What's your type? Psychophysics of variable fonts: Reading speed and comprehension measures

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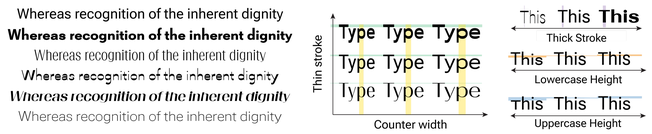
APPLY LAB

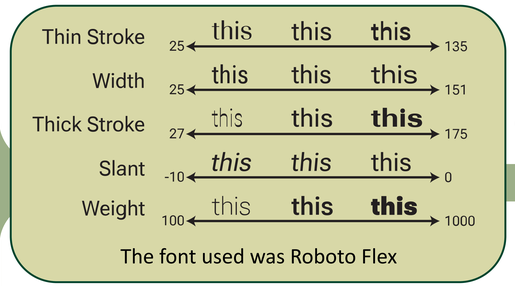
Introduction

Variable fonts allow designers to manipulate how text appears along many continuous axes. This produces text that looks very different, from a single font file, and these continuous axes lend themselves to researchers using psychophysical techniques to study them.

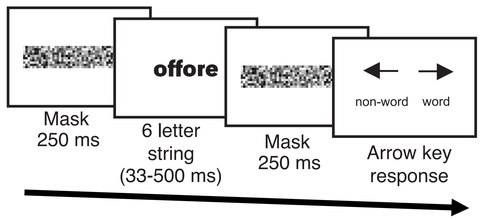


Research Question

Which axes within a variable font have the largest effects on reading speed and comprehension? Does this vary by task?



Methods

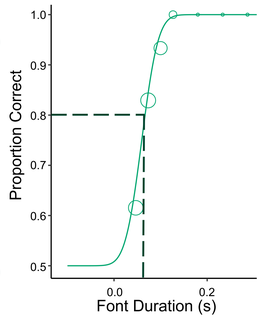


How much time do you need to be able to distinguish a word from a non-word?

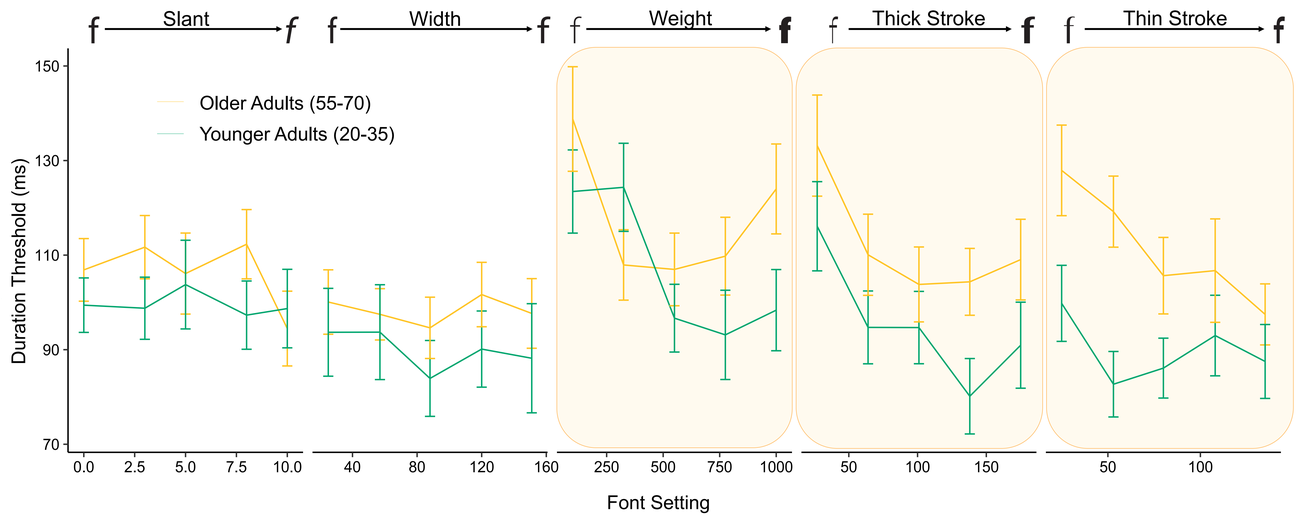
N = 40 per axis

Online (Prolific)

