Package: buzzMed (via r-universe)

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`buzzEBMcatMcatY` *Select binary mediators using the GT-exploratory Bayesian mediation model with dichotomous dependent variables.*

Description

This function selects time-invariant binary mediators using the generalized two-stage exploratory Bayesian mediation model with dichotomous dependent variables.

Usage

```
buzzEBMcatMcatY(
  model,
  dataset,
  my_prior = NULL,
  advanced = NULL,
  a.pip.hyperalpha = NULL,
  a.pip.hyperbeta = NULL,
  b.pip.hyperalpha = NULL,
  b.pip.hyperbeta = NULL,
  direct.coef.mean = NULL,
  direct.coef.precision = NULL,
  direct.coef.init = NULL,
  a.pip.hyperprior.init = NULL,
  b.pip.hyperprior.init = NULL,
  n_chains = NULL,
  n_adapt = NULL,
  n_burnin = NULL,
```

```
  n_iter = NULL,
  thin = NULL
)
```

Arguments

model	A character string specifying the mediation model to be fitted. The model should be specified using the syntax "Y ~ X1 + X2 | M1 + M2", where Y, X1, X2, M1, and M2 should be replaced by the names of the corresponding variables in the dataset.
dataset	A data.frame containing the variables specified in the model.
my_prior	Optional data.frame containing custom prior specifications. Run parms <- run_parms_wizard() to see the required structure.
advanced	Character. Use "interactive" for an interactive wizard to choose parameter distributions, or leave NULL for defaults.
a.pip.hyperalpha	Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.
a.pip.hyperbeta	Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.
b.pip.hyperalpha	Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.
b.pip.hyperbeta	Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.
direct.coef.mean	Numeric scalar or vector. Mean parameter of the Normal prior distribution for the direct effects (c'). The default value is 0.
direct.coef.precision	Numeric scalar or vector. Precision parameter of the Normal prior distribution for the direct effects (c'). The default value is 1.0E-6.
direct.coef.init	Numeric or NULL. Initial value for the direct effect (c'). Default is 0.
a.pip.hyperprior.init	Numeric or NULL. Initial value of the a-path inclusion probability (PIP). The default value is 0.5.
b.pip.hyperprior.init	Numeric or NULL. Initial value of the b-path inclusion probability (PIP). The default value is 0.5.
n_chains	Integer. Number of MCMC chains.
n_adapt	Integer. Number of adaptation iterations.
n_burnin	Integer. Number of burn-in iterations.
n_iter	Integer. Number of post-burn-in iterations.
thin	Integer. Thinning interval.

Details

Fits a generalized two-stage exploratory Bayesian mediation model, specifically designed for cases where both the mediators (M) and the outcome variable (Y) are binary (0/1).

Value

A matrix of posterior summary statistics for the monitored parameters.

Note

This function is strictly for binary data. For variables with more than two levels, please convert them into dummy variables or ensure they are binary before running.

References

Shi, D., Shi, D., and Fairchild, A. J. (2023) "Variable Selection for Mediators under a Bayesian Mediation Model" <doi:10.1080/10705511.2022.2164285>

Examples

```
# Binary case: Both M and Y are Binary
set.seed(101)
n <- 100
toy_data <- data.frame(
   X = rbinom(n, 1, 0.5),
   M1 = rbinom(n, 1, 0.3),
   M2 = rbinom(n, 1, 0.7),
   Y = rbinom(n, 1, 0.5)
)

# Fit the model
results <- buzzEBMcatMcatY(
   model    = "Y ~ X | M1 + M2",
   dataset  = toy_data,
   n_burnin = 200,
   n_iter   = 1000
)

summary(results)
```

---

buzzEBMcatMcontY *Select binary mediators using the GT-exploratory Bayesian mediation model with continuous dependent variables.*

Description

This function selects time-invariant binary mediators using the generalized two-stage exploratory Bayesian mediation model with continuous dependent variables.

