Package 'NAEPirtparams'

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Title IRT Parameters for the National Assessment of Education Progress

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Description This data package contains the Item Response Theory (IRT) parameters for the National Center for Education Statistics (NCES) items used on the National Assessment of Education Progress (NAEP) from 1990 to 2015. The values in these tables are used along with NAEP data to turn student item responses into scores and include information about item difficulty, discrimination, and guessing parameter for 3 parameter logit (3PL) items. Parameters for Generalized Partial Credit Model (GPCM) items are also included. The adjustments table contains the information regarding the treatment of items (e.g., deletion of an item or a collapsing of response categories), when these items did not appear to fit the item response models used to describe the NAEP data. Transformation constants change the score estimates that are obtained from the IRT scaling program to the NAEP reporting metric. Values from the years 2000 - 2013 were taken from the NCES website <https://nces.ed.gov/nationsreportcard/> and values from 1990 - 1998 and 2015 were extracted from their NAEP data files. All subtest names were reduced and homogenized to one word (e.g. ``Reading to gain information'' became ``information''). The various subtest names for univariate transformation constants were all homogenized to ``univariate''.

License GPL-2

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NeedsCompilation no

Encoding UTF-8

RoxygenNote 7.1.1

LazyData true

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R topics documented:

NAEPirtparams-package   *NAEP IRT Parameter Tables*

Description

The `NAEPirtparams` package provides NAEP IRT parameters, item adjustment information, and subtest transformation information for NAEP assessments.

Details

The package provides a table called `parameters`, which has item parameters by year, subject, and grade. The `adjustments` table provides the item adjustment information that NAEP implemented in scaling (i.e., item deletions and collapsed score categories). The table `transformations` has the location, scale, and weights for the subtests that make up a test.

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adjustments   *NAEP IRT item adjustments.*

Description

This data table contains the item adjustment information that NAEP implemented in scaling from 2000 to 2013. The handful of items with responses that do not fit the item response models were deleted or had the scoring categories collapsed before the final scaling. To find all adjustments and deletions for an assessment, filter the data table by level, subject, and year. Assessments in 2000 also require filtering by accommodations.

Usage

```
adjustments
```

Format

A data frame with columns

source source of data, character

level grade or age level of test, integer

levelType "grade" or "age", character

NAEPid test item ID, character

accommodations "accom" or "no-accom", character

subject subject of test, character

year year of test, integer

adjustment "Collapsed" or "Deleted", character

from possible scores before adjustment, character

to possible scores after adjustment, character

References

Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990-2015, various subjects. Retrieved from https://nces.ed.gov/nationsreportcard/tdw/analysis/scaling_avoidviolat_treatment.aspx

Examples

```
## Not run:

adj <- NAEPirtparams::adjustments
adj8M2005 <- adj[adj$level == 8 & adj$subject == 'Mathematics' & adj$year == 2005, ]
head(adj8M2005)
    source level levelType  NAEPid accommodations    subject year adjustment    from      to
189 website     8    grade M067202           <NA> Mathematics 2005    Deleted    <NA>    <NA>
190 website     8    grade M052801           <NA> Mathematics 2005    Deleted    <NA>    <NA>
191 website     8    grade M073602           <NA> Mathematics 2005    Deleted    <NA>    <NA>
200 website     8    grade M141301           <NA> Mathematics 2005  Collapsed 0,1,2,3 0,1,1,2
201 website     8    grade M085701           <NA> Mathematics 2005  Collapsed   0,1,2   0,0,1
202 website     8    grade M145101           <NA> Mathematics 2005  Collapsed 0,1,2,3 0,1,1,1


## End(Not run)
```

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parameters   *NAEP IRT parameters.*

Description

This data table contains NCES NAEP Assessment IRT parameters from 1990 to 2015. To find all item parameters for an assessment, filter the data table by level, subject, and year. Assessments from 1990 to 2000 also require filtering by assessmentCode and accommodations.

Usage

```
parameters
```

Format

A data frame with columns

source source of data, character

level grade or age level of test, integer

levelType "grade" or "age", character

NAEPid test item ID, character

assessmentCode "State" or "National", character

accommodations "accom" or "no-accom", character

subtest subtest within subject, character

subject subject of test, character

year year of test, integer

a slope or a parameter, numeric

b difficulty or d parameter, numeric

c guessing or g parameter, numeric

d1 location of cut point 1 for polytomous item, numeric

d2 location of cut point 2 for polytomous item, numeric

d3 location of cut point 3 for polytomous item, numeric

d4 location of cut point 4 for polytomous item, numeric

d5 location of cut point 5 for polytomous item, numeric

References

Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990-2015, various subjects. Retrieved from https://nces.ed.gov/nationsreportcard/tdw/analysis/scaling_irt.aspx

Examples

```
## Not run:

param <- NAEPirtparams::parameters
param8M2005 <- param[param$level == 8 & param$subject == 'Mathematics' & param$year == 2005, ]
head(param8M2005)
      source level levelType  NAEPid  ...  subtest     subject year    a     b    c  ...
7657 website     8     grade M066201  ...  algebra Mathematics 2005 0.77 -1.75 0.07  ...
7658 website     8     grade M067401  ...  algebra Mathematics 2005 0.92  1.28 0.18  ...
7659 website     8     grade M086101  ...  algebra Mathematics 2005 0.63  0.32 0.11  ...
7660 website     8     grade M047701  ...  algebra Mathematics 2005 1.01  1.29 0.26  ...
7661 website     8     grade M067301  ...  algebra Mathematics 2005 1.02 -0.03 0.16  ...
7662 website     8     grade M067701  ...  algebra Mathematics 2005 0.78 -2.01 0.06  ...


## End(Not run)
```

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transformations	*NAEP transformation constants.*

Description

This data table contains NCES NAEP Assessment transformation constants from 1990 to 2015. To find the transformation constants for an assessment, filter the data table by level, subject, and year. Some assessments also require filtering by assessmentCode and/or accommodations.

Usage

```
transformations
```

Format

A data frame with columns

source source of data, character

level grade or age level of test, integer

assessmentCode "State" or "National", character

accommodations "accom" or "no-accom", character

subtest subtest within subject, character

subject subject of test, character

year year of test, integer

scale scale of subtest, numeric

location location of subtest, numeric

subtestWeight weight of subtest, numeric

References

Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990-2015, various subjects. Retrieved from https://nces.ed.gov/nationsreportcard/tdw/analysis/trans_constants.aspx

Examples

```
## Not run:

t <- NAEPirtparams::transformations
t8M2005 <- t[t$level == 8 & t$subject == 'Mathematics' & t$year == 2005 & is.na(t$assessmentCode), ]
head(t8M2005)
        source level   ...       subtest       subject year scale location subtestWeight
229    website     8   ...       algebra   Mathematics 2005 35.64   281.79          0.30
228    website     8   ...          data   Mathematics 2005 40.37   281.91          0.15
227    website     8   ...      geometry   Mathematics 2005 33.22   275.64          0.20
226    website     8   ...   measurement   Mathematics 2005 46.57   275.86          0.15
```

```
225 website    8   ...         number Mathematics 2005 37.78   277.11              0.20

## End(Not run)
```

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