

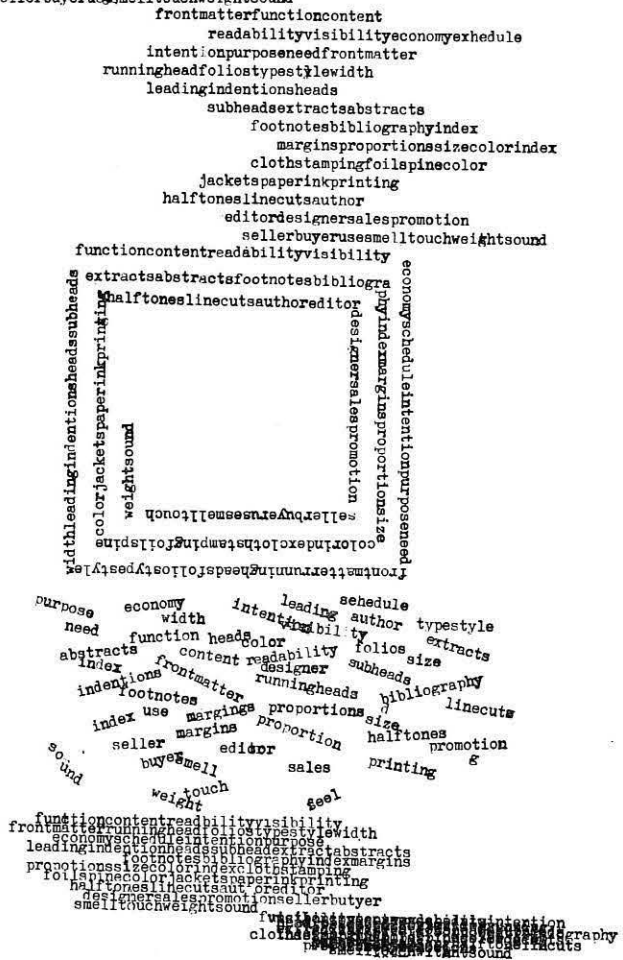
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- I would drop the convention of thinking in conventions instead of functions.....
- I would drop the convention of thinking in detail rather than in wholes.....
- I would drop the convention of replacing thinking with rote and calling it tradition
- I would drop the convention of mocking the past by idolizing it....
- I would drop the convention of denying today to preserve the past.....

functioncontentreadabilityvisibilityeconomycheduleintentionpurposeneedfrontmatterrunningheadfolios
 typestylewidthleadingindentionheadssubheadextractsabstractsfootnotesbibliographyindexmarginsprop
 ortionssizecolorindexclothstampingfoilspinecolorjacketspaperinkprintinghalftoneslinecutsauthoreditor
 designersalespromotionsellerbuyerusesmelltouchweightssound



BOOK

Scholarly Publishing, a new journal for authors and publishers, in its first number asked several book designers which conventions in book design each would most cheerfully drop. On this page is the reply from Muriel Cooper, design director for the MIT Press. Reprinted with kind permission of *Scholarly Publishing*, University of Toronto Press, Toronto 181, Canada.

Reader Preferences for Typeface and Leading

D. Becker, J. Heinrich, R. von Sichowsky, and D. Wendt

This paper investigates the influence of typeface and leading on perceived appealingness of a printed page. Eighty subjects judged the attractiveness of 48 typographic designs, varying in typeface (Garamond, Bodoni Antiqua, Bodoni Kursiv, Akzidenz Grotesk), in justified vs. unjustified composition, and in leading (0, 1, 2, 3, 4, and 5 points). Judgments were made by rank ordering subsets of six specimens. A scaling procedure (comparative judgment) was applied to the data and gave scale values for each design. There was no significant difference between mean scale values for justified and unjustified composition, but different typefaces required different amounts of leading to allow most appealing composition.

Various experiments have investigated the influence of leading and font style on legibility of printed text; for reviews of such studies, see Tinker 1963 or Zachrisson 1965. Some experiments have shown that objective criteria of legibility are correlated to reader's judgment of legibility (e.g., Pyke 1926, Tinker and Paterson 1942, Ovink 1938, Burt 1955, 1959). However, only a little research has been done until now on the attractiveness of typographic design for its own sake. Typographic design may be considered just as the "package" of a printed message, but it may be "the package that sells," and, as such, not at all unimportant. This is not only because, in the overwhelming flood of printed materials which comes on our desks, printed pieces have to "compete" with each other; what looks intuitively most appealing to us (other factors being equal) has best chances to get read first. It is also because an attractive design may be read more deliberately, with less fatigue, and faster just because of its higher motivational appeal.