Usage

```
buzzEBMcatMcontY(
  model,
  dataset,
  my_prior = NULL,
  advanced = NULL,
  y.prec.shape = NULL,
  y.prec.rate = NULL,
  a.pip.hyperalpha = NULL,
  a.pip.hyperbeta = NULL,
  b.pip.hyperalpha = NULL,
  b.pip.hyperbeta = NULL,
  direct.coef.mean = NULL,
  direct.coef.precision = NULL,
  y.prec.init = NULL,
  direct.coef.init = NULL,
  a.pip.hyperprior.init = NULL,
  b.pip.hyperprior.init = NULL,
  n_chains = NULL,
  n_adapt = NULL,
  n_burnin = NULL,
  n_iter = NULL,
  thin = NULL
)
```

Arguments

`model`	A character string specifying the mediation model to be fitted. The model should be specified using the syntax `"Y ~ X1 + X2 | M1 + M2"`, where `Y`, `X1`, `X2`, `M1`, and `M2` should be replaced by the names of the corresponding variables in the dataset.
`dataset`	A `data.frame` containing the variables specified in the model.
`my_prior`	Optional `data.frame` containing custom prior specifications. Run `parms <- run_parms_wizard()` to see the required structure.
`advanced`	Character. Use `"interactive"` for an interactive wizard to choose parameter distributions, or leave `NULL` for defaults.
`y.prec.shape`	Numeric scalar. Shape hyperparameter of the Gamma prior distribution for the outcome residual precision. The default value is 1.
`y.prec.rate`	Numeric scalar. Rate hyperparameter of the Gamma prior distribution for the outcome residual precision. The default value is 0.001.
`a.pip.hyperalpha`	Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.
`a.pip.hyperbeta`	Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.

`b.pip.hyperalpha`
: Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.

`b.pip.hyperbeta`
: Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.

`direct.coef.mean`
: Numeric scalar or vector. Mean parameter of the Normal prior distribution for the direct effects (c'). The default value is 0.

`direct.coef.precision`
: Numeric scalar or vector. Precision parameter of the Normal prior distribution for the direct effects (c'). The default value is 1.0E-6.

`y.prec.init`
: Numeric or `NULL`. Initial value for the outcome residual precision. The default value is 1.

`direct.coef.init`
: Numeric or `NULL`. Initial value for the direct effect (c'). Default is 0.

`a.pip.hyperprior.init`
: Numeric or `NULL`. Initial value of the a-path inclusion probability (PIP). The default value is 0.5.

`b.pip.hyperprior.init`
: Numeric or `NULL`. Initial value of the b-path inclusion probability (PIP). The default value is 0.5.

`n_chains`
: Integer. Number of MCMC chains.

`n_adapt`
: Integer. Number of adaptation iterations.

`n_burnin`
: Integer. Number of burn-in iterations.

`n_iter`
: Integer. Number of post-burn-in iterations.

`thin`
: Integer. Thinning interval.

Details

Fits a generalized two-stage exploratory Bayesian mediation model, specifically designed for cases where the mediators (M) are binary (0/1) and the outcome variable (Y) is continuous.

Value

A matrix of posterior summary statistics for the monitored parameters.

References

Shi, D., Shi, D., and Fairchild, A. J. (2023) "Variable Selection for Mediators under a Bayesian Mediation Model" <doi:10.1080/10705511.2022.2164285>

Examples

```
# Mixed case: Binary M, Continuous Y
set.seed(789)
n <- 100
```

```
toy_data <- data.frame(
   X = rnorm(n),
   M1 = rbinom(n, 1, 0.4),
   M2 = rbinom(n, 1, 0.6),
   Y = rnorm(n)
)

# Fit the model
results <- buzzEBMcatMcontY(
   model    = "Y ~ X | M1 + M2",
   dataset  = toy_data,
   n_burnin = 200,
   n_iter   = 1000
)

summary(results)
```

---

buzzEBMcontMcatY *Select continuous mediators using the GT-exploratory Bayesian mediation model with dichotomous dependent variables.*

Description

This function selects time-invariant continuous mediators using the generalized two-stage exploratory Bayesian mediation model with dichotomous dependent variables.

