Session Info

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Session

```
sessionInfo()
#> R version 4.4.1 (2024-06-14)
#> Platform: x86_64-pc-linux-gnu
#> Running under: Ubuntu 22.04.4 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-r0.3.20.so; LAPACK version 3.10
#>
#> 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_0.6-18
                      semmcci_1.1.4.9000 rProject_0.0.13
#>
#> loaded via a namespace (and not attached):
#> [1] httr_1.4.7
                      cli_3.6.3.9000 knitr_1.47
                                                      rlang_1.1.4
#> [5] xfun_0.45
                      stringi_1.8.4
                                       highr_0.11
                                                       generics_0.1.3
#> [9] jsonlite_1.8.8 glue_1.7.0
                                       backports_1.5.0 pbivnorm_0.6.0
#> [13] plyr_1.8.9
                       rprojroot_2.0.4 stats4_4.4.1
                                                       RefManageR_1.4.0
#> [17] quadprog_1.5-8 evaluate_0.24.0 lifecycle_1.0.4 stringr_1.5.1
#> [21] compiler_4.4.1 Rcpp_1.0.12
                                       timechange_0.3.0 bibtex_0.5.1
#> [25] R6_2.5.1
                       parallel_4.4.1 mnormt_2.1.1
                                                       magrittr_2.0.3
#> [29] tools_4.4.1 lubridate_1.9.3 xml2_1.3.6
```

Packages

```
unname(installed.packages()[, 1])
                                                                  "mi"
     [1] "Amelia"
                            "arm"
                                               "bmemLavaan"
#>
     [5] "pkgdown"
                            "pkgload"
                                               "ps"
                                                                   "roxygen2"
#>
     [9] "rProject"
                            "rsem"
                                               "sem"
                                                                  "semmcci"
                                                                   "arrow"
    [13] "tinytex"
                            "yaml"
                                               "abind"
    [17] "ash"
                            "AsioHeaders"
                                               "askpass"
                                                                   "assertthat"
```

#>	[21]	"backports"	"base64enc"	"betaDelta"	"betaMC"
#>	[25]	"betaNB"	"betaSandwich"	"BH"	"bibtex"
#>	[29]	"BiocManager"	"bit"	"bit64"	"bitops"
#>	[33]	"blob"	"brew"	"brio"	"broom"
#>	[37]	"bslib"	"cachem"	"callr"	"car"
#>	[41]	"caracas"	"carData"	"cellranger"	"cffr"
#>	[45]	"checkmate"	"cli"	"clipr"	"clock"
#>	[49]	"coda"	"cOde"	"collections"	"colorspace"
#>	[53]	"commonmark"	"conflicted"	"corpcor"	"covr"
#>	[57]	"cowplot"	"cpp11"	"crayon"	"credentials"
#>	[61]	"crosstalk"	"cTMed"	"ctsem"	"curl"
#>	[65]	"cyclocomp"	"data.table"	"DBI"	"dbplyr"
#>	[69]	"Deriv"	"desc"	"deSolve"	"devtools"
#>	[73]	"diagram"	"dials"	"DiceDesign"	"diffobj"
#>	[77]	"digest"	"distributional"	"distro"	"doBy"
#>	[81]	"docopt"	"doFuture"	"downlit"	"dplyr"
#>	[85]	"DT"	"dtplyr"	"duckdb"	"dynr"
#>	[89]	"dynUtils"	"ellipse"	"ellipsis"	"evaluate"
#>	[93]	"expm"	"fansi"	"farver"	"fastDummies"
#>	[97]	"fastmap"	"fclust"	"fda"	"fdrtool"
#>	[101]	"fds"	"FNN"	"fontawesome"	"forcats"
#>	[105]	"foreach"	"Formula"	"fs"	"fst"
#>					
	[109]	"fstcore"	"furrr"	"future"	"future.apply"
#>		"fstcore" "gargle"	"furrr" "generics"	"future" "gert"	"future.apply" "ggplot2"
	[113]				
#>	[113] [117]	"gargle"	"generics"	"gert"	"ggplot2"
#> #>	[113] [117] [121]	"gargle" "ggrepel"	"generics" "gh"	"gert" "gitcreds"	"ggplot2" "glasso"