This study was planned to explore the effect of two typographic factors on the perceived appeal of a printed page: typeface and leading. The questions were: what typeface (among a choice) looks most attractive; what amount of leading makes a page, printed in a

given font, most attractive; and what combination of typeface and leading is most effective?

Four typefaces were under investigation: Garamond, Bodoni Antiqua, Akzidenz Grotesk, and Bodoni Kursiv (Fig. 1). Printed pages, containing the same text, were composed in a 10-point font of each of these four typefaces: (1) with no leading; (2) with 1-, 2-, 3-, 4-, and 5-point leading; and (3) one of each in justified composition (line length 20 picas), and one in unjustified composition (average line length also 20 picas). This made a total of $4 \times 6 \times 2 = 48$ different stimuli. Subjects in this experiment were 80 students from the Hochschule für Bildende Künste (art school), from various faculties of the Universität Hamburg, and some from the upper grades of Hamburg high schools (corresponding in age to American college sophomores).

In the first part of the experiment each subject received eight series of six pages each with instructions to rank order each series with respect to their attractiveness or appealingness for reading. Each series contained six different amounts of leading, in the same font, justified or unjustified composition. Subjects were told to choose intuitively the "best" and "worst" design first, and then to look for the "best" and "worst" among the remainder, until they arrived at a complete rank order for the set of six stimuli. From these rank orderings, we inferred pairwise preferences, accumulated them over subjects, and analyzed the obtained data pair comparison matrices under assumption of Case V of Thurstone's Law of Comparative Judgment. Table I displays the results of these scaling procedures.

In the second part of the experiment, the same stimuli were used to explore preferences for various combinations of font style, leading, and justified or unjustified composition. However, since 48 stimuli would have been too many to be evaluated by a subject, the whole set was reduced to the 1-, 3-, and 5-point leading items; making a total of $4 \times 3 \times 2 = 24$ stimuli. Out of these we formed eight combinations of four subsets of six stimuli each. These combinations were arranged in such a way that each of the 24 stimuli was, at least once, combined with each other stimulus in the same subset, and each combination contained each stimulus just once. Each combination of four subsets was given to the subjects, under instruction to rank order the stimuli of each of the four subsets with respect to their

BODONI
abcdefghijklmnopqrstuvwxyz

BODONI-KURSIV
abcdefghijklmnopqrstuvwxyz

AKZIDENZ-GROTESK
abcdefghijklmnopqrstuvwxyz

GARAMOND
abcdefghijklmnopqrstuvwxyz

Figure 1. The four typefaces used in the experiments.

TABLE I. *Appealingness scale values for various amounts of leading (comparisons made within each line).*

Typographic Design	Leading in points					
	0	1	2	3	4	5
Garamond justified	0	10.9	12.4	11.2	10.5	4.7
Garamond unjustified	0	12.2	15.5	15.8	8.6	2.3
Bodoni Antiqua justified	0	13.5	14.9	14.2	9.3	4.0
Bodoni Antiqua unjustified	0	8.6	13.6	13.2	7.2	4.1
Akzidenz Grotesk justified	0	9.5	17.7	20.6	17.0	12.0
Akzidenz Grotesk unjustified	0	11.8	17.6	19.0	16.0	10.2
Bodoni Kursiv justified	0	8.1	14.1	14.2	10.1	6.0
Bodoni Kursiv unjustified	0	9.4	13.7	13.9	9.3	5.4

appealingness, as in the first part of the experiment. Inferring pair comparisons from these rank orderings gives us a 24×24 pair comparison matrix, with at least ten judgments in each cell (and more in some cells, because the subsets of stimuli had to overlap in order to make sure that every subject saw the whole set, as a constant frame of reference). An analysis of this data matrix under assumption of Case V of Thurstone's Law of Comparative Judgment resulted in the scale values reproduced in Table II. (For better convenience and avoidance of negative numbers, the lowest scale value was added to all figures, and they were multiplied by ten.)

