Low contrast in letter-stroke facilitates lexical identification

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Low contrast in letter stroke facilitates greater identification

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Introduction

It is a long-lasting dispute within typography, whether serif or sans serif fonts are the most legible.

However, different fonts vary on numerous visual parameters and not just the serifs.

Aim

In the present experiment, we were interested in investigating whether a given difference in reading performances between serif and sans serif fonts, relates to the serifs or relates to the contrast of the letter stroke.

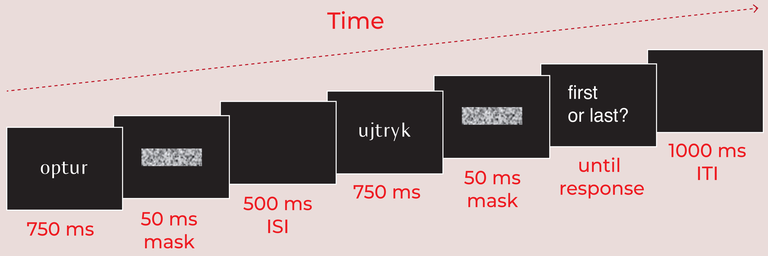
Font conditions

We developed five new fonts for this experiment, where we isolated the stylistic features of serif and letter stroke contrast.

	High stroke contrast	Low stroke contrast
Sans serif	hamburgefontsiv SansHighContrast	hamburgefontsiv SansLowContrast
Serif	hamburgefontsiv SerifHighContrast	hamburgefontsiv SerifLowContrast
Semi Serif		hamburgefontsiv SemiSerifLowContrast

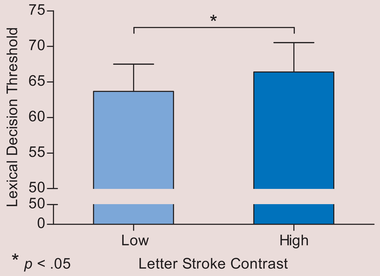
Experiment design

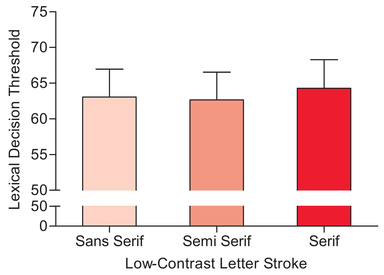
The experimental paradigm used was a lexical decision (LD) task. To obtain LD thresholds for different font styles, an LD task was embedded within a two-interval, forced-choice (2IFC) task. On a given trial, participants were exposed to one word stimulus after the other whereby one of the words was either a correctly spelled word or a non-word (word with one of its letters swapped with another middle letter). Participants (n = 16) indicated in which of the two intervals the real word was placed. As a baseline condition, LD thresholds, for the font Helvetica, were obtained via the QUEST algorithm.

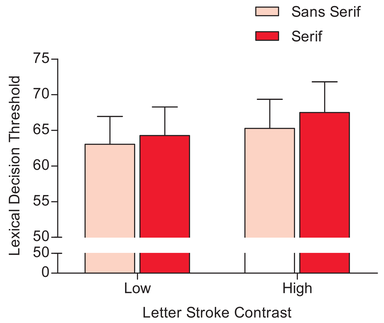


Results stroke

There was a main effect of stroke contrast such that low stroke-contrast elicited lower LD thresholds (M = 63.67) relative to the LD thresholds elicited by high stroke-contrast (M = 66.40), F (1, 15) = 7.12, p = .018. Low LD thresholds indicate that word stimuli may be presented at smaller font sizes to make a correct lexical decision and vice versa.







Results serifs

The main effect of type of font serif was not significant such that serifs did not affect the LD threshold to vary. However, the font serif data did follow the hypothesized data pattern. That is, sans serif fonts yield lower thresholds relative to serif fonts.

Conclusion

We showed that high stroke contrast impaired word recognition while the presence or absence of serifs had no effect on word recognition.