

# IRTtool.com

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**Keywords:** Webapplication Interface Internet IRT

IRTtool.com is a webinterface for the cran package ltm by Dimitris Rizopoulos. The application facilitates 1 parameter (Rasch), 2 parameter and 3 parameter IRT modeling, through means of a web-application. Other options include importing and exporting data, plotting information curves and exporting to PDF.

The application is an attempt to make IRT modeling more easily available for applied researchers. However, it is also meant to show the potential of R as a scripting language for statistical web applications. New developments can quickly be made available to a wide audience, and in the near future webbased data management and analysis could become a serious alternative to commercial statistical software.

The screenshot displays the IRTtool.com web application interface. It is divided into three main steps:

- Step 1: Upload datafile (SPSS, CSV or Tab delimited)**: A 'File Upload Form' with fields for 'Name' (demo-data) and 'Datafile' (C:\Program Files (x86)\SPSS\Inc\Statistics17\Samples\English\demo\_cs.sav).
- Step 2: Verify Data and Build a model**: A table for selecting variables to use. Below it, a table shows the selected model parameters.
- Step 3: Check**: A window titled 'Item Characteristic Curves' showing probability curves for various items.

Select which variables you want to use.
<input type="checkbox"/> Index
<input type="checkbox"/> 23 internet
<input type="checkbox"/> 26 callid
<input type="checkbox"/> 27 callwat
<input checked="" type="checkbox"/> 28 owntrv
<input checked="" type="checkbox"/> 29 ownvcr
<input checked="" type="checkbox"/> 30 owncd
<input checked="" type="checkbox"/> 31 ownpda
<input checked="" type="checkbox"/> 32 ownpc
<input checked="" type="checkbox"/> 33 ownfax
<input type="checkbox"/> 34 news

Item	Variable name	Difficulty	Discrimination	Guess
1	owntrv	-3.086	1.702	0.000
2	ownvcr	-2.012	1.702	0.000
3	owncd	-2.290	1.702	0.000
4	ownpda	1.257	1.702	0.000
5	ownpc	0.189	1.702	0.000
6	ownfax	1.314	1.702	0.000

The 'Item Characteristic Curves' window shows a graph of Probability (0.0 to 1.0) versus Ability (-4 to 4). Curves are plotted for items: owntrv (black), ownvcr (red), owncd (green), ownpda (blue), ownpc (cyan), and ownfax (magenta).

## References

Dimitris Rizopoulos (2006). *ltm: An R package for Latent Variable Modelling and Item Response Theory Analyses*, Journal of Statistical Software, 5, 1–25.

Jeffrey Horner (2009). *rapache: Web application development with R and Apache*. <http://biostat.mc.vanderbilt.edu/rapache>

<http://www.irttool.com> // <http://www.jeroenooms.com>