

Facets

Many-Facet Rasch Measurement

www.winsteps.com

Flexible, fair, featured, forceful

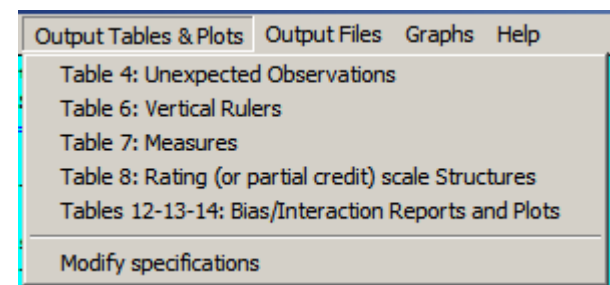
Aids to Conceptualization

Facets is designed for number-crunching, but it does include some visual aids. The “rulers” show how the measures lay out up the variable. This enables judge leniencies, examinee abilities, and item easiness to be compared with each other, and with the rating scale. Also displayed are numerical bar charts of the counts, scores measures and fit statistics for each element (person, etc.) of each facet (examinees, etc.)

Measr	+Senior scientists	+Junior Scientists	+Traits	Scale
1				(9)
		Betty		6
	Cavendish Brahe	George Edward	Daring Attack Basis	5
0	Avogadro	Anne	Clarity	4
	Davey	Chris Fred	Enthusiasm	
-1				3 (1)
Measr	+Senior scientists	+Junior Scientists	+Traits	Scale

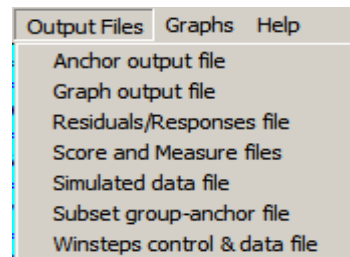
Output Tables & Plots

Output Tables and Bias analyses can be produced at estimation time. This can be done in “silent” batch mode. Reports can be customized in an interactive phase. For large analyses, it can be easier to look at a single output table, than to scroll through voluminous standard output.



Output Files

Output files in several formats giving complete information about measures and responses.. Additional DIF/Bias analyses can be performed. Simulated data can be produced. Facets specification and data files can be converted into Winsteps control and data files.



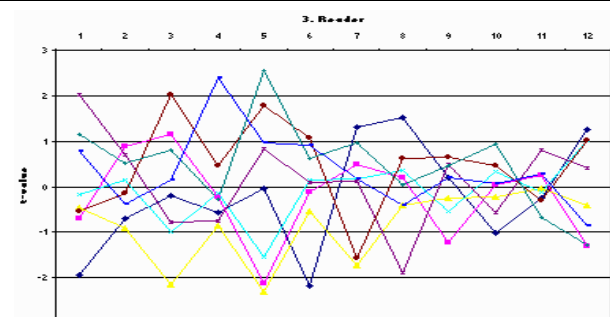
Unexpected Data Points Identified

Garbage in - Garbage out! Quality-control is central to *Facets* philosophy. Valid results require valid data. Data entry errors, erratic judges, mis-specified rating scales, deficient experimental designs *Facets* identifies suspected problems for investigation, but always produces results.

Cat	Step	Exp. Resd	StRes	N Senior sc	N Junior	N Traits
1	1	3.5	-2.5	-2.0	1 Avogadro	4 David 3 Clarity
2	2	5.9	-3.9	-2.6	2 Brahe	5 Edward 1 Attack
2	2	5.9	-3.9	-2.7	2 Brahe	5 Edward 4 Daring
6	6	3.1	2.9	2.6	2 Brahe	6 Fred 3 Clarity
Cat	Step	Exp. Resd	StRes	N Senior sc	N Junior	N Traits

Bias analysis - Differential Item Function

Interactions of any facet with any other measurement or demographic facet can be investigated and automatically plotted with Excel. Comprehensive Help file with examples. Free downloadable Manual in PDF format. Student/evaluation versions downloadable free from www.winsteps.com

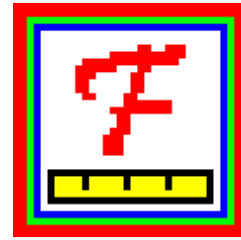


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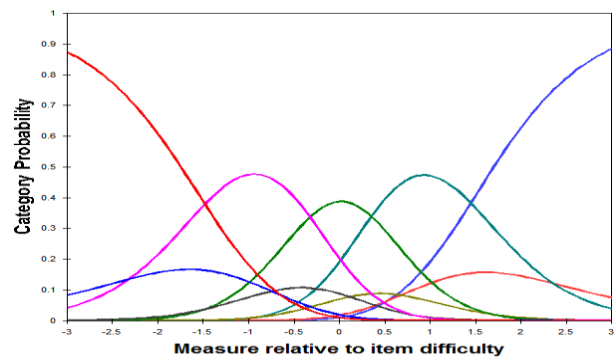
Constructs Measures from Awkward Data

