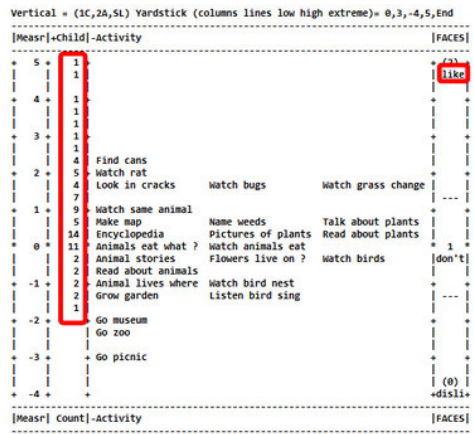


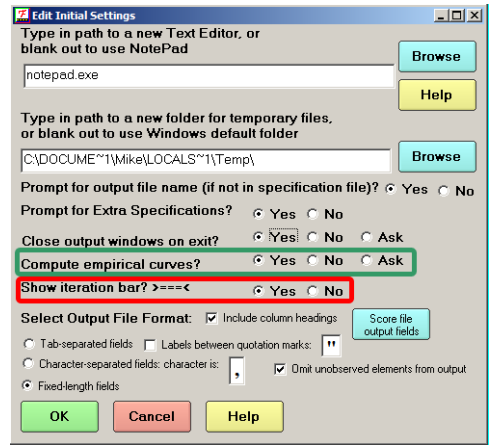
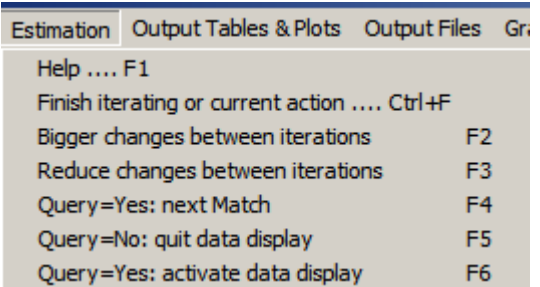
## Facets 3.62.0 Enhancements and Bug Fixes - June 2007

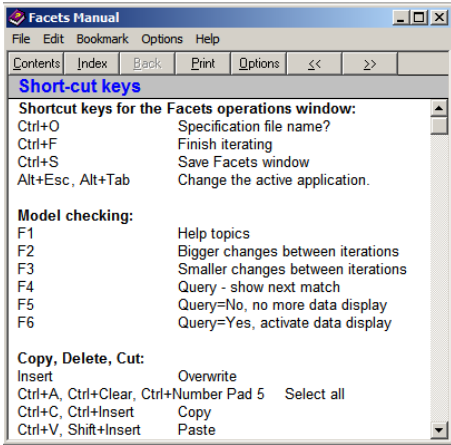
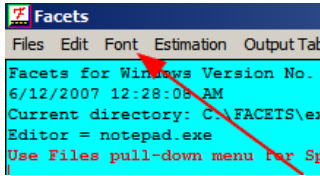
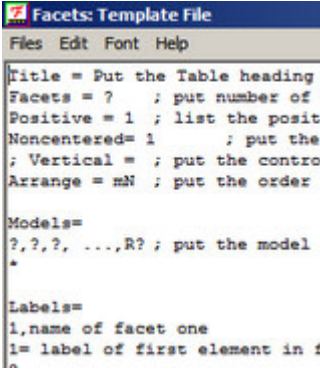
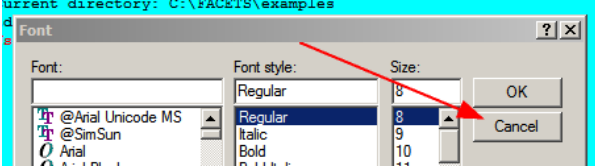
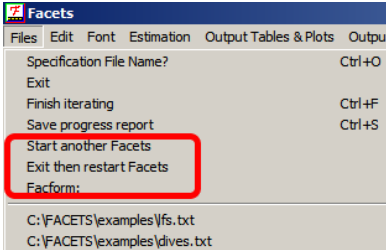
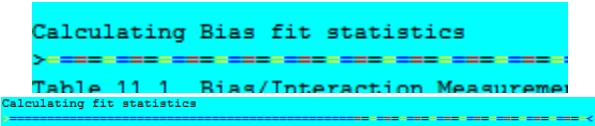
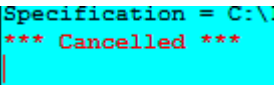
### New Features

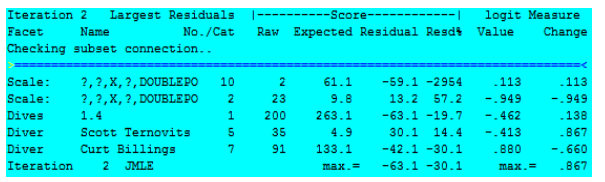
1.	<p><b>Excel Bias/Interaction Plots:</b>                  Absolute measures (baseline + bias/interaction)                  Relative bias measures (bias only relative to overall)                  Relative bias t-value (significance relative to overall)                  Pairwise measure bias differences and significances                  Average observed rating</p>	
2.	<p><b>Output score files to SPSS and to Excel</b></p>	
3.	<p><b>Output residual files to Excel and SPSS</b></p>	
4.	<p><b>Faster analysis</b> (disk input-output and screen writes)</p>	<pre style="background-color: #e0f0ff; padding: 5px;">subset connection O.K. Analyzed in time of 0: 0:24 Output to C:\FACETS\examples\m</pre>
5.	<p><b>Control buttons</b> in Facets main Window:                  “Pause/Resume” and “Finish iterating” buttons</p>	
6.	<p><b>Bigger datasets:</b> Facets has successfully analyzed datasets with 500,000 elements and 100,000,000 data points</p>	
