

Typography and Readability: An Experiment with Post-Stroke Patients

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TUG2014

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1. Aims

Previous work: despite the lore, the legibility of sans serif and serif are not too different¹.

Reading is a complex process: eyes and brain participate! Do serifs influence recognition of letters?

The difference is too small for healthy subjects—what about the post-stroke patients? Will it amplify the differences?

¹Boris Veytsman and Leyla Akhmadeeva. Towards evidence-based typography: First results. *TUGboat*, 33(2):156–157, 2012. <http://www.tug.org//TUGboat/tb33-2/tb104veytsman-typo.pdf>; Leyla Akhmadeeva, Ilmar Tukhvatullin, and Boris Veytsman. Do serifs help in comprehension of printed text? An experiment with Cyrillic readers. *Vision Research*, 65:21–24, 2012. ISSN 0042-6989. doi: 10.1016/j.visres.2012.05.013. URL <http://www.sciencedirect.com/science/article/pii/S0042698912001721>

Two-fold aims:

1. Study how post-stroke patients read texts.
2. Help the patients by giving recommendations to publishers.

We compare Paratype Serif and Sans Serif fonts:

- Paratype Serif
- Paratype Sans

2. Experimental problems

1. Ethics considerations: we cannot ask the patients for something not useful for them!
2. Population problems: we cannot have hundreds of patients.
3. Variance problems: the speed of reading and comprehension varies.

3. Methods

1. The patients are given rehabilitation-related texts (instructions etc) in four parts.
2. Half of the patients receive the parts as Serif → Sans → Serif → Sans, half as Sans → Serif → Sans → Serif
3. We measure time of reading and the number of correct answers.
4. We perform *paired* comparisons: same patient, different texts.

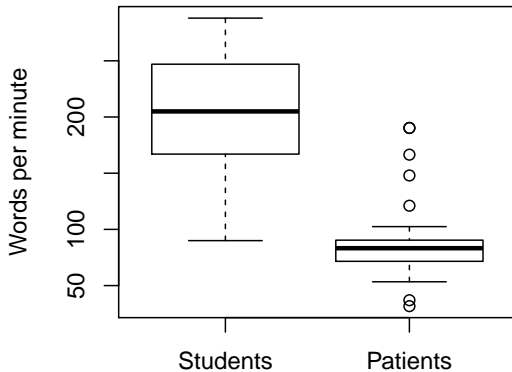
Selection criteria:

1. Post-stroke patients,
2. Ability to read text,
3. Fluency in Russian language,
4. Absence of dementia,
5. Absence of aphasia

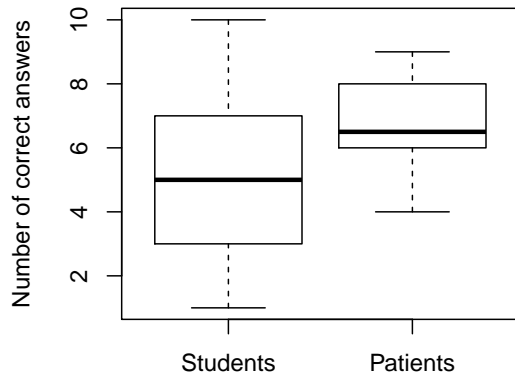
Participants selected: $N = 19$, including 12 males and 7 females.
Average age 54 ± 11 years.

4. An aside: students and patients

Words per minute:

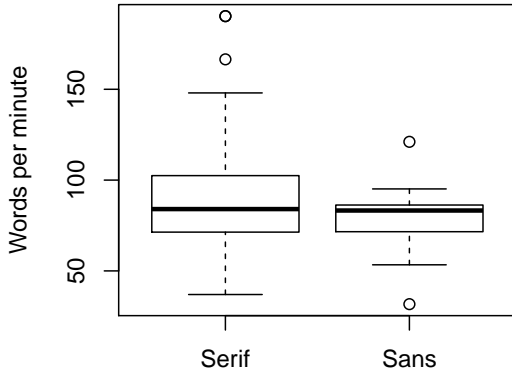


Number of correct answers:

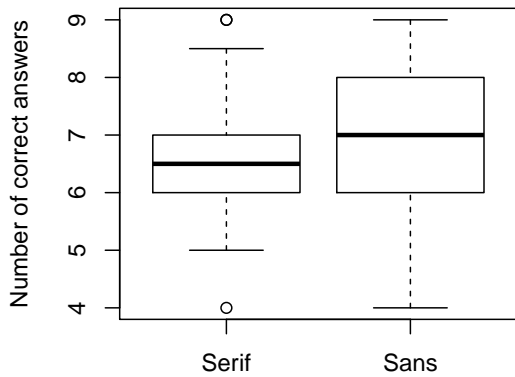


5. Results

Words per Minute:



Number of correct answers:



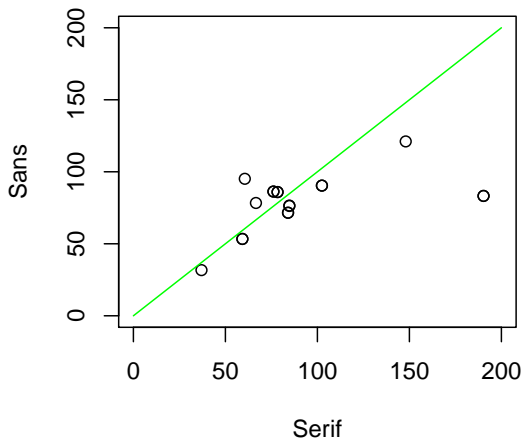
No difference between average numbers.

Another approach: *paired* comparisons: compare serif and sans data for the same patient.

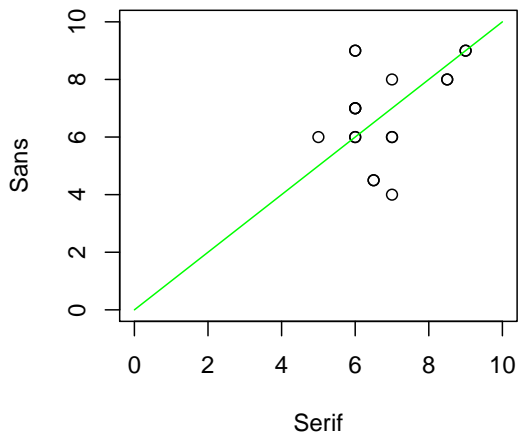
Above $x = y$ diagonal means Sans > Serif

Below $x = y$ diagonal means Sans < Serif

Words per minute:



Number of correct answers:



6. Conclusions

1. It is more difficult to measure typography influence on the reading by post-stroke patients than by the healthy subjects.
2. The difference between serif and sans serif is very small.

7. Acknowledgements

- Lilia Nurtdinova (medical student, Bashkir State Medical University, Ufa, Russia).
- Patients
- Republic Clinical Hospital, Bashkortostan
- TUG

References

Boris Veytsman and Leyla Akhmadeeva. Towards evidence-based typography: First results. *TUGboat*, 33(2): 156–157, 2012.

<http://www.tug.org//TUGboat/tb33-2/tb104veytsman-typo.pdf>.

Leyla Akhmadeeva, Inar Tukhvatullin, and Boris Veytsman. Do serifs help in comprehension of printed text? An experiment with Cyrillic readers. *Vision Research*, 65:21–24, 2012. ISSN 0042-6989. doi: 10.1016/j.visres.2012.05.013. URL <http://www.sciencedirect.com/science/article/pii/S0042698912001721>.