another Swiss style that emphasizes simplicity over meticulous visual control (Fig. 28). *Rausatz* allows lines to flow more naturally than *Flattersatz*, without strict alignment or spacing adjustments. It is a raw, default approach often used in situations where speed and functionality matter more than aesthetics. While it may appear less polished, *Rausatz* prioritizes readability and efficiency. It represents the practical side of typesetting, offering a quick, flexible alternative, in line with the English approach.

Swiss designer Giliane Cachin's 2024 research project *Alternative Layout System* investigated Adobe InDesign's capacity to execute user-defined scripts in order to automate a set of strategies for addressing line-endings not offered in the software by default.[46] The project reconceptualizes paragraph formatting, providing alternatives to conventional layouts that are limited by the current digital tools which, Cachin says, 'do not provide the means to explore alternative possibilities for paragraph formatting beyond the classic conventions that have developed over time'.[47] The scripts each explore different approaches: 'Same Sizer' stretches letters so that every word occupies the same width, therefore justifying each line; 'Wiggle Out' shifts oversized words that do not fit within the text block into the margin, generating a curved effect; 'Fill the Space' emulates a manuscript technique by filling the gap between the last word and the edge of the text block with repeated letters or punctuation to achieve visual justification. 'Hyphen Out' moves words that would normally be hyphenated outside the text frame. 'Hyphenator' draws on Eric Gill's method of reducing certain letters' size to fit the line. 'Last is First' previews the first portion of the following line, while 'Ext. Word & Letter' expands the last letter or word of a line. Together, these inventive scripts render line endings visible in novel ways, drawing on historical manuscript practices while adapting them for contemporary digital typesetting.

46. Giliane Cachin, *Alternative Layout System*, 2024 <http:www.alternativelayoutsystem.com> [accessed 23 February 2026].

47. Cachin, *Alternative*.

Amazon Kindle

The introduction of Amazon's Kindle in 2007 marked a decisive shift in the history of reading (Fig. 29). As one of the earliest commercially successful e-readers, the Kindle redefined not only how a digital book is consumed but also how it is visually structured and displayed. It exemplifies the continued transition from fixed, designer-determined layouts to fluid, device-dependent text environments, where typographic form is controlled by algorithms and user preferences. The Kindle's typesetting engine automates processes that were historically manual, including justification, hyphenation, and spacing. The system evaluates text dynamically, adjusting word spacing and line breaks in real time based on the reader's selected font size, screen orientation, and device resolution. At specific larger font sizes, with justification enabled, the Kindle avoids hyphenating words or creating excessively wide spacing by shifting the entire word to the next line, leaving the existing line unjustified. This is the same principle that Bayer used in 1967. The Kindle eliminates the fixed relationship between designer and page. Each reader experiences a distinct version of the text, depending on their personal settings. Typographic justification settings here become contingent and adaptive – a move from composition to computation.

Conclusion

Typography occupies a liminal space between linguistic expression and visual form, between authorial intention and mechanical reproduction. The tension between justified and unjustified typesetting expresses this duality: one rooted in the pursuit of order, alignment, authority and cuts; the other in irregularity, individuality, freedom and tears. Each approach reflects broader cultural values concerning legibility, standardisation, and aesthetic control. The coexistence of justified and unjustified principles – whether in Bayer's hybrid settings, *Flattersatz* compositions, or Kindle's dynamic layout – reveals typography as an evolving dialogue between precision and imperfection. What was once a manual typesetting constraint now constitutes a continuum of design possibilities. These effects are sometimes at odds with the standard typographic settings for which software is optimised, their implementation requiring 'hacking' or inefficient manual interventions.

The paragraph – the smallest self-contained unit of textual architecture – embodies this negotiation. Its structure, spacing, and alignment express not only technical decisions but also philosophical attitudes toward language, order, and meaning. The typographer's task, whether performed manually or computationally, is to mediate between these competing forces, maintaining equilibrium between form and content, system and expression, as a profoundly human pursuit.

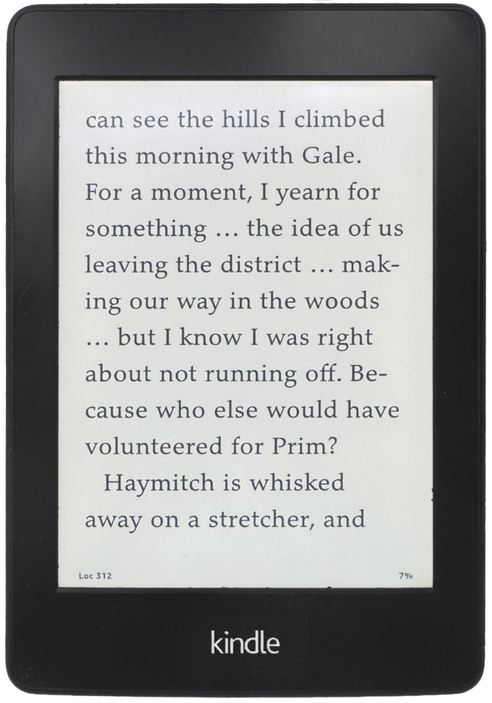


Figure 29. *Kindle Paperwhite*, 6th generation, launched in 2012.