Session Info

Ivan Jacob Agaloos Pesigan

Session

```
sessionInfo()
#> R version 4.5.1 (2025-06-13)
#> Platform: x86_64-pc-linux-gnu
#> Running under: Ubuntu 24.04.3 LTS
#>
#> Matrix products: default
          / usr/lib/x86\_64-linux-gnu/openblas-pthread/libblas.so.3
#> LAPACK: /usr/lib/x86_64-linux-gnu/openblas-pthread/libopenblasp-r0.3.26.so; LAPACK version 3.12
#>
#> locale:
#> [1] LC_CTYPE=en_US.UTF-8
                             LC_NUMERIC=C
   [3] LC_TIME=en_US.UTF-8
                              LC_COLLATE=en_US.UTF-8
#> [5] LC_MONETARY=en_US.UTF-8 LC_MESSAGES=en_US.UTF-8
   [7] LC_PAPER=en_US.UTF-8
                                LC_NAME=C
  [9] LC_ADDRESS=C
                                  LC_TELEPHONE=C
#> [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C
#>
#> time zone: Etc/UTC
```

```
#> tzcode source: system (glibc)
#> attached base packages:
#> [1] stats
               graphics grDevices utils datasets methods
                                                             base
#> other attached packages:
#> [1] lavaan_0.6-20 semmcci_1.1.5 rProject_0.0.21
#>
#> loaded via a namespace (and not attached):
#> [1] httr_1.4.7
                     cli_3.6.5.9000 knitr_1.50
                                                    rlang_1.1.6
#> [5] xfun_0.53
                     stringi_1.8.7
                                      highr_0.11
                                                      generics_0.1.4
#> [9] jsonlite_2.0.0 glue_1.8.0
                                      backports_1.5.0 pbivnorm_0.6.0
#> [13] plyr_1.8.9
                  rprojroot_2.1.1 stats4_4.5.1
                                                      RefManageR_1.4.0
#> [17] quadprog_1.5-8 evaluate_1.0.5 lifecycle_1.0.4 stringr_1.5.2
#> [21] compiler_4.5.1 Rcpp_1.1.0 timechange_0.3.0 bibtex_0.5.1
#> [25] R6_2.6.1
                      parallel_4.5.1 mnormt_2.1.1
                                                      magrittr_2.0.4
#> [29] tools_4.5.1 lubridate_1.9.4 xml2_1.4.0
```

Packages

```
unname(installed.packages()[, 1])
     [1] "bmemLavaan"
                              "mi"
#>
                                                   "rsem"
    [4] "sem"
                              "semmcci"
#>
                                                   "abind"
     [7] "Amelia"
                              "arm"
                                                   "arrow"
    [10] "ash"
                              "askpass"
                                                   "assertthat"
                              "base64enc"
    [13] "backports"
                                                   "betaDelta"
```

#>	[16] "betaMC"	"betaNB"	"betaSandwich"
#>	[19] "BH"	"bibtex"	"BiocManager"
#>	[22] "bit"	"bit64"	"bitops"
#>	[25] "blob"	"bootStateSpace"	"brew"
#>	[28] "brio"	"broom"	"bslib"
#>	[31] "cachem"	"callr"	"car"
#>	[34] "caracas"	"carData"	"cellranger"
#>	[37] "cffr"	"checkmate"	"cli"
#>	[40] "clipr"	"clock"	"clusterGeneration"
#>	[43] "coda"	"cOde"	"collections"
#>	[46] "colorspace"	"commonmark"	"conflicted"
#>	[49] "corpcor"	"covr"	"cowplot"
#>	[52] "cpp11"	"crayon"	"credentials"
#>	[55] "crosstalk"	"cTMed"	"ctsem"
#>	[58] "curl"	"data.table"	"DBI"
#>	[61] "dbplyr"	"Deriv"	"desc"
#>	[64] "deSolve"	"devtools"	"diagram"
#>	[67] "dials"	"DiceDesign"	"diffobj"
#>	[70] "digest"	"distributional"	"distro"
#>	[73] "doBy"	"docopt"	"downlit"
#>	[76] "dplyr"	"DT"	"dtplyr"
#>	[79] "duckdb"	"dynr"	"dynUtils"
#>	[82] "ellipse"	"ellipsis"	"evaluate"
#>	[85] "expm"	"fansi"	"farver"
#>	[88] "fastDummies"	"fastmap"	"fclust"
#>	[91] "fda"	"fdrtool"	"fds"
#>	[94] "fitDTVARMxID"	"FNN"	"fontawesome"

