

F1000Research brings static research figures to life

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F1000Research today published new research from Bjorn Brembs, professor of neurogenetics at the Institute of Zoology, Universitaet Regensburg, in Germany, with a proof-of-concept figure allowing readers and reviewers to run the underlying code within the online article. This represents an important leap forward for scientific publishing, by demonstrating a completely novel framework for assessing the quality of a scholarly output.

Figure 3 in fact doesn't really exist. The authors submitted their data and their code to *F1000Research*, and the figure is generated 'on the fly' when the article is viewed. Readers can select the appropriate parameter to run the code and alter the figure that is generated. The ability to adjust how data is plotted enables readers to evaluate the data for themselves, bringing scientific figures into the Internet age alongside article versioning, replication and complete transparency in the publishing process. "Ultimately, our goal is to set everything up such that we only need to submit our text with links to data and code, without ever having to fiddle with figures anymore", said Brembs.

Brembs' work suggests that naturally arising genomic differences between different stocks of the widely used animal model *Drosophila melanogaster* could profoundly impact on subsequent comparisons between nominally identical fly stocks. The paper additionally includes a call for participation to other laboratories and research groups to contribute to a second proof-of-concept figure that is slated to be added to a future update of the current article. Figure 4 will enable multiple

laboratories to feed in behavioral data from their local experimental setup into a single 'living' figure. The data will be generated 'on the fly' as each data stream is updated and fed into the figure. Thus readers will be able to see the evolution of the behavior of several fly strains over time.

The recent rise in retraction rates of scientific articles proves that attempts at reproducibility by other labs are crucial to cross-checking our understanding of science. With only one or two figures to choose from in the past, authors were incentivized to pick the view of the data that best demonstrated their conclusions. "The traditional method of publishing still used by most journals today means that as a referee or reader, the data cannot be reused nor can the analysis be checked to see if all agree with the reported conclusions", said Brembs. "This slows down scientific discovery. We are pleased to be able to pioneer these two interactive figures with F1000Research, which will hopefully be the start of a big shift in the way journals treat their figures."

"The peer-reviewed journal article has been the currency of science since the 1600s, yet the pace of science [publishing](#) has amazingly not changed much", said Dr Rebecca Lawrence, Managing Director *F1000Research*. "We are building on our core principles of almost immediate publication, transparent refereeing and open data. We have already been the first scientific journal to enable articles to be continually updated, together with their associated [data](#) and software; now we are continuing this development for figures, enabling scientific articles to better mirror the continuous pace of scientific discovery."

More information: For the full paper, please visit f1000research.com/articles/3-176/v1.

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