Calculated an 80% duration threshold



Exp 1: Lexical Decision Task

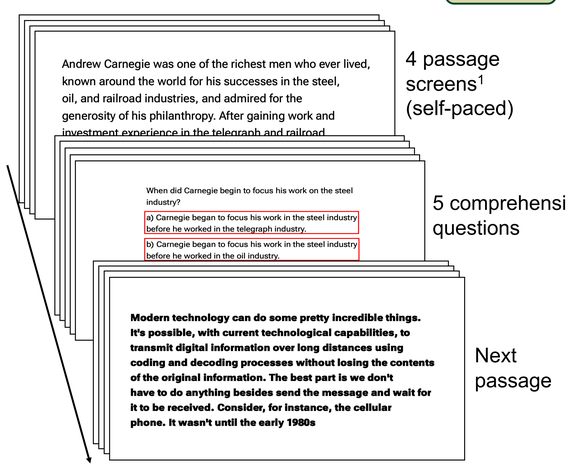


Effects are more pronounced for older adults and optimal font weight is different for older and younger adults

Width, **thin stroke**, and **thick stroke** all impact duration thresholds (no effects of slant or width)

Methods

N = 14

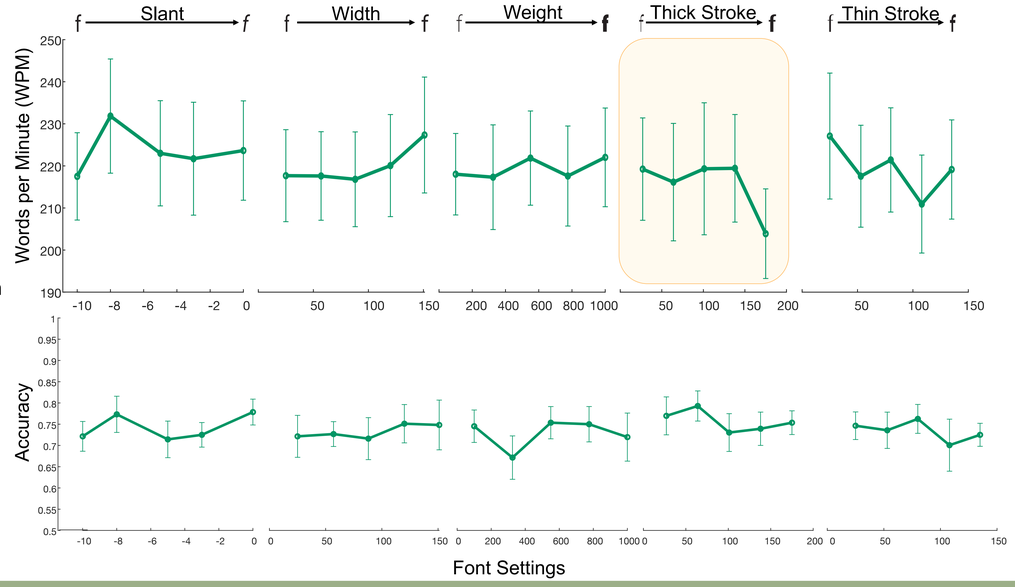


4 passage screens[1] (self-paced)

5 comprehension questions

Next passage

Exp 2: Passage-level Reading



Reading Speed

Reading speed decreases at extreme thick strokes

No other significant effects

Comprehension

Comprehension is stable across font manipulations

No speed-comprehension tradeoffs

Conclusions

The effects of axis manipulations within a variable font **depend on task and age**

Consistent with previous work[2,3], extreme manipulations of font weight decrease reading speed

What's next? Examining individual differences in optimal font settings and the combined effects of manipulations across multiple axes

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References: [1] Wallace, S. *et al.*, *ACM Trans. Comput. Interact.* 29 (2022). [2] Dobres, J., Reimer, B., Chahine, N., *AutoUI*, (2016). [3] Bernard, J. B., Kumar, G., Junge, J., Chung, S. T. L. *Vision Res.* 84, 33–42 (2013).