Usage

```
buzzEBMcontMcatY(
  model,
  dataset,
  my_prior = NULL,
  advanced = NULL,
  m.prec.shape = NULL,
  m.prec.rate = NULL,
  a.pip.hyperalpha = NULL,
  a.pip.hyperbeta = NULL,
  b.pip.hyperalpha = NULL,
  b.pip.hyperbeta = NULL,
  direct.coef.mean = NULL,
  direct.coef.precision = NULL,
  m.prec.init = NULL,
  direct.coef.init = NULL,
  a.pip.hyperprior.init = NULL,
  b.pip.hyperprior.init = NULL,
  n_chains = NULL,
  n_adapt = NULL,
```

```
  n_burnin = NULL,
  n_iter = NULL,
  thin = NULL
)
```

Arguments

model	A character string specifying the mediation model to be fitted. The model should be specified using the syntax "Y ~ X1 + X2 | M1 + M2", where Y, X1, X2, M1, and M2 should be replaced by the names of the corresponding variables in the dataset.
dataset	A data.frame containing the variables specified in the model.
my_prior	Optional data.frame containing custom prior specifications. Run parms <- run_parms_wizard() to see the required structure.
advanced	Character. Use "interactive" for an interactive wizard to choose parameter distributions, or leave NULL for defaults.
m.prec.shape	Numeric scalar or vector of length equal to the number of mediators. Shape hyperparameter of the Gamma prior distribution for the mediator residual precisions. The default value is 1.
m.prec.rate	Numeric scalar or vector of length equal to the number of mediators. Rate hyperparameter of the Gamma prior distribution for the mediator residual precisions. The default value is 0.001.
a.pip.hyperalpha	Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.
a.pip.hyperbeta	Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.
b.pip.hyperalpha	Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.
b.pip.hyperbeta	Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.
direct.coef.mean	Numeric scalar or vector. Mean parameter of the Normal prior distribution for the direct effects (c'). The default value is 0.
direct.coef.precision	Numeric scalar or vector. Precision parameter of the Normal prior distribution for the direct effects (c'). The default value is 1.0E-6.
m.prec.init	Numeric or NULL. Initial values for residual precisions. Default is 1.
direct.coef.init	Numeric or NULL. Initial value for the direct effect (c'). Default is 0.
a.pip.hyperprior.init	Numeric or NULL. Initial value of the a-path inclusion probability (PIP). The default value is 0.5.

`b.pip.hyperprior.init`
: Numeric or `NULL`. Initial value of the b-path inclusion probability (PIP). The default value is 0.5.

`n_chains`
: Integer. Number of MCMC chains.

`n_adapt`
: Integer. Number of adaptation iterations.

`n_burnin`
: Integer. Number of burn-in iterations.

`n_iter`
: Integer. Number of post-burn-in iterations.

`thin`
: Integer. Thinning interval.

Details

Fits a generalized two-stage exploratory Bayesian mediation model, specifically designed for cases where the mediators (M) are continuous and the outcome variable (Y) is binary (0/1).

Value

A matrix of posterior summary statistics for the monitored parameters.

References

Shi, D., Shi, D., and Fairchild, A. J. (2023) "Variable Selection for Mediators under a Bayesian Mediation Model" <doi:10.1080/10705511.2022.2164285>

Examples

```
# Mixed case: Continuous M, Binary Y
set.seed(456)
n <- 100
toy_data <- data.frame(
   X = rnorm(n),
   M1 = rnorm(n),
   M2 = rnorm(n),
   Y = rbinom(n, 1, 0.5)
)

# Fit the model
results <- buzzEBMcontMcatY(
   model    = "Y ~ X | M1 + M2",
   dataset  = toy_data,
   n_burnin = 200,
   n_iter   = 1000
)

summary(results)
```

buzzEBMcontMcontY *Select continuous mediators using the GT-exploratory Bayesian mediation model with continuous dependent variables.*

Description

This function selects time-invariant continuous mediators using the generalized two-stage exploratory Bayesian mediation model with continuous dependent variables.

Usage

```
buzzEBMcontMcontY(
  model,
  dataset,
  my_prior = NULL,
  advanced = NULL,
  m.prec.shape = NULL,
  m.prec.rate = NULL,
  y.prec.shape = NULL,
  y.prec.rate = NULL,
  a.pip.hyperalpha = NULL,
  a.pip.hyperbeta = NULL,
  b.pip.hyperalpha = NULL,
  b.pip.hyperbeta = NULL,
  direct.coef.mean = NULL,
  direct.coef.precision = NULL,
  m.prec.init = NULL,
  y.prec.init = NULL,
  direct.coef.init = NULL,
  a.pip.hyperprior.init = NULL,
  b.pip.hyperprior.init = NULL,
  n_chains = NULL,
  n_adapt = NULL,
  n_burnin = NULL,
  n_iter = NULL,
  thin = NULL
)
```

Arguments

model	A character string specifying the mediation model to be fitted. The model should be specified using the syntax "Y ~ X1 + X2 | M1 + M2", where Y, X1, X2, M1, and M2 should be replaced by the names of the corresponding variables in the dataset.
dataset	A data.frame containing the variables specified in the model.
my_prior	Optional data.frame containing custom prior specifications. Run parms <- run_parms_wizard() to see the required structure.