<p><b>Specification Statement Enhancements</b></p>		
7.	<p><b>Barcharts=:</b> no, most important, all</p>	<p>Barcharts = No, Yes, All</p>
8.	<p><b>Labels=:</b> Explicit dummy facet code, “D”                  Anchors all the starting values at 0</p>	<p style="text-align: center;">3, Round, D                  1-3                  *</p>

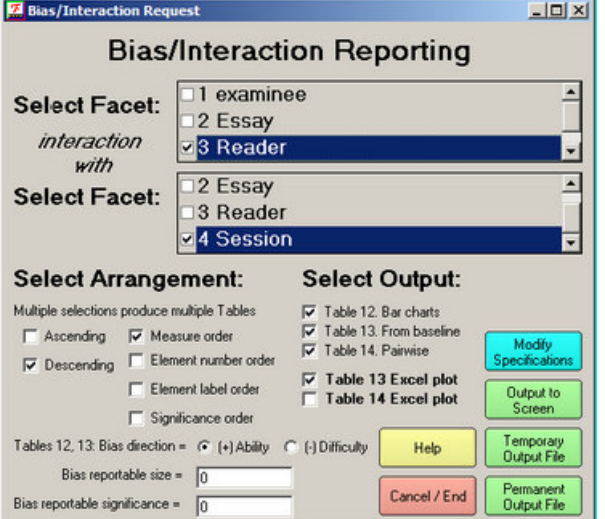
9.	<b>Models= ?,?,?,R8K</b> Models specification: Addition of “K” to indicate that intermediate unobserved categories are to be kept in the category hierarchy	Models = ?,?,?,R8K
10.	<b>Tables=:</b> Suppress Table Output from the main analysis - use the pull-down menus instead	Tables = No
11.	<b>T4max=:</b> Specify maximum number of residuals to be reported in Table 4.	T4MAX = 100
12.	<b>Vertical=SL</b> displays the category labels in Table 6  <b>Vertical= 1C</b> displays a count of the element numbers in Table 6	
13.	<b>Yardstick=:</b> location of extreme elements (at end or by measure), end is the default	Yardstick (columns lines low high extreme)= 0,4,5,7,End

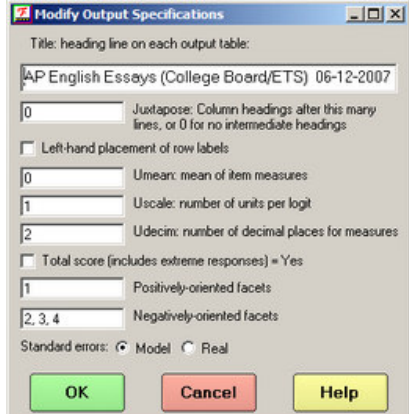
### Operational Enhancements

14.	<b>Edit initial settings:</b>  Option for computation of empirical curves. Computation can take a long time if dataset is large.  Option for displaying iteration bars. Iterations can slow down some Unicode versions of Windows.	