#>	[129]	"gsubfn"	"gtable"	"gtools"	"hardhat"
#>	[133]	"haven"	"hdrcde"	"here"	"highr"
#>	[137]	"Hmisc"	"hms"	"htmlTable"	"htmltools"
#>	[141]	"htmlwidgets"	"httpgd"	"httpuv"	"httr"
#>	[145]	"httr2"	"ids"	"ifaTools"	"igraph"
#>	[149]	"infer"	"ini"	"inline"	"ipred"
#>	[153]	"isoband"	"iterators"	"jomo"	"jpeg"
#>	[157]	"jquerylib"	"jsonlite"	"jsonvalidate"	"kernlab"
#>	[161]	"knitr"	"ks"	"labeling"	"Lahman"
#>	[165]	"languageserver"	"later"	"latex2exp"	"lava"
#>	[169]	"lavaan"	"lazyeval"	"lhs"	"lifecycle"
#>	[173]	"lintr"	"listenv"	"littler"	"lme4"
#>	[177]	"locfit"	"longMI"	"loo"	"lubridate"
#>	[181]	"magick"	"magrittr"	"markdown"	"MatrixModels"
#>	[185]	"matrixStats"	"mclust"	"memoise"	"metaSEM"
		"matrixStats" "mice"	"mclust" "microbenchmark"	"memoise" "mime"	"metaSEM" "miniUI"
#>	[189]				
#> #>	[189] [193]	"mice"	"microbenchmark"	"mime"	"miniUI"
#> #> #>	[189] [193] [197]	"mice" "minqa"	"microbenchmark" "mitml"	"mime" "mize"	"miniUI" "mnormt"
#> #> #>	[189] [193] [197] [201]	"mice" "minqa" "modeldata"	"microbenchmark" "mitml" "modelenv"	"mime" "mize" "modelr"	"miniUI" "mnormt" "MplusAutomation"
#> #> #> #>	[189] [193] [197] [201] [205]	"mice" "minqa" "modeldata" "multicool"	"microbenchmark" "mitml" "modelenv" "munsell"	"mime" "mize" "modelr" "mvtnorm"	"miniUI" "mnormt" "MplusAutomation" "nloptr"
#> #> #> #> #>	[189] [193] [197] [201] [205] [209]	"mice" "minqa" "modeldata" "multicool" "numDeriv"	"microbenchmark" "mitml" "modelenv" "munsell" "nycflights13"	"mime" "mize" "modelr" "mvtnorm" "OpenMx"	"miniUI" "mnormt" "MplusAutomation" "nloptr" "openssl"
#> #> #> #> #> #>	[189] [193] [197] [201] [205] [209] [213]	"mice" "minqa" "modeldata" "multicool" "numDeriv" "ordinal"	"microbenchmark" "mitml" "modelenv" "munsell" "nycflights13" "pan"	"mime" "mize" "modelr" "mvtnorm" "OpenMx" "pander"	"miniUI" "mnormt" "MplusAutomation" "nloptr" "openssl" "parallelly"
#> #> #> #> #> #>	[189] [193] [197] [201] [205] [209] [213] [217]	"mice" "minqa" "modeldata" "multicool" "numDeriv" "ordinal" "parsnip"	"microbenchmark" "mitml" "modelenv" "munsell" "nycflights13" "pan" "patchwork"	"mime" "mize" "modelr" "mvtnorm" "OpenMx" "pander" "pbapply"	"miniUI" "mnormt" "MplusAutomation" "nloptr" "openss1" "parallelly" "pbivnorm"
#> #> #> #> #> #> #> #> #> #> #>	[189] [193] [197] [201] [205] [209] [213] [217] [221]	"mice" "minqa" "modeldata" "multicool" "numDeriv" "ordinal" "parsnip" "pbkrtest"	"microbenchmark" "mitml" "modelenv" "munsell" "nycflights13" "pan" "patchwork" "pcaPP"	"mime" "mize" "modelr" "mvtnorm" "OpenMx" "pander" "pbapply" "pdftools"	"miniUI" "mnormt" "MplusAutomation" "nloptr" "openssl" "parallelly" "pbivnorm" "pillar"
#> #> #> #> #> #> #> #> #> #> #> #>	[189] [193] [197] [201] [205] [209] [213] [217] [221] [225]	"mice" "minqa" "modeldata" "multicool" "numDeriv" "ordinal" "parsnip" "pbkrtest" "pkgbuild"	"microbenchmark" "mitml" "modelenv" "munsell" "nycflights13" "pan" "patchwork" "pcaPP" "pkgconfig"	"mime" "mize" "modelr" "mvtnorm" "OpenMx" "pander" "pbapply" "pdftools" "pkgdown"	"miniUI" "mnormt" "MplusAutomation" "nloptr" "openssl" "parallelly" "pbivnorm" "pillar" "pkgload"
#> #> #> #> #> #> #> #>	[189] [193] [197] [201] [205] [209] [213] [217] [221] [225] [229]	"mice" "minqa" "modeldata" "multicool" "numDeriv" "ordinal" "parsnip" "pbkrtest" "pkgbuild" "plogr"	"microbenchmark" "mitml" "modelenv" "munsell" "nycflights13" "pan" "patchwork" "pcaPP" "pkgconfig" "plyr"	"mime" "mize" "modelr" "mvtnorm" "OpenMx" "pander" "pbapply" "pdftools" "pkgdown" "png"	"miniUI" "mnormt" "MplusAutomation" "nloptr" "openssl" "parallelly" "pbivnorm" "pillar" "pkgload" "posterior"