#>	[97]	"forcats"	"foreach"	"Formula"
#>	[100]	"fs"	"fst"	"fstcore"
#>	[103]	"furrr"	"future"	"future.apply"
#>	[106]	"gargle"	"generics"	"gert"
#>	[109]	"ggplot2"	"ggrepel"	"gh"
#>	[112]	"gitcreds"	"glasso"	"glmnet"
#>	[115]	"globals"	"glue"	"googledrive"
#>	[118]	"googlesheets4"	"gower"	"GPArotation"
#>	[121]	"GPfit"	"graphicalVAR"	"gridExtra"
#>	[124]	"gsubfn"	"gtable"	"gtools"
#>	[127]	"hardhat"	"haven"	"hdrcde"
#>	[130]	"here"	"highr"	"Hmisc"
#>	[133]	"hms"	"htmlTable"	"htmltools"
#>	[136]	"htmlwidgets"	"httpuv"	"httr"
#>	[139]	"httr2"	"ids"	"ifaTools"
#>	[142]	"igraph"	"infer"	"ini"
#>	[145]	"inline"	"ipred"	"isoband"
#>	[148]	"iterators"	"jomo"	"jpeg"
#>	[151]	"jquerylib"	"jsonlite"	"jsonvalidate"
#>	[154]	"kernlab"	"knitr"	"ks"
#>	[157]	"labeling"	"Lahman"	"languageserver"
#>	[160]	"later"	"latex2exp"	"lava"
#>	[163]	"lavaan"	"lazyeval"	"lhs"
#>	[166]	"lifecycle"	"lintr"	"listenv"
#>	[169]	"litedown"	"littler"	"lme4"
#>	[172]	"locfit"	"longMI"	"loo"
#>	[175]	"lubridate"	"magick"	"magrittr"

#>	[178]	"markdown"	"MatrixModels"	"matrixStats"
#>	[181]	"mclust"	"memoise"	"metaSEM"
#>	[184]	"metaVAR"	"mice"	"microbenchmark"
#>	[187]	"mime"	"miniUI"	"minqa"
#>	[190]	"mitml"	"mize"	"mlVAR"
#>	[193]	"mnormt"	"modeldata"	"modelenv"
#>	[196]	"modelr"	"MplusAutomation"	"multicool"
#>	[199]	"mvtnorm"	"nloptr"	"numDeriv"
#>	[202]	"nycflights13"	"OpenMx"	"openssl"
#>	[205]	"ordinal"	"pan"	"pander"
#>	[208]	"parallelly"	"parsnip"	"patchwork"
#>	[211]	"pbapply"	"pbivnorm"	"pbkrtest"
#>	[214]	"pcaPP"	"pdftools"	"pillar"
#>	[217]	"pkgbuild"	"pkgconfig"	"pkgdown"
#>	[220]	"pkgload"	"plogr"	"plyr"
#>	[223]	"png"	"posterior"	"pracma"
#>	[226]	"praise"	"prettyunits"	"printr"
#>	[229]	"processx"	"prodlim"	"profvis"
#>	[232]	"progress"	"progressr"	"promises"
#>	[235]	"proto"	"ps"	"psych"
#>	[238]	"purrr"	"qgraph"	"qpdf"
#>	[241]	"quadprog"	"quantreg"	"quarto"
#>	[244]	"QuickJSR"	"R.cache"	"R.methodsS3"
#>	[247]	"R.00"	"R.utils"	"R2jags"
#>	[250]	"R2WinBUGS"	"R6"	"ragg"
#>	[253]	"rainbow"	"rappdirs"	"rbibutils"
#>	[256]	"rcmdcheck"	"RColorBrewer"	"Rcpp"