15.	<b>Short-cut keys:</b> revised model-checking short-cut keys to remove conflicts with Windows defaults	

<p>16.</p>	<p><b>Short-cut keys:</b> All short-cut keys documented</p> <p>Insert Overwrite  Ctrl+A, Ctrl+Clear, Ctrl+Number Pad 5 Select all  Ctrl+C, Ctrl+Insert Copy  Ctrl+V, Shift+Insert Paste  etc.</p>	
<p>17.</p>	<p><b>Font menu</b> - to simplify changing display fonts in Facets Window</p>	
<p>18.</p>	<p><b>Edit Template</b> from Edit menu streamlined</p>	
<p>19.</p>	<p><b>Cancel button</b> merely exits from current dialog box. Facets remains active.</p>	
<p>20.</p>	<p><b>Files menu:</b> More options on program launch</p>	
<p>21.</p>	<p><b>Iteration progress bar:</b> shown in color. Multiple ===== are written in one operation to prevent writing to the screen slowing down the computation.</p>	
<p>22.</p>	<p><b>Facets Window:</b> Red for warning messages</p>	

23.	<p><b>Facets Window:</b> only most unconverged elements shown to speed up screen display output.</p> <p>Largest score residual</p> <p>Largest score residual percent</p> <p>Largest logit change</p>	 <table border="1"> <thead> <tr> <th>Iteration</th> <th>2</th> <th>Largest Residuals</th> <th>Score</th> <th>logit Measure</th> </tr> <tr> <th>Facet Name</th> <th>No./Cat</th> <th>Raw</th> <th>Expected Residual</th> <th>Read% Value Change</th> </tr> </thead> <tbody> <tr> <td colspan="5">Checking subset connection...</td> </tr> <tr> <td>Scale:</td> <td>?, ?, X, ?, DOUBLEPO</td> <td>10</td> <td>2</td> <td>61.1 -59.1 -2954 .113 .113</td> </tr> <tr> <td>Scale:</td> <td>?, ?, X, ?, DOUBLEPO</td> <td>2</td> <td>23</td> <td>9.8 13.2 57.2 -.949 -.949</td> </tr> <tr> <td>Dives:</td> <td>1.4</td> <td>1</td> <td>200</td> <td>263.1 -63.1 -19.7 -.462 .138</td> </tr> <tr> <td>Diver:</td> <td>Scott Ternovits</td> <td>5</td> <td>35</td> <td>4.9 30.1 14.4 -.413 .867</td> </tr> <tr> <td>Diver:</td> <td>Curt Billings</td> <td>7</td> <td>91</td> <td>133.1 -42.1 -30.1 .880 -.660</td> </tr> <tr> <td>Iteration</td> <td>2</td> <td>JMLE</td> <td></td> <td>max.= -63.1 -30.1 max.= .867</td> </tr> </tbody> </table>	Iteration	2	Largest Residuals	Score	logit Measure	Facet Name	No./Cat	Raw	Expected Residual	Read% Value Change	Checking subset connection...					Scale:	?, ?, X, ?, DOUBLEPO	10	2	61.1 -59.1 -2954 .113 .113	Scale:	?, ?, X, ?, DOUBLEPO	2	23	9.8 13.2 57.2 -.949 -.949	Dives:	1.4	1	200	263.1 -63.1 -19.7 -.462 .138	Diver:	Scott Ternovits	5	35	4.9 30.1 14.4 -.413 .867	Diver:	Curt Billings	7	91	133.1 -42.1 -30.1 .880 -.660	Iteration	2	JMLE		max.= -63.1 -30.1 max.= .867
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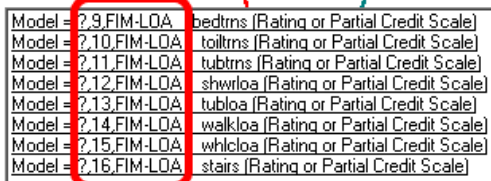
24.	<p><b>Bias/Interaction dialog box:</b> Better control over bias/interaction Tables and Excel plots from Output Tables menu</p>	 <p><b>Bias/Interaction Reporting</b></p> <p>Select Facet: <input type="checkbox"/> 1 examinee  <input type="checkbox"/> 2 Essay  <input checked="" type="checkbox"/> 3 Reader</p> <p>interaction with</p> <p>Select Facet: <input type="checkbox"/> 2 Essay  <input type="checkbox"/> 3 Reader  <input checked="" type="checkbox"/> 4 Session</p> <p>Select Arrangement: <input type="checkbox"/> Ascending <input checked="" type="checkbox"/> Measure order  <input checked="" type="checkbox"/> Descending <input type="checkbox"/> Element number order  <input type="checkbox"/> Element label order  <input type="checkbox"/> Significance order</p> <p>Select Output: <input checked="" type="checkbox"/> Table 12. Bar charts  <input checked="" type="checkbox"/> Table 13. From baseline  <input checked="" type="checkbox"/> Table 14. Pairwise  <input checked="" type="checkbox"/> Table 13 Excel plot  <input type="checkbox"/> Table 14 Excel plot</p> <p>Tables 12, 13: Bias direction = <input checked="" type="radio"/> (+) Ability <input type="radio"/> (-) Difficulty</p> <p>Bias reportable size = 0</p> <p>Bias reportable significance = 0</p> <p>Buttons: Modify Specifications, Output to Screen, Temporary Output File, Permanent Output File, Help, Cancel / End</p>
