Reliability Coefficients Using R

Companion Reading: Bandalos, p. 155-159, Formula 7.20, p. 392-393, 395-396

 # The dataset <ELS04 admin school climate.csv> shows responses of 657 US high school administrators to 12 survey items from the 2004 wave of the Education Longitudinal Study of 2002-2006. These items asked school principals to rate various aspects of school climate (e.g., how hard do students work?, is there much bullying/school violence?) Labels for each item are given below. The rating scale for each item ranged from 1 (not at all accurate) to 5 (very accurate).

 # Import Excel .csv file

```
> schoolclimatedata <- read.table("C:/Users/username/Desktop/ELS04 admin school climate items.csv", header = TRUE, sep = ",")

# The equivalent file pathname for Mac would be "/Users/username/Desktop/ELS04 admin school climate items.csv"
```

 # Check that data imported correctly

```
> View(schoolclimatedata)
```

 # Compute reliability coefficient omega (and alpha)

```
> require(psych)

# Compute coefficient omega (“Omega Total”) for the total score for the general factor underlying all items, assuming a one-factor model fits the data (although we have previously shown that models with 3, 4, or 5 factors are more acceptable)

> omega(schoolclimatedata, nfactors = 1, rotate = "promax", fm = "ml")

# Compute coefficient omega for the general factor score from the best-fitting “bifactor” model with 1 ‘general’ and 3 ‘specific’ factors

> omega(schoolclimatedata, nfactors = 3, rotate = "promax", fm = "ml")
```