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lavaanExtra: Convenience Functions for Package *lavaan*

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Summary

{lavaanExtra} is an R package that offers an alternative, vector-based syntax to package {lavaan}, as well as other convenience functions such as naming paths and defining indirect links automatically. It also offers convenience formatting optimized for a publication and script sharing workflow.

Statement of need

There are many reasons to use R (R Core Team, 2022) for analyzing and reporting data from research studies. R is more compatible with the ideals of open science (Quintana, 2020). In contrast to commercial software: (a) it is free to use; (b) it makes it easy to share a fully comprehensive analysis script; (c) it is transparent as anyone can look at the formulas or algorithms used in a given package; (d) the community can quickly contribute new packages based on current needs; (e) it generates better-looking figures; and (f) it helps reduce copy-paste errors so common in psychology. The latter point is a substantial one because according to some estimates, up to 50% of articles in psychology have at least one statistical error (Nuijten et al., 2016).

However, R has a major downside for R novices: its steep learning curve due to its programmatic interface, in contrast to perhaps more user-friendly point-and-click software. Of course, this flexibility is also a strength, as the R community can, and increasingly does, mobilize to produce packages that make using R as easy as possible (e.g., the *easystats* ecosystem Lüdecke et al., 2019/2023). The {rempsyc} package contributes to this momentum by providing convenience functions that remove as much friction as possible between your script and your manuscript (in particular, if you are using Microsoft Word).

There are mainly three things that go into a manuscript: text, tables, and figures. {rempsyc} does not generate publication-ready text summarizing analyses; for this, see the {report} package (Makowski et al., 2021/2023). Instead, {rempsyc} focuses on the production of publication-ready tables and figures. Below, I go over a few quick examples of those.

Examples Features

Publication-Ready Tables

Formatting your table properly in R is already a time-consuming task, but fortunately several packages take care of the formatting within R [e.g., the {broom} or {report} packages, Robinson et al. (2022); Makowski et al. (2021/2023); and there are several others]. Exporting these formatted tables to Microsoft Word remains a challenge however. Some packages do

export to Word (e.g., Stanley & Spence, 2018), but their formatting is often rigid especially when using analyzes that are not supported by default.

{rempsyc} solves this problem by allowing maximum flexibility: you manually create the data frame exactly the way you want, and then only use the magical function, `nice_table()`, on the resulting data frame. `nice_table()` works on any data frame, even non-statistical ones like `mtcars`.

Availability

The {lavaanExtra} package is licensed under the MIT License. It is available on CRAN, and can be installed using `install.packages("lavaanExtra")`. The full tutorial website can be accessed at: https://lavaanExtra.remi-theriault.com/. All code is open-source and hosted on GitHub, and bugs can be reported at https://github.com/rempsyc/lavaanExtra/issues/.

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