Facets is for tough applications of measurement construction from complex ordinal data involving heterogeneous combinations of examinees, items, tasks, judges, etc. along with further measurement and structural facets. Over 90% missing data - no problem. Up to 1 million examinees etc. Data in Excel or text files. *Facets* is used for analyzing educational, medical and psychological assessments, also for staff evaluations, public speaking, artistic and sports competitions, consumer preferences and more

Judge Essay	1 ABC	2 ABC	3 ABC	4 ABC	5 ABC	6 ABC	7 ABC
Person 16.
2	5..	.3.	...	...
3	4..	...	...	...	...	...	...
42.	...	...	...	..5	...
57	...	...
6	5..	..6	...	...	...	...	...
75.	...	..3
86.	...	...	...	...	...
93.	...	6..
107.	..5	...	...

One or More Item Formats in One Analysis

Facets is designed to handle flexibly combinations of items of different formats in one analysis. Item types include dichotomies, rating scales with up to 255 categories, partial credit items, Poisson counts and Bernoulli trials. Full reporting of item structures includes category probability curves, expected and empirical item characteristic curves (ICCs) and information functions.



Multiple Measurement Models in an Analysis

Multiple different measurement models in the same analysis, including paired-comparisons, rank-order, rating scales, partial credit and dichotomizations involving from 1 to 255 facets. Unjudged multiple-choice items can be combined with judge-awarded essay ratings (weighted, if desired) to construct linear measures. Measures adjusted for judge leniency, task difficulty, etc.

Models=
 ? ,23, ? ,M ; All responses on Item 23 in Facet 2 are specified to be "missing"
 ? , 1, ? ,D,2 ; Item 1 is a dichotomy, to be weighted 2
 ? , 2, ? ,R ; Item 2 has a rating scale (or partial credit)
 ? , 3, # ,R ; Each judge on Item 3 has his own rating scale, i.e., a partial credit scale
 ? , 4, X,B2 ; Item 4 is two binomial trials, with no judge
 ?B,5,?B,R15 ; Item 5 has, at most, a 0-15, 16 category, rating scale (or partial credit)
 ; a Person-Judge Bias analysis is requested for all data
 ? ,6B,?B,D ; Item 6 is a dichotomy
 ; an Item-Judge Bias analysis is requested for all data
 *

Measures, Quality-Control Fit Statistics

Linear measures, standard errors, quality-control fit statistics (Infit, Outfit), point-biserials, and item discrimination estimates are reported. Also summary reliability and agreement statistics. Measures can be fixed (anchored) individually or by group mean, for equating and linking across test sessions. The "observed average" shows the average rating for an element (person, item, judge, etc.). The "fair average" adjusts that for the context - leveling the playing-field.

Obsvd Score	Obsvd Count	Obsvd Average	Fair-M Average	Model Measure	S.E.	Infit MnSq	Outfit MnSq	Estim. Discrm	N Junior Scientists		
82	12	6.8	6.85	.83	.22	.45	-1.5	.45	-1.5	1.46	2 Betty
72	12	6.0	6.01	.41	.20	2.21	2.5	2.18	2.4	.00	5 Edward
66	12	5.5	5.50	.18	.19	.83	-.3	.82	-.4	1.54	7 George
61	12	5.1	5.07	-.01	.19	.29	-2.6	.29	-2.6	1.30	1 Anne
52	12	4.3	4.30	-.36	.20	.85	-.2	.81	-.4	1.19	3 Chris
48	12	4.0	3.97	-.53	.21	1.36	.9	1.39	.9	.78	4 David
48	12	4.0	3.97	-.53	.21	.74	-.5	.87	-.1	.90	6 Fred
61.3	12.0	5.1	5.10	.00	.20	.96	-.3	.97	-.3		Mean (Count: 7)
12.0	.0	1.0	1.01	.47	.01	.60	1.6	.59	1.5		S.D. (Population)
12.9	.0	1.1	1.10	.51	.01	.64	1.7	.64	1.7		S.D. (Sample)