`advanced` Character. Use `"interactive"` for an interactive wizard to choose parameter distributions, or leave `NULL` for defaults.

`m.prec.shape` Numeric scalar or vector of length equal to the number of mediators. Shape hyperparameter of the Gamma prior distribution for the mediator residual precisions. The default value is 1.

`m.prec.rate` Numeric scalar or vector of length equal to the number of mediators. Rate hyperparameter of the Gamma prior distribution for the mediator residual precisions. The default value is 0.001.

`y.prec.shape` Numeric scalar. Shape hyperparameter of the Gamma prior distribution for the outcome residual precision. The default value is 1.

`y.prec.rate` Numeric scalar. Rate hyperparameter of the Gamma prior distribution for the outcome residual precision. The default value is 0.001.

`a.pip.hyperalpha`
Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.

`a.pip.hyperbeta`
Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the a-path inclusion probabilities. The default value is 3.

`b.pip.hyperalpha`
Numeric scalar or vector. Alpha hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.

`b.pip.hyperbeta`
Numeric scalar or vector. Beta hyperparameter of the Beta prior distribution for the b-path inclusion probabilities. The default value is 3.

`direct.coef.mean`
Numeric scalar or vector. Mean parameter of the Normal prior distribution for the direct effects (c'). The default value is 0.

`direct.coef.precision`
Numeric scalar or vector. Precision parameter of the Normal prior distribution for the direct effects (c'). The default value is 1.0E-6.

`m.prec.init` Numeric or `NULL`. Initial value for the mediator residual precision. The default value is 1.

`y.prec.init` Numeric or `NULL`. Initial value for the outcome residual precision. The default value is 1.

`direct.coef.init`
Numeric or `NULL`. Initial value for the direct effect (c'). Default is 0.

`a.pip.hyperprior.init`
Numeric or `NULL`. Initial value of the a-path inclusion probability (PIP). The default value is 0.5.

`b.pip.hyperprior.init`
Numeric or `NULL`. Initial value of the b-path inclusion probability (PIP). The default value is 0.5.

`n_chains` Integer. Number of MCMC chains.

`n_adapt` Integer. Number of adaptation iterations.

n_burnin	Integer. Number of burn-in iterations.
n_iter	Integer. Number of post-burn-in iterations.
thin	Integer. Thinning interval.

Details

Fits a generalized two-stage exploratory Bayesian mediation model, specifically designed for cases where both the mediators (M) and the outcome variable (Y) are continuous.

Value

A matrix of posterior summary statistics for the monitored parameters.

References

Shi, D., Shi, D., and Fairchild, A. J. (2023) "Variable Selection for Mediators under a Bayesian Mediation Model" <doi:10.1080/10705511.2022.2164285>

Examples

```
# 1. Create a continuous synthetic dataset
set.seed(123)
n <- 100
toy_data <- data.frame(
   X = rnorm(n),
   M1 = rnorm(n),
   M2 = rnorm(n),
   Y = rnorm(n)
)

# 2. Fit the model using lavaan-style syntax
# We define Y as the outcome, with M1, M2, and X as predictors
results <- buzzEBMcontMcontY(
   model    = "Y ~ X | M1 + M2",
   dataset  = toy_data,
   n_burnin = 500,
   n_iter   = 2000
)

# 3. Check results
summary(results)
```

---

framing2 *Modified dataset based on political communication experiments*

Description

A modified version of the `framing` dataset from the **mediation** package, originally based on political communication experiments studying how issue framing (treatment) affects public opinion or policy support (Brader, Valentino and Suhay, 2008). The dataset includes both original variables as well as variables recoded from the original framing dataset from the mediation package (Tingley et al., 2014). `framing2` contains 265 observations and 12 variables.