An inspection of the results in Tables I and II reveals that the different typefaces need different amounts of leading to be considered most attractive by readers. The highest scale value was obtained with 2-point leading for Bodoni Antiqua both justified and unjustified, and for Garamond justified, and with 3-point leading for Garamond unjustified (although the differences from the scale values with 2-point leading are negligibly small); whereas Bodoni Kursiv (italic) and Akzidenz Grotesk (sans serif) required 3-point leading both for justified as for unjustified composition. This result was partly expected: the hypothesis was that Akzidenz Grotesk would require more leading since it lacks the bottom line of serifs, and has shorter ascender and descender heights.

Differences between typefaces, and between justified and unjustified composition, cannot be interpreted in Table I since each of its rows is based on a different set of data. They can, however, in Table II which shows that there are rather strong preferences for the roman types Garamond and Bodoni Antiqua over Akzidenz Grotesk (sans serif) and Bodoni Kursiv (italic). Three-point leading is judged best in all typefaces except for Akzidenz Grotesk where even 5-point leading is considered slightly better than 3-point (which contradicts the results from the first part of the experiment, Table I, and may be due to sampling error). The differences between scale values for different typefaces, and for different amounts of leading proved significant at the .001 level in an analysis of variance, the interaction of these two factors was significant at the .05 level.

We cannot draw too strong conclusions from this experiment. The number of subjects was small—most of the inferred pair preferences in the second part based only on ten subjects—and it is hard to say

TABLE II. *Appealingness scale values for various combinations of typeface, composition, and leading (overall comparisons).*

Typographic Design	Leading in points			Row average	
	1	3	5		
Garamond	justified	10.9	15.2	11.1	12.4
		10.2	15.9	11.2	12.4
	unjustified	9.5	16.6	11.2	12.4
Bodoni Antiqua	justified	11.6	11.1	10.4	11.0
		8.9	12.5	10.3	10.5
	unjustified	6.2	13.9	10.1	10.1
Akzidenz Grotesk	justified	0	7.9	8.8	5.5
		0.8	9.3	9.9	6.6
	unjustified	1.5	10.6	10.9	7.8
Bodoni Kursiv	justified	1.4	5.7	5.5	4.2
		1.8	6.3	5.7	4.6
	unjustified	2.2	6.8	5.9	5.0
Column average		7.2	14.6	11.3	

justified: 8.3

unjustified: 8.8

how far our findings can be generalized for other typefaces and situations. What is left to summarize is: (1) different typefaces need different amounts of leading to allow the composition of most appealing printed pages; (2) sans-serifs and italics may need one point more leading than roman types; (3) unjustified composition requires neither more nor less leading than justified composition, and (4) neither of these two styles of composition is considered more attractive than the other.

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Designing the Initial Teaching Alphabet in Five Typefaces

Arleigh Montague

Although use of i.t.a. (Initial Teaching Alphabet) in schools is growing, its use in printed materials is handicapped by inadequate adaptation to typeface designs. This study involved designing the i.t.a. alphabet for five well-known typefaces: Century Schoolbook, Baskerville, Melior, Helvetica, and Optima. The process is briefly described and the new alphabets are illustrated.

The Initial Teaching Alphabet, or i.t.a., is an interim alphabet designed to improve the learning of reading. Based on the phonetic alphabet, the i.t.a. consists of 44 symbols. This new alphabet was developed in England about ten years ago by Sir James Pitman and researched by the University of London Institute of Education in association with the National Foundation for Educational Research. The research work was carried out under the direction of Dr. John Downing; see also his report in this Journal, "Methodological Problems in Research on Simplified Alphabets and Regularized Writing-systems," April 1967, pp. 191-198. Sir Isaac Pitman, Sir James' grandfather and creator of the shorthand system which today is most used worldwide, had in the mid-nineteenth century developed the basis for the i.t.a. with an alphabet, called fonotypy, based on the phonetic alphabet which was tested in American schools between 1852 and 1860. Sir James in the middle of this century, with the help of the Monotype Corporation, went further to create i.t.a., an extended version of the roman alphabet which still claimed a phonetic base, but eliminated the learning of a completely new set of symbols when the child advanced to traditional orthography.

There are now 59 British, American, Canadian, and Australian publishing houses who have published literature or texts in the i.t.a. in fourteen beginning reading schemes. Yet among these can be found only three different faces of the alphabet: the original face,