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25.	<p><b>Modify specifications dialog box:</b></p> <p>Change facet positive and negative orientation (Positive=, Negative=)</p> <p>Change standard error reported, model or real (SE=)</p> <p>Bug fix: Umean= and Uscale= malfunction.</p> <p>Now accessed from all Table dialog boxes</p>	 <p><b>Modify Output Specifications</b></p> <p>Title: heading line on each output table:    AP English Essays (College Board/ETS) 06-12-2007</p> <p>0 Juxtapose: Column headings after this many lines, or 0 for no intermediate headings</p> <p><input type="checkbox"/> Left-hand placement of row labels</p> <p>0 Umean: mean of item measures</p> <p>1 Uscale: number of units per logit</p> <p>2 Udecim: number of decimal places for measures</p> <p><input type="checkbox"/> Total score (includes extreme responses) = Yes</p> <p>1 Positively-oriented facets</p> <p>2, 3, 4 Negatively-oriented facets</p> <p>Standard errors: <input checked="" type="radio"/> Model <input type="radio"/> Real</p> <p>Buttons: OK, Cancel, Help</p>
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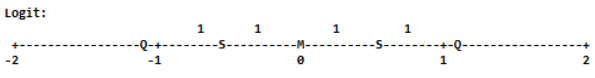
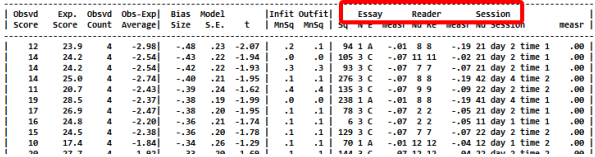
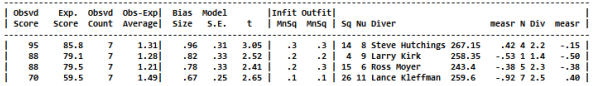
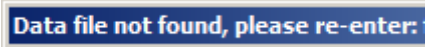
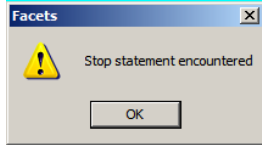
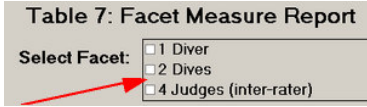
26.	<p><b>Table 14:</b> more than 1000 pairwise comparisons. Please request explicitly from the Output Tables menu due to memory and speed constraints.</p>	<p>Table 14: There are potentially 1900 pairwise terms. Request Table 14 from the Output Tables menu.</p>
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### Reporting and Display Enhancements

27.	<p><b>Table 2:</b> Unobserved models not reported</p>	<p>Total data lines = 776</p> <p>Responses matched to model: ?,,,?,D,1 = 3104</p> <p><del>Responses matched to model: ?,?,?,D,1 = 0</del></p> <p>Total non-blank responses found = 3104</p> <p>Valid responses used for estimation = 3104</p>
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28.	<p><b>Table 2:</b> Rating scales listed in order</p>	 <table border="1"> <tbody> <tr> <td>Model = 2.9.FIM-LQA</td> <td>bedtrns (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.10.FIM-LQA</td> <td>toiltrns (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.11.FIM-LQA</td> <td>tubtrns (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.12.FIM-LQA</td> <td>shwrlqa (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.13.FIM-LQA</td> <td>tubloa (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.14.FIM-LQA</td> <td>walkloa (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.15.FIM-LQA</td> <td>whlcloa (Rating or Partial Credit Scale)</td> </tr> <tr> <td>Model = 2.16.FIM-LQA</td> <td>stairs (Rating or Partial Credit Scale)</td> </tr> </tbody> </table>	Model = 2.9.FIM-LQA	bedtrns (Rating or Partial Credit Scale)	Model = 2.10.FIM-LQA	toiltrns (Rating or Partial Credit Scale)	Model = 2.11.FIM-LQA	tubtrns (Rating or Partial Credit Scale)	Model = 2.12.FIM-LQA	shwrlqa (Rating or Partial Credit Scale)	Model = 2.13.FIM-LQA	tubloa (Rating or Partial Credit Scale)	Model = 2.14.FIM-LQA	walkloa (Rating or Partial Credit Scale)	Model = 2.15.FIM-LQA	whlcloa (Rating or Partial Credit Scale)	Model = 2.16.FIM-LQA	stairs (Rating or Partial Credit Scale)
Model = 2.9.FIM-LQA	bedtrns (Rating or Partial Credit Scale)																	
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Model = 2.15.FIM-LQA	whlcloa (Rating or Partial Credit Scale)																	
Model = 2.16.FIM-LQA	stairs (Rating or Partial Credit Scale)																	

