Reproducible Paper Writing

Scientific publications should both announce a result and convince readers that the result is correct (Mesirov, 2010). However, in psychology, studies that replicate (or fail to replicate) others' findings are almost impossible to publish in top scientific journals (Crocker & Cooper, 2011) thus contributing to the so-called "reproducibility crisis" in psychological sciences (Open Science Collaboration, 2015). This is not only due to the fact that researchers value new results higher than reproducing existing ones, but also by a lack of technical and statistical skills (Peng, 2015). Thus better technical skills for reproducible paper writing and data analyses may provide a remedy to the reproducibility crisis. In this talk, we present a method that is well-suited for writing reproducible academic papers. This method is a combination of Latex, R, Knitr, Git, and Pandoc. These software tools are robust, well established and not more than reasonable complex. Two other approaches, one based on Word Processors (MS Word), and one based on Markdown, are discussed and ultimately disencouraged. The presentation is based on a practical software demonstration. A Github repository is provided for easy reproducibility.

REFERENCES

Crocker, J., & Cooper, M. L. (2011). Addressing Scientific Fraud. *Science*, *334*(6060), 1182. http://doi.org/10.1126/science.1216775

Mesirov, J. P. (2010). COMPUTER SCIENCE. Accessible Reproducible Research. *Science*, *327*(5964), 10.1126/science.1179653. http://doi.org/10.1126/science.1179653

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251). http://doi.org/10.1126/science.aac4716

Peng, R. (2015). The reproducibility crisis in science: A statistical counterattack. *Significance*, *12*(3), 30–32. http://doi.org/10.1111/j.1740-9713.2015.00827.x