#> [259] "RcppArm	nadillo" "RcppEiger	n" "RcppGSL"
#> [262] "RcppPar	rallel" "RcppTOML'	" "RCurl"
#> [265] "Rdpack"	"readr"	"readxl"
#> [268] "recipes	"RefManage	geR" "reformulas"
#> [271] "rematch	"rematch2"	"remotes"
#> [274] "reprex"	"reshape2"	"reticulate"
#> [277] "rex"	"rhub"	"rjags"
#> [280] "rlang"	"RMariaDB'	"rmarkdown"
#> [283] "roxygen	n2" "rpf"	"RPostgres"
#> [286] "rProjec	t" "rprojroot	t" "rsample"
#> [289] "RSQLite	"rstan"	"rstantools"
#> [292] "rstudio	papi" "rversions	s" "rvest"
#> [295] "Ryacas"	"S7"	"sass"
#> [298] "scales"	"selectr"	"semlbci"
#> [301] "semmcci	"sessionin	nfo" "sfd"
#> [304] "shape"	"shiny"	"simStateSpace"
#> [307] "slider"	"snow"	"snowfall"
	cools" "SparseM"	"sparsevctrs"
#> [310] "sourcet		
#> [310] "sourcet #> [313] "SQUAREM		lers" "stringi"
	[" "StanHeade	lers" "stringi" "symSEM"
#> [313] "SQUAREM	[" "StanHeade	"symSEM"
#> [313] "SQUAREM #> [316] "stringr	"StanHeade" "styler" "systemfor	"symSEM" "nts" "tailor"
#> [313] "SQUAREM #> [316] "stringr #> [319] "sys"	"StanHeade" "styler" "systemfor "testthat	"symSEM" onts" "tailor" "texreg"
#> [313] "SQUAREM #> [316] "stringr #> [319] "sys" #> [322] "tensorA	"StanHeade" "styler" "systemfor "testthat	"symSEM" "nts" "tailor" " "texreg" "tidymodels"
#> [313] "SQUAREM #> [316] "stringr #> [319] "sys" #> [322] "tensorA #> [325] "textsha	"StanHeade" "styler" "systemfor "testthat" "ping" "tibble" "tidyseled	"symSEM" "nts" "tailor" "" "texreg" "tidymodels" ect" "tidyverse"
#> [313] "SQUAREM #> [316] "stringr #> [319] "sys" #> [322] "tensorA #> [325] "textsha #> [328] "tidyr"	"StanHeade" "styler" "systemfor "testthat" "ping" "tibble" "tidyseled	"symSEM" "nts" "tailor" "" "texreg" "tidymodels" ect" "tidyverse"
#> [313] "SQUAREM #> [316] "stringr #> [319] "sys" #> [322] "tensorA #> [325] "textsha #> [328] "tidyr" #> [331] "timecha	"" "styler" "systemfor "" "testthat" "ping" "tibble" "tidyseled" "tzdb"	"symSEM" "nts" "tailor" "" "texreg" "tidymodels" "ct" "tidyverse" "" "tinytex" "ucminf"

#> [[340]	"uuid"	"γ8"	"vctrs"
#> [[343]	"viridisLite"	"vroom"	"waldo"
#> [[346]	"warp"	"whisker"	"whoami"
#> [[349]	"withr"	"workflows"	"workflowsets"
#> [[352]	"xfun"	"xml2"	"xmlparsedata"
#> [[355]	"xopen"	"xtable"	"yaml"
#> [[358]	"yardstick"	"zip"	"base"
#> [[361]	"boot"	"class"	"cluster"
#> [[364]	"codetools"	"compiler"	"datasets"
#> [[367]	"foreign"	"graphics"	"grDevices"
#> [[370]	"grid"	"KernSmooth"	"lattice"
#> [[373]	"MASS"	"Matrix"	"methods"
#> [[376]	"mgcv"	"nlme"	"nnet"
#> [[379]	"parallel"	"rpart"	"spatial"
#> [[382]	"splines"	"stats"	"stats4"
#> [[385]	"survival"	"tcltk"	"tools"
#> [[388]	"utils"		

References

Pesigan, I. J. A., & Cheung, S. F. (2024). Monte Carlo confidence intervals for the indirect effect with missing data. *Behavior Research Methods*, 56(3), 1678–1696. https://doi.org/10.3758/s13428-023-02114-4

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