29.	<p><b>Table 4.</b> Standardized Residual: 1 decimal place</p>	<pre> Cat Step Exp. Resd StRes N Spor -----   4 4 1.8 2.2 2.2 1 Vin :   1 1 4.8 -3.8 -2.6 5 Harr:   2 2 5.7 -3.7 -2.9 6 Ralpl -----  Cat Step Exp. Resd StRes  N Spor</pre>
30.	<p><b>Table 6:</b></p> <p>Vertical=<b>SL</b> displays the category labels</p> <p>Vertical= 1<b>C</b> displays a count of the element numbers</p>	<pre>Vertical = (1c,2s,5t) Yardstick (columns lines low high extreme)= 0,3,-4,5,End [Mear]-[child]-activity [FACES] ----- 5   1           4   1           3   1           2   4           1   1           0   5   Find cans           -1   5   Watch rat   Watch bugs           -2   4   Look in cracks           -3   7                 -4   9   Watch same animal           -5   5   Make map   Name weeds   Talk about plants       -6   14   Encyclopedia   Pictures of plants   Read about plants       -7   11   Animals eat what?   Watch animals eat           -8   2   Animal stories   Flowers live on?   Watch birds     don't -9   2   Read about animals           -10   2   Animal lives where   Watch bird nest           -11   2   Grow garden   Listen bird sing           -12   1                 -13     Go museum               -14     Go zoo               -15                   -16     Go picnic               -17                   -18                   -19                   -20                   ----- [Mear] count]-activity [FACES]</pre>
31.	<p><b>Table 6:</b> Non-extreme categories shown next to extreme categories</p>	<pre>[Mear]-[senior scientists]-[junior scientists]-[traits] [CREAT] ----- 1                     0                     -1                     ----- [Mear]-[senior scientists]-[junior scientists]-[traits] [CREAT]</pre>
32.	<p><b>Table 6:</b> Rating scale identification below rulers</p>	<p><b>S.1: Model = ?B, ?B, ?, CHOPS</b></p>
33.	<p><b>Table 6:</b> Fewer overflow lines</p>	<pre>[Mear]-[Children]-[Children] [Tappin]-[Tapping items] ----- 4                     3                     2                     1                     0                     -1                     -2                     -3                     -4                     -5                     ----- [Mear] - 2 [Children] [Tappin]-[Tapping items]</pre>
34.	<p><b>Table 6.0.0:</b> Improved subset reporting</p>	<p><b>Table 6.0.0 Disjoint Subset Element Listing.</b></p> <p>Subset number: 1 Facet: 1. Senior scientists 2 Elements: 1 2 Facet: 2. Junior Scientists 3 Elements: 1-3</p> <p>Subset number: 2 Facet: 1. Senior scientists 2 Elements: 3 4 Facet: 2. Junior Scientists 4 Elements: 4-7</p>

35.	<b>Table 6.1:</b> Rescaling of numerical bar charts for consistency across facets																																																																																																																																									
36.	Table 13: Bias/interaction direction reported explicitly	<b>(higher score = higher bias measure)</b>																																																																																																																																								
37.	Table 13: Facets names in bias/interaction report																																																																																																																																									
38.	Table 14: Heading shortened:	<p>was: Bias/Interaction analysis specified by: 1. Tree, 2. Bark</p> <p>now: Bias/Interaction: 1. Tree, 2. Bark</p>																																																																																																																																								
