

## NG-Finder-Quads - Kelley & Wright

Sample scenario. Imagine that you need to form nominal groups quads for an experiment in which 80 participants were run individually (i.e., 20 nominal groups). Each participant attempted to recall a list of 14 items.

(1) Create a tab-delimited text file for recall performance:

- (a) Each row corresponds to a different participant
  - 100 participant maximum
  - The number of participants should be a multiple of 4, so that all participants can be assigned to groups.
- (b) Each column corresponds to a different item on the recall list
  - 1 item minimum; 100 item maximum
- (c) Correct responses are coded a 1 and incorrect responses are coded as 0.
- (d) Ensure that there is a tab separating each number in the row
- (e) For an example, see the file: sample-p80-i14.txt
  
- *Tip: If your original data is in a spreadsheet (e.g., Excel), simply copying the rows/columns and pasting them into a Notepad file with provide the proper tabbed format for the text file.*

(2) Prepare your computer to run the Finder program on a PC:

- (a) Download and install the [Microsoft Visual C++ 2008 Redistributable Package \(x86\)](#)
  - If this link does not work, simply Google the underlined words above and you will be directed to the download site.
- (b) Download the NG-Finder program
  - The program is in a zipped folder, so you will need to unzip the folder first and then find the executable file: NG-Finder-Quads.exe
- (c) Move your data file to the same folder as the executable file.

(3) Run the NG-Finder-Quads program:

- (a) A new window with the command prompt (C:\) will open and will ask you to enter the name of the DATA file.
  - Type the file name including the .txt (e.g., sample-p60-i14.txt) and press <enter>.
  - If the program successfully finds and opens the file, the following statement will be displayed: "The data file was opened".

- (b) Next, you will be asked to enter the number of participants (i.e., the number of rows) in the data file.
  - Type the number of participants (e.g., 80) and press <enter>.
- (c) Then, you will be asked to enter the number of items (i.e., the number of columns) in the data file.
  - Type the number of items (e.g., 14) and press <enter>.
- (d) Upon pressing <enter>, the program will indicate that it is "Performing Calculations..."

(4) Inspect the 8 output files created by the Finder. Note: these files do not open automatically. Instead, they are found in the same folder as the Finder program:

- (a) NG-1-Representative-Stats.txt
  - This file reports the representative (grand/overall) nominal group statistics.
    - Statistics include: mean number correct, mean variance, and the overall distribution of number correct.
- (b) NG-2-10000SetsOfNGQuads-Stats.txt
  - The program creates 10,000 sets of random nominal group quads and calculates the mean and variance for each set.
    - This file reports the mean and variance for each set.
- (c) NG-3-Best-Fit-MV-ChiSqValues.txt
  - The program uses the Chi Square equation to find the set that best fits the representative mean and variance (MV-Fit).
    - Simply, the representative mean and variance are the "expected" values and the means and adjusted variances for each set are the "observed values."
    - The smaller the Chi Square value, the better the fit.
  - The file reports the Chi Square test statistic for each set and the best-fit mean, best-fit variance, and best-fit Chi Square statistic for the best-fitting set.
- (d) NG-4-Best-Fit-MV-Quads-NumCorrect.txt
  - The file reports the nominal group quads for the best MV-Fit set (e.g., participants #1, #10, #32, #80 are grouped, #2, #36, #37, #49 are grouped, etc.) and the corresponding number correct for these quads.

- These values can be copied and pasted for use in computerized statistical packages (e.g., SPSS, Statistica).
- (e) NG-5-Best-Fit-DIST-ChiSqValues.txt
  - The program uses the Chi Square equation to find the set that best fits the overall distribution of correct responses (DIST-Fit).
    - The file reports the Chi Square test statistic for each set and the best-fit mean, best-fit variance, and best-fit Chi Square statistic for the best-fitting set.
- (f) NG-6-Best-Fit-DIST-Quads-NumCorrect.txt
  - The file reports the nominal group quads for the best DIST-Fit set (e.g., participants #1, #10, #32, #80 are grouped, #2, #36, #37, #49 are grouped, etc.) and the corresponding number correct for these quads.
    - These values can be copied and pasted for use in computerized statistical packages (e.g., SPSS, Statistica).
- (g) NG-7-Cumulative-Best-Fit-MV-For-Multiple-Runs.txt
- (h) NG-8-Cumulative-Best-Fit-DIST-For-Multiple-Runs.txt
  - In the event that the user wants to run the program more than once on the same data set (e.g., which is not necessary given the stability of the representative statistics), these files record the best MV-Fit and DIST-fit information for each run of the program.

(5) Acknowledge use of the NG-Finder program by citing:

- Kelley, M. R., & Wright, D. (2010). Obtaining representative nominal groups. *Behavior Research Methods*.