Usage

```
framing2
```

Format

A data frame with 265 observations and 12 variables:

tone First treatment; whether the news story is framed positively or negatively.

eth Second treatment; whether the news story features a Latino or European immigrant.

treat Product of the two treatment variables. In the original study the authors only find this cell to be significant.

age Subjects' age.

gender Subjects' gender.

emo Measure of subjects' negative feeling during the experiment. A numeric scale ranging between 3 and 12 where 3 indicates the most negative feeling.

p_harm Subjects' perceived harm caused by increased immigration. A numeric scale between 2 and 8.

immigr A four-point scale measuring subjects' attitudes toward increased immigration. Larger values indicate more negative attitudes.

cong_mesg Whether subjects requested sending an anti-immigration message to Congress on their behalf.

english2 Numeric recoding of the original `english` variable from the `framing` dataset. `english2` is recoded as 1 = "Strongly Oppose", 2 = "Oppose", 3 = "Favor", and 4 = "Strongly Favor".

anx2 Numeric recoding of the original `anx` variable from the `framing` dataset. `anx2` is recoded as 1 = "not anxious at all", 2 = "a little anxious", 3 = "somewhat anxious", and 4 = "very anxious".

educ2 Numeric recoding of the original `educ` variable from the `framing` dataset. `educ2` is recoded as 1 = "less than high school", 2 = "high school", 3 = "some college", and 4 = "bachelor's degree or higher".

Source

Adapted from the `framing` dataset in the **mediation** package.

References

Brader, T., Valentino, N. A., & Suhay, E. (2008). What Triggers Public Opposition to Immigration? Anxiety, Group Cues, and Immigration Threat. *American Journal of Political Science*, 52(4), 959–978.

`longBMed` *Select time-varying mediators using the longitudinal Bayesian mediation selection model*

Description

This function selects time-varying mediators using the longitudinal Bayesian mediation selection model.

Usage

```
longBMed(model = NULL, data, n.burnin = 3000, n.iter = 6000, thin = 1)
```

Arguments

`model`	Specifies how variables are assigned to the outcome(Y), predictor(s)(X), and candidate mediator(s) (M). The format depends on the type of `data`: **Named list or data frame:** A character string of the form `"Y ~ X1 + X2 | M1 + M2"`, where `Y`, `X1`, `X2`, `M1`, and `M2` should be replaced by the names of the corresponding variables in the named list or data frame. **3-D array:** A character string of the form `"Y ~ X | M"`, where Y, X, and M are specified using slice numbers. For example, `"10 ~ 1+2 | 3:9"` uses slice 10 as the outcome, slices 1 and 2 as predictors, and slices 3 through 9 as candidate mediators. If `model = NULL`, the first slice is used as the predictor, the last slice as the outcome, and all remaining slices as candidate mediators.
`data`	One of: **3-D numeric array** `[N, T, K]` N represents number of observations, T represents number of measurement occasions, and K represents a concatenated dimension of X, M, Y. Slice assignments are controlled by `model` (index expression string) or defaulted automatically when `model = NULL` as mentioned above in the `model` section. **Named list of `N x T` matrices** Each element is a subject-by-time matrix. Names must match the variable names in `model`. **Long-format data frame** The original longitudinal data in long format, where each row represents one measurement for one observational unit at one measurement occasion. The data frame must contain columns named `id` and `time`, together with one column for each variable specified in `model`. Here, `id` identifies each observational unit and `time` identifies the measurement occasion.
`n.burnin`	Integer. Number of burn-in iterations. Default `3000`.
`n.iter`	Integer. Number of posterior samples after burn-in. Default `6000`.
`thin`	Integer. Thinning interval. Default `1`.

Details

The model supports one or more predictor variables (X), one or more candidate mediators (M), and exactly one outcome variable (Y). Data may be supplied as an $N \times T \times K$ numeric array, a named list of $N \times T$ matrices, or a data frame in long format.

For a named list or long-format data frame, the model can be specified using variable names, such as `"Y ~ X1 + X2 | M1 + M2"`.

For a 3-D array, the model can be specified using integer slice indices, such as `"21 ~ 1 | 2:20"`, where the left side specifies the outcome, the expression before `|` specifies the predictor(s), and the expression after `|` specifies the mediator(s).

Value

A matrix of posterior summary statistics from `summary(output)$statistics`, including posterior means, standard deviations, and standard errors for `ind.joint` and `ind.p`.

---

run_parms_wizard *Interactive Prior Specification Wizard*

Description

This function allows users to customize priors without needing to manually construct complex data frames. It displays current defaults, allows selection of specific parameters to change, and provides a menu of available probabilistic distributions (e.g., Normal, Gamma, Beta).