39.	Graph file: headings and range	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Scale</th> <th>Measure</th> <th>Expected</th> <th>ExpCat</th> <th>Prob:0</th> <th>Prob:1</th> <th>Prob:2</th> <th>Prob:3</th> </tr> </thead> <tbody> <tr><td>1</td><td>-6.00</td><td>6.02</td><td>6</td><td>.98</td><td>.02</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-5.82</td><td>6.03</td><td>6</td><td>.97</td><td>.03</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-5.64</td><td>6.03</td><td>6</td><td>.97</td><td>.03</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-5.45</td><td>6.04</td><td>6</td><td>.96</td><td>.04</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-5.27</td><td>6.05</td><td>6</td><td>.95</td><td>.04</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-5.09</td><td>6.06</td><td>6</td><td>.95</td><td>.05</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-4.91</td><td>6.07</td><td>6</td><td>.93</td><td>.06</td><td>.00</td><td>.00</td></tr> <tr><td>1</td><td>-4.73</td><td>6.09</td><td>6</td><td>.92</td><td>.07</td><td>.01</td><td>.00</td></tr> <tr><td>1</td><td>-4.55</td><td>6.10</td><td>6</td><td>.91</td><td>.08</td><td>.01</td><td>.00</td></tr> <tr><td>1</td><td>-4.36</td><td>6.13</td><td>6</td><td>.89</td><td>.10</td><td>.01</td><td>.00</td></tr> <tr><td>1</td><td>-4.18</td><td>6.16</td><td>6</td><td>.86</td><td>.12</td><td>.02</td><td>.00</td></tr> <tr><td>1</td><td>-4.00</td><td>6.19</td><td>6</td><td>.84</td><td>.13</td><td>.02</td><td>.00</td></tr> <tr><td>1</td><td>-3.82</td><td>6.24</td><td>6</td><td>.81</td><td>.16</td><td>.03</td><td>.00</td></tr> <tr><td>1</td><td>-3.64</td><td>6.29</td><td>6</td><td>.77</td><td>.18</td><td>.05</td><td>.01</td></tr> <tr><td>1</td><td>-3.45</td><td>6.36</td><td>6</td><td>.72</td><td>.20</td><td>.06</td><td>.01</td></tr> <tr><td>1</td><td>3.77</td><td>6.45</td><td>6</td><td>.67</td><td>.27</td><td>.08</td><td>.01</td></tr> </tbody> </table>	Scale	Measure	Expected	ExpCat	Prob:0	Prob:1	Prob:2	Prob:3	1	-6.00	6.02	6	.98	.02	.00	.00	1	-5.82	6.03	6	.97	.03	.00	.00	1	-5.64	6.03	6	.97	.03	.00	.00	1	-5.45	6.04	6	.96	.04	.00	.00	1	-5.27	6.05	6	.95	.04	.00	.00	1	-5.09	6.06	6	.95	.05	.00	.00	1	-4.91	6.07	6	.93	.06	.00	.00	1	-4.73	6.09	6	.92	.07	.01	.00	1	-4.55	6.10	6	.91	.08	.01	.00	1	-4.36	6.13	6	.89	.10	.01	.00	1	-4.18	6.16	6	.86	.12	.02	.00	1	-4.00	6.19	6	.84	.13	.02	.00	1	-3.82	6.24	6	.81	.16	.03	.00	1	-3.64	6.29	6	.77	.18	.05	.01	1	-3.45	6.36	6	.72	.20	.06	.01	1	3.77	6.45	6	.67	.27	.08	.01
Scale	Measure	Expected	ExpCat	Prob:0	Prob:1	Prob:2	Prob:3																																																																																																																																			
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1	-5.82	6.03	6	.97	.03	.00	.00																																																																																																																																			
1	-5.64	6.03	6	.97	.03	.00	.00																																																																																																																																			
1	-5.45	6.04	6	.96	.04	.00	.00																																																																																																																																			
1	-5.27	6.05	6	.95	.04	.00	.00																																																																																																																																			
1	-5.09	6.06	6	.95	.05	.00	.00																																																																																																																																			
1	-4.91	6.07	6	.93	.06	.00	.00																																																																																																																																			
1	-4.73	6.09	6	.92	.07	.01	.00																																																																																																																																			
1	-4.55	6.10	6	.91	.08	.01	.00																																																																																																																																			
1	-4.36	6.13	6	.89	.10	.01	.00																																																																																																																																			
1	-4.18	6.16	6	.86	.12	.02	.00																																																																																																																																			
