Interrater Reliability Using SPSS Syntax

In this document I explain how to use SPSS to obtain Interrater agreement and reliability indices using SPSS syntax.

The data for these examples are taken from Table 9.1 in the book (p. 211) and are in the SPSS dataset "**rater data.sav**"

In the sections below I demonstrate how to obtain interrater reliability based on coefficient alpha and on the intraclass correlation.

Coefficient Alpha for Interrater Reliability

To obtain values of coefficient alpha, use the **RELIABILITY** command:

RELIABILITY
 /VARIABLES=rater1 rater2 rater3
 /SCALE('ALL VARIABLES') ALL
 /MODEL=ALPHA.

Reliability Statistics

Cronbach's Alpha	N of Items
.957	3

Note that this is the same (once rounded) as the value of .96 reported on page 215 of the text. The "N of Items" is the number of raters.

Intraclass Correlation for Interrater Reliability

The intraclass correlation is also obtained from the **RELIABILITY ANALYSIS** menu.

RELIABILITY
 /VARIABLES=rater1 rater2 rater3
 /SCALE('ALL VARIABLES') ALL
 /MODEL=ALPHA
 /ICC=MODEL(RANDOM) TYPE(CONSISTENCY) CIN=95 TESTVAL=0.

The **ICC** subcommand specifies a two-way random model with a consistency coefficient (see pp. 217-221 for more explanation of these options). These specifications will yield the same value as coefficient alpha, as shown below:

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.881[a]	.699	.966	23.316	9	18	.000
Average Measures	.957	.874	.988	23.316	9	18	.000

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

The value in the row labeled "Average Measures" is the value of the intraclass correlation for the two-way random consistency coefficient: .957, which is identical to the value of coefficient alpha obtained previously for the three raters. The 95% confidence interval for this estimate is [.874, .988].

Changing the last line of the syntax to specify **TYPE(ABSOLUTE)** will yield the absolute, rather than the consistency, coefficient for the two-way random design.

/ICC=MODEL(RANDOM) TYPE(ABSOLUTE) CIN=95 TESTVAL=0.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.797[a]	.408	.944	23.316	9	18	.000
Average Measures	.922	.674	.981	23.316	9	18	.000

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

The value in the row labeled "Average Measures" is the value of the two-way random absolute coefficient: .922.

Because absolute coefficients measure exact agreement among raters, whereas consistency coefficients measure the degree to which raters' scores are in the same rank order, absolute coefficients will be lower than consistency coefficients, as seen here.