

ConstructMap v4.6

Instructions for Generating the Chapter 6 Examples¹

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updated 11/4/12

FIGURE 6.5 – A WRIGHT MAP FOR THE TRICHOTOMOUS PF-10 INSTRUMENT, SHOWING 67% AND 95% CONFIDENCE INTERVALS FOR A RESPONDENT WITH A SCORE OF 13

1. Select the menu option **Estimation Tasks** → **Proficiency Estimation Options** and set Estimation Type to MLE.
2. Sort the database into ID order by clicking on the column heading Name.
3. Select the case with an ID of **1017936** by clicking on the ID number (this case has a raw score of 13).
4. Select the menu option **Reports** → **Report Options** and set the Maximum Scale to 5 and the Minimum Scale to -5, then click on OK.
5. Select the menu option **Reports** → **Individual Reports** → **Responses Report**.
6. Browse to the directory where you want to store the file and enter a filename of `resp_1017936`. Click on Save.
7. Confirm that the Item Set is set to base (not required for ConstructMap Lite). Click on OK.
8. The person's proficiency estimate and responses to each item will be displayed on the screen and also stored on your system in the folder you specified with the filename `resp_1017936.txt`.
9. Note in the report that the proficiency (MLE) is 0.87 and the standard error (standard deviation) is 0.59. The total of all the responses, shown in the rightmost column, is 13.

Now open the `wmpf10_2.txt` that you created for Chapter 5. Create a copy of it by selecting **File** → **Save As** and entering a new filename of `wmpf10_2_1017936`.

```
-----
resp_1017936.txt
Nov 5, 2012 10:10:44 AM

                                RESPONSES FOR 1017936
                                Item Set: base

MLE: 0.87371 SE: 0.58727 INFIT: 0.84 T: -0.24 OUTFIT: 0.81 T: -0.28
ID      Activity      Difficulty      Variable      Response
-----
1  base      Vigorous Activities  3.34119      pf.          0 / 2
2  base      Moderate Activities  0.07995      pf.          1 / 2
3  base      Lift/Carry          -0.39855     pf.          1 / 2
4  base      Several Stairs      1.12374      pf.          0 / 2
5  base      One Flight Stairs   -1.02021     pf.          2 / 2
6  base      Bend/Kneel/Stoop    0.15230      pf.          2 / 2
7  base      Walk More Mile      1.03837      pf.          1 / 2
```

Figure 1. Excerpt from responses Report for case 1017936.

¹ These instructions assume the reader is continuing after completing the Chapter 5 instructions.

10. Change the column heading "Respondents" to read "Confidence Interval."
11. Clear all the rows of X symbols (replace them with spaces to keep the alignment consistent).
12. Place an "X" next to 13, to represent the point estimate from the raw score.
13. At the bottom of the report, you should see a line indicating that each row is .2 logits (see Figure 2). Since one SD is .59 logits, you need 3 rows of 1s above and below the student location (where the "X" is) to represent the 67% confidence interval, and 3 rows of 2s above and below the 1s to represent the 95% confidence interval. Add these numbers as indicated.

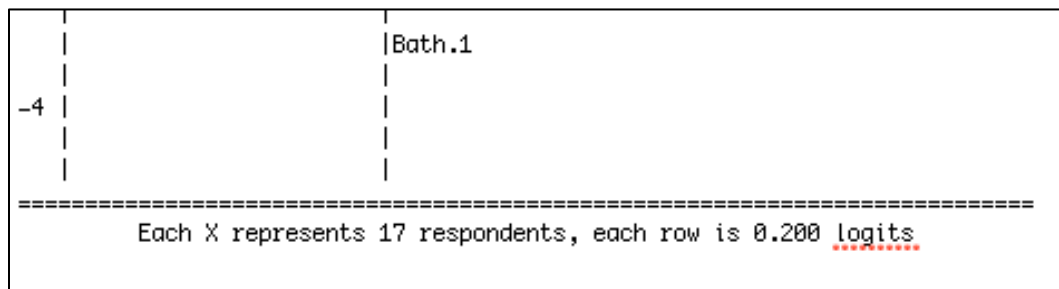


Figure 2. Excerpt of the Wright Map from Chapter 5 showing the logit interval represented by each row.