1	-4.00	6.19	6	.84	.13	.02	.00																																																																																																																																			
1	-3.82	6.24	6	.81	.16	.03	.00																																																																																																																																			
1	-3.64	6.29	6	.77	.18	.05	.01																																																																																																																																			
1	-3.45	6.36	6	.72	.20	.06	.01																																																																																																																																			
1	3.77	6.45	6	.67	.27	.08	.01																																																																																																																																			
<b>Bug fixes</b>																																																																																																																																										
40.	<b>Typographical error</b> “xstop” to “stop”	There are potentially 123 pairwise terms. Press Ctrl+F to xstop reporting.																																																																																																																																								
41.	<b>Bias sign inconsistencies:</b> always: positive / negative resolved: Bias= only for Tables 12 and 13.	<p>Bias/Interaction analysis specified by: 1. Diver, 2. Dives (higher score = higher bias measure)</p> 																																																																																																																																								
42.	<b>PROX estimation:</b> Don't estimate the rating-scale structure during PROX: it proved detrimental	<p>Table 3. Iteration Report.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Iteration</th> <th>Max. Elements</th> <th>Score</th> <th>Residual %</th> <th>Logit Change</th> </tr> </thead> <tbody> <tr> <td>PROX 1</td> <td></td> <td></td> <td></td> <td>-.9732</td> </tr> <tr> <td>PROX 2</td> <td></td> <td></td> <td></td> <td>-.3689</td> </tr> <tr> <td>JMLE 3</td> <td>141.9031</td> <td>20.3</td> <td>193.4733</td> <td>.6284</td> </tr> <tr> <td>JMLE 4</td> <td>-14.9885</td> <td>-5.2</td> <td>35.4974</td> <td>-.1049</td> </tr> </tbody> </table>	Iteration	Max. Elements	Score	Residual %	Logit Change	PROX 1				-.9732	PROX 2				-.3689	JMLE 3	141.9031	20.3	193.4733	.6284	JMLE 4	-14.9885	-5.2	35.4974	-.1049																																																																																																															
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43.	<b>Data file message:</b> Corrected instructional message: Data file not found - please re-enter																																																																																																																																									
44.	<b>Stop statement:</b> Unexpected, very rare, program stop removed. Now Facets always exits gracefully.																																																																																																																																									
45.	<b>Undefined facet:</b> Table 7 on the Output Tables menu no longer crashes if there is an undefined facet.																																																																																																																																									
46.	<b>Real standard error:</b> Documentation corrected for the Real S.E.	Real S.E. = Model S.E. * sqrt(Max(INFIT Mnsq, 1))																																																																																																																																								
47.	<b>Subset detection:</b> further unusual designs correctly diagnosed	<b>Subset connection O.K.</b>																																																																																																																																								