#>	[237]	"progressr"	"promises"	"proto"	"ps"
#>	[241]	"psych"	"purrr"	"qgraph"	"qpdf"
#>	[245]	"quadprog"	"quantreg"	"quarto"	"QuickJSR"
#>	[249]	"R.cache"	"R.methodsS3"	"R.00"	"R.utils"
#>	[253]	"R6"	"ragg"	"rainbow"	"rappdirs"
#>	[257]	"rbibutils"	"rcmdcheck"	"RColorBrewer"	"Rcpp"
#>	[261]	"RcppArmadillo"	"RcppEigen"	"RcppGSL"	"RcppParallel"
#>	[265]	"RcppTOML"	"RCurl"	"Rdpack"	"readr"
#>	[269]	"readxl"	"recipes"	"RefManageR"	"rematch"
#>	[273]	"rematch2"	"remotes"	"reprex"	"reshape2"
#>	[277]	"reticulate"	"rex"	"rhub"	"rlang"
#>	[281]	"RMariaDB"	"rmarkdown"	"roxygen2"	"rpf"
#>	[285]	"RPostgres"	"rProject"	"rprojroot"	"rsample"
#>	[289]	"RSQLite"	"rstan"	"rstantools"	"rstudioapi"
#>	[293]	"rversions"	"rvest"	"Ryacas"	"sass"
#>	[297]	"scales"	"selectr"	"semlbci"	"semmcci"
#>	[301]	"sessioninfo"	"shape"	"shiny"	"simStateSpace"
#>	[305]	"slider"	"snow"	"snowfall"	"sourcetools"
#>	[309]	"SparseM"	"SQUAREM"	"StanHeaders"	"statmod"
#>	[313]	"stringi"	"stringr"	"styler"	"symSEM"
#>	[317]	"sys"	"systemfonts"	"tensorA"	"testthat"
#>	[321]	"texreg"	"textshaping"	"tibble"	"tidymodels"
#>	[325]	"tidyr"	"tidyselect"	"tidyverse"	"timechange"
#>	[329]	"timeDate"	"tinytex"	"tune"	"tzdb"
#>	[333]	"ucminf"	"unigd"	"urlchecker"	"usethis"
#>	[337]	"utf8"	"uuid"	"V8"	"vctrs"
#>	[341]	"viridis"	"viridisLite"	"vroom"	"waldo"

#>	[345]	"warp"	"whisker"	"whoami"	"withr"
#>	[349]	"workflows"	"workflowsets"	"xfun"	"xm12"
#>	[353]	"xmlparsedata"	"xopen"	"xtable"	"yaml"
#>	[357]	"yardstick"	"zip"	"base"	"boot"
#>	[361]	"class"	"cluster"	"codetools"	"compiler"
#>	[365]	"datasets"	"foreign"	"graphics"	"grDevices"
#>	[369]	"grid"	"KernSmooth"	"lattice"	"MASS"
#>	[373]	"Matrix"	"methods"	"mgcv"	"nlme"
#>	[377]	"nnet"	"parallel"	"rpart"	"spatial"
#>	[381]	"splines"	"stats"	"stats4"	"survival"
#>	[385]	"tcltk"	"tools"	"utils"	

References

Pesigan, I. J. A., & Cheung, S. F. (2023). 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

R Core Team. (2024). R: A language and environment for statistical computing. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/