FIGURE 6.6 – FIT RESULTS FOR THE PF10 DATA (AVERAGE ITEM LOCATION)

1. Select the menu option **Reports** → **Item Reports** → **Item Estimates and Fit Graph**.
2. Browse to the directory in which you want to store the file and enter a File Name of `fitpf10`. Click on Save.
3. Set the Calculation Method option to By Parameter.
4. Set the Display Item Mean Square Graph option to Yes.
5. Set the Re-Calculate Item Fit Statistics to No.
6. Set the Save Item Fit Statistics to Yes.
7. Click on OK to continue.

The Item Fit Report will be displayed on the screen and also stored on your system in the folder you specified. You will see a chart like the one in Figure 6.6 at the end of the report (and also shown below).²

² Note that the values are slightly different than the ones shown in the book due to changes in recent versions of ConstructMap.

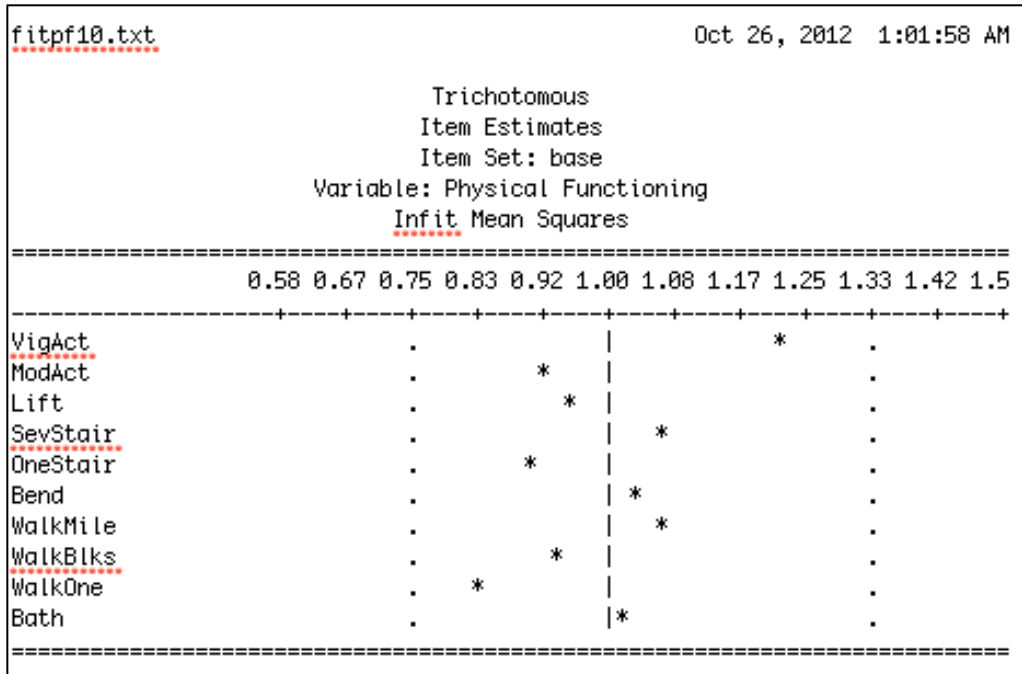


Figure 4. Graph generated by ConstructMap of infit (weighted) mean square values for items from the PF10 Trichotomous project.

TABLE 6.1 – THREE RESPONSE PATTERNS FOR THE PF-10 SCALE

The data for each row in the table can be found in the associated Responses Report for each case.³

1. Sort the database into ID order by clicking on the column heading Name.
2. Select the student with an ID of 020035I by clicking on the ID number.
3. Select the menu option **Reports → Individual Reports → Responses Report**.
4. Browse to the directory where you want to store the file and enter a filename of resp_397. Click on Save.
5. Confirm that the Item Set is set to base (not required for ConstructMap Lite), and then click on OK.
6. Select the student with an ID of 432336S, select Responses Report, and name the file resp_375.
7. Select the student with an ID of 620285H, select Responses Report, and name the file resp_381.

Each Responses Report will be displayed on the screen and also stored on your system in the folder you specified.

