Package 'deltacomp'

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Type Package

Title Functions to analyse compositional data and produce confidence intervals for relative increases and decreases in the compositional components

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Description Provided the data (containing outcome, composiitional compoents and covariates), fit a ilr multiple linear regression model and provide predictions from reallocating compositional values pairwise amunsnst the components model.

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Encoding UTF-8

LazyData true

Imports compositions,
robCompositions,
lmtest

RoxygenNote 6.0.1

R topics documented:

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fairclough	*Data from Fairclough (2017). Fitness, fatness and the reallocation of time between children's daily movement behaviours: an analysis of compositional data*

Description

A dataset containing z_bmi (outcome), time-use compositions (sl,sb,lpa,mvpa), and covariates from the Fairclough (2017) paper. The data can be found in supp file 7 of the paper at https://link.springer.com/article/10.1186/s 017-0521-z.

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Usage

```
data(fairclough)
```

Format

A data frame with 169 rows and 21 variables

Details

The variables in the data are as follows:

- child_id
- school
- sex
- decimal_age
- imd_decile
- height mass
- bmi
- z_bmi
- itof_grade
- waist_circ
- whtr
- shuttles_20m
- wear_time
- sed
- lpa
- mpa
- vpa
- mvpa
- sleep
- min_in_day

References

Fairclough, Stuart J. and Dumuid, Dorothea and Taylor, Sarah and Curry, Whitney and McGrane, Bronagh and Stratton, Gareth and Maher, Carol and Olds, Timothy. Fitness, fatness and the reallocation of time between children's daily movement behaviours: an analysis of compositional data. International Journal of Behavioral Nutrition and Physical Activity, 2017. 14(1): 64.

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fat_data	*Randomly generated data to simulate child fat percentage regressed on time-use composiitonal data*

Description

A dataset containing fat percentage (outcome), time-use compositions (sl,sb,lpa,mvpa), and covariates (sibs,parents,ed). Note sl+sb+lpa+mvpa=1440minutes for each subject. The variables are as follows:

Usage

```
data(fat_data)
```

Format

A data frame with 100 rows and 8 variables

Details

- fat. child fat percentage (11.29–29.99)
- sl. daily sleep in minutes (283–765)
- sb. sedentary behaviour in minutes (354–789)
- lpa. low-intensity physical activity in minutes (157–507)
- mvpa. moderate- to vigourous-intensity physical activity in minutes (35–155)
- sibs. number of siblings (0,1,2,3,4)
- parents. number of parents/caregivers at home (1,2)
- ed. education level of parent(s) (0=high school, 1=diploma, 2=degree)

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get_plus_minus_changes	
	Get predictions from compositional ilr multiple linear regression model

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Description

Provided the data (containing outcome, composiitional compoents and covariates), fit a ilr multiple linear regression model and provide predictions from reallocating compositional values pairwise amunsnst the components model.

Usage

```
get_plus_minus_changes(dataf, y, comps, covars = NULL, deltas = c(0, 10,
  20)/(24 * 60), comparisons = c("one-v-one", "one-v-all", "prop-realloc")[1],
  alpha = 0.05, verbose = FALSE)
```

Arguments

`dataf`	A `data.frame` containing data
`y`	Name (as string) of outcome in `dataf`
`comps`	Character vector of names of compositions in `dataf`
`covars`	Optional. Character vector of covariates names (non-comp variables) in `dataf`. Defaults to NULL.
`deltas`	Optional. Changes in compositions to be computed pairwise. Defaults to 0, 10 and 20 minutes as a proportion of minutes in a day.
`comparisons`	Currently three choices: "one-v-one" (default), "one-v-all" or "prop-realloc". Currently proportional re-allocaiton isn't properly implemented.
`alpha`	Optional. Level of significance. Defaults to 0.05.
`verbose`	Optional. Whether the function provides extra information upon return. Defaults to FALSE.

Author(s)

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Examples

```
get_plus_minus_changes(
  dataf=fat_data,
  y="fat",
  comps=c("sl","sb","lpa","mvpa"),
  covars=c("sibs","parents","ed"),
  deltas=seq(-60,60,by=5)/(24*60),
  comparisons="one-v-one",
  alpha=0.05,
  verbose=FALSE
)
```

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