Statistics with R – Intermediate Level

Section 4

Reliability Analysis

Lesson 21 - Cronbach's Alpha

```
brd = read.csv("brand.csv")

View(brd)

#########
### how to compute the Cronbach's alpha
### this indicator measures the internal consistency of a
multi-item scale
#########

### we will use the psy package

require(psy)

cronbach(brd)

### with the fmsb package

require(fmsb)

CronbachAlpha(brd)
```

Lesson 22 - Cohen's Kappa

```
tch = read.csv("teachers.csv")

View(tch)

#########
### how to compute the Cohen's kappa
### it is an inter-rater reliability indicator
### that measures the concordance between two raters
### when the rating scale is ordinal
#########

### we will determine whether there is a concordance
### between the two teachers' grades

### with the package psy

require(psy)

ckappa(tch)

### this function displays the concordance table and the K
value,
### but it does not compute the p value

### with the package fmsb

require(fmsb)

Kappa.test(tch$teacher1, tch$teacher2)

## this function computes both the p value and the
confidence interval for K
```

Lesson 23 - Kendall's W

```
gym = read.csv("gym.csv")

View(gym)
```

```
#########
### how to compute the Kendall's W
### it is an inter-rater reliability indicator
### that measures the concordance between three or more
raters
### when the rating scale is continuous or ordinal
#########

### we will determine whether there is a concordance
### between the scores given by three judges

require(irr)

kendall(gym, correct=T)   ## corrected for ties
```