³ The values in the top row of the table (expected scores for a given ability level) cannot be obtained directly from a ConstructMap report.

8. Open one of the reports using Word and note that the "Score" shown in Table 6.1 is the sum of the Responses found in the rightmost column of the report. The "Wt. MS" (weighted mean square) value shown in Table 6.1 is approximately the Infit value shown in the row of numbers that begins with EAP⁴. Refer to Figure 1 for an example of a Responses Report as generated by ConstructMap.

FIGURE 6.8 – KID MAPS FOR THE THREE RESPONSE PATTERNS TO THE PF-10

1. Sort the database into ID order by clicking on the column heading Name.
2. Select the case with an ID of 020035I by clicking on the ID number.
3. Select the menu option **Reports → Individual Reports → Diagnostic Map**.
4. Enter "KID MAP for 397" as the Title.
5. Browse to the directory you want to store the file in and enter a File Name of kid_397. Click on Save.
6. Confirm that the Item Set is set to base (not required for ConstructMap Lite).
7. Confirm that Display Item Names is set to No.
8. Confirm that Disp. All Active Items is set to Yes.
9. In the Defined Range section, set the Max. Range to 5.5, Min. Range to -4.5, and Rows to 33.
10. Set the Left Column Heading to Reached and the Right Column Heading to Not Reached.
11. Click on OK to generate the map.
12. Repeat steps 2 through 5 (and 11) for ID **432336S**, naming the file kid_375 (the report settings should remain the same for each subsequent Kid Map).
13. Repeat steps 2 through 5 (and 11) for ID **620285H**, naming the file kid_381.
14. Each Kid Map will be displayed on the screen and also stored on your system in the folder you specified with the filenames kid_nnn.txt.

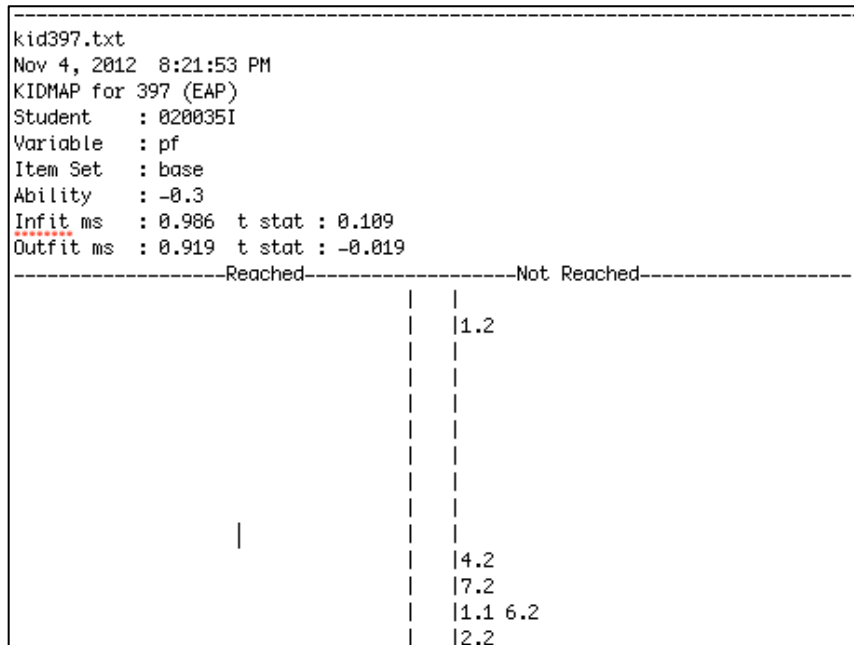


Figure 5. Excerpt of the Kid Map generated by ConstructMap for case 020035I before modifications in Word.

· Note that the values are slightly different than the ones shown in the book due to changes in recent versions of ConstructMap.

To transform each Kid Map into the format of Figure 6.8, open the file in Word and delete the extra lines of the heading, retaining only the “KID MAP” and “Infit” rows.

The current version of ConstructMap displays item steps differently from the version that was used to generate the figures in the text. In the left column, ConstructMap currently displays only the score level attained by the respondent. The earlier version displayed the score level attained and all lower score levels.