

Dear Scientific Reports Editorial Board,

Please find attached my revision of the manuscript, “Component response rate variation underlies the stability of highly complex finite systems”, which I hope you will further consider for publication as an Article.

My manuscript addresses a question of broad relevance to the physical, life, and social sciences. I demonstrate that when individual components of complex systems vary in the rate at which they respond to system perturbation, the potential for stability is increased.

In my revision, I have carefully considered the comments of three anonymous reviewers. Addressing these reviewer comments has taken longer than initially anticipated, but I believe that the quality of the manuscript has greatly improved for these additional efforts. I now include new analytical and simulation results that investigate the role of system correlation on stability. I also have performed new simulations for commonly observed network structures, including small-world networks, scale-free networks, and cascade food webs. These new results further clarify the key theory, and further demonstrate its generality across complex systems.

In the interest of transparency, the entire history of this project, including all my efforts in revising and addressing reviewer comments, is accessible on GitHub (<https://github.com/bradduthie/RandomMatrixStability>). An accompanying R package and website (<https://bradduthie.github.io/RandomMatrixStability/>) is also available with documentation for easily recreating all simulations and analyses.

I certify that this manuscript is original work and not under review at any other journal or book; a pre-print version of this revised manuscript has been submitted to arXiv (<http://arxiv.org/abs/1806.01029>).

Sincerely,

A. Bradley Duthie

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