Usage

```
run_parms_wizard(verbose = TRUE)
```

Arguments

`verbose`	Logical. If `TRUE` (default), the wizard prints introductory text and the summary review table. If `FALSE`, only the interactive prompts are displayed.

Details

Launches an interactive console-based interface to guide users through viewing and modifying Bayesian prior distributions for mediation models.

The wizard handles two main types of customization:

- **Distribution Selection:** Choose from supported probabilistic distributions.
- **Argument Specification:** Set numeric values for hyperparameters (e.g., shape, rate, mean, precision).

For coefficients like a and b, the wizard will note if they reference hyperpriors (back-references). It is generally recommended to modify the shape of the hyperprior rather than the coefficient's distribution directly to maintain the hierarchical structure.

Value

A `data.frame` with columns `priors`, `distribution`, and `arguments`. This dataframe is formatted to be passed directly to the `my_prior` argument in related fitting functions.

Note

This function requires an interactive R session. It will return `invisible(NULL)` if the user cancels the process.

Examples

```
# Create toy data
toy_data <- data.frame(
   X = rbinom(100, 1, 0.5),
   M = rbinom(100, 1, 0.3),
   Y = rbinom(100, 1, 0.5)
)

custom_priors <- NULL

if (interactive()){
# Launch the wizard
custom_priors <- run_parms_wizard()
}

# Use the resulting object in a model
fit <- buzzEBMcatMcatY(model = "Y ~ M | X",
                     dataset = toy_data,
                     my_prior = custom_priors)
```

`singlespikes` *Rate of action potential (i.e. firing rate) across neurons and repetitions.*

Description

The average rate of action potentials over the observation period (i.e. 2500 ms) is provided per neuron (N:20) across repetitions (n: 300), yielding a single average firing rate value for each neuron.

Usage

```
data(singlespikes)
```

Format

A data frame with 300 observations and 21 variables:

x Predictor variable. External Current.

m1 Candidate mediator 1. Average action potential of neuron 1.

m2 Candidate mediator 2. Average action potential of neuron 2.

m3 Candidate mediator 3. Average action potential of neuron 3.

m4 Candidate mediator 4. Average action potential of neuron 4.

m5 Candidate mediator 5. Average action potential of neuron 5.

m6 Candidate mediator 6. Average action potential of neuron 6.

m7 Candidate mediator 7. Average action potential of neuron 7.

m8 Candidate mediator 8. Average action potential of neuron 8.

m9 Candidate mediator 9. Average action potential of neuron 9.

m10 Candidate mediator 10. Average action potential of neuron 10.

m11 Candidate mediator 11. Average action potential of neuron 11.

m12 Candidate mediator 12. Average action potential of neuron 12.

m13 Candidate mediator 13. Average action potential of neuron 13.

m14 Candidate mediator 14. Average action potential of neuron 14.

m15 Candidate mediator 15. Average action potential of neuron 15.

m16 Candidate mediator 16. Average action potential of neuron 16.

m17 Candidate mediator 17. Average action potential of neuron 17.

m18 Candidate mediator 18. Average action potential of neuron 18.

m19 Candidate mediator 19. Average action potential of neuron 19.

y Outcome variable. Average action potential of neuron 20.

Details

The dataset contains one predictor, nineteen candidate mediators, and one outcome variable.

Source

Time-averaged neural spiking data included with the **buzzMed** package.

`sublongspikes` *A subset in time of longitudinal spike train data.*

Description

For each neuron across all repetitions, the time series that describe whether or not a neuron generated action potential is provided. This is a subset of the full data matrix where the temporal index starts at 1002 ms and continues until 1026 ms.

Usage

```
data(sublongspikes)
```

Format

A numeric array with dimensions $300 \times 25 \times 21$:

Dimension 1 (N) 300 observations.

Dimension 2 (T) 25 repeated measurements (time points).

Dimension 3 (Variables) 21 variables consisting of one predictor (X), 19 candidate mediators (M), and one outcome (Y).

Details

The third dimension stores the variables in the following order:

1. Slice 1: Predictor (X)
2. Slices 2–20: Candidate mediators (M)
3. Slice 21: Outcome (Y)

Source

Longitudinal spiking train data included with the **buzzMed** package.

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