

```
356 0 OUTPUT ACTIVATE FleissKappaOutput.  
356 0 M> OUTPUT ACTIVATE FleissKappaOutput.  
357 0 TITLE 'Fleiss Multi-Rater Kappa'.  
357 0 M> TITLE 'Fleiss Multi-Rater Kappa'.
```

Fleiss Multi-Rater Kappa

```

358 0
358 0 M>
359 0 GET DATA
359 0 M> GET DATA
360 0 /TYPE=TXT
360 0 M> /TYPE=TXT
361 0 /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Ka
ppa\dataset.csv'
361 0 M> /FILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Ka
ppa\dataset.csv'
362 0 /ENCODING='UTF8'
362 0 M> /ENCODING='UTF8'
363 0 /DELCASE=LINE
363 0 M> /DELCASE=LINE
364 0 /DELIMITERS=', '
364 0 M> /DELIMITERS=', '
365 0 /QUALIFIER='''
365 0 M> /QUALIFIER='''
366 0 /ARRANGEMENT=DELIMITED
366 0 M> /ARRANGEMENT=DELIMITED
367 0 /FIRSTCASE=2
367 0 M> /FIRSTCASE=2
368 0 /VARIABLES=
368 0 M> /VARIABLES=
369 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
369 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8
370 0 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
370 0 M> Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 guardian A16
371 0 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 famsup
A8
371 0 M> traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A8 fams
up A8
372 0 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A
8
372 0 M> paid A8 activities A8 nursery A8 higher A8 internet A8 romanti
c A8
373 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F
8.0

```

Fleiss Multi-Rater Kappa

```

373 0 M>      famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0
374 0      absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
374 0 M>      absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
375 0 DATASET NAME FleissKappaData.
375 0 M> DATASET NAME FleissKappaData.
376 0 EXECUTE.
376 0 M> EXECUTE.
377 0
377 0 M>
378 0 COMPUTE subject_id=$CASENUM.
378 0 M> COMPUTE subject_id=$CASENUM.
379 0 COMPUTE Dalc_R=6-Dalc.
379 0 M> COMPUTE Dalc_R=6-Dalc.
380 0 COMPUTE Walc_R=6-Walc.
380 0 M> COMPUTE Walc_R=6-Walc.
381 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
381 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
382 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
382 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
383 0 RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
383 0 M> RECODE G1 G2 G3 (LO THRU 9=1) (10 THRU 13=2) (14 THRU HI=3)
384 0 INTO G1_cat3 G2_cat3 G3_cat3.
384 0 M> INTO G1_cat3 G2_cat3 G3_cat3.
385 0 RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
385 0 M> RECODE G1 G3 (LO THRU 8=1) (9 THRU 10=2) (11 THRU 12=3) (13 THRU 14=4) (15 THRU HI=5)
386 0 INTO G1_cat5 G3_cat5.
386 0 M> INTO G1_cat5 G3_cat5.
387 0 VARIABLE LEVEL schoolsup_b famsup_b paid_b activities_b higher_b internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5 (NOMINAL).
387 0 M> VARIABLE LEVEL schoolsup_b famsup_b paid_b activities_b higher_b internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5 (NOMINAL).

```

Fleiss Multi-Rater Kappa

```
388 0 FORMATS subject_id schoolsup_b famsup_b paid_b activities_b higher_b
internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5 (F5
      .0).
388 0 M> FORMATS subject_id schoolsup_b famsup_b paid_b activities_b higher
_b internet_b G1_cat3 G2_cat3 G3_cat3 G1_cat5 G3_cat5
      (F5.0).
389 0 EXECUTE.
389 0 M> EXECUTE.
390 0
390 0 M>
391 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
391 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
392 0 TITLE 'Fleiss Kappa'.
392 0 M> TITLE 'Fleiss Kappa'.
```

Fleiss Kappa

```
393 0 SUBTITLE 'Three raters classify every subject into low middle or high  
categories'.
```

```
393 0 M> SUBTITLE 'Three raters classify every subject into low middle or h  
igh categories'.
```

```
>Warning # 2004 on line 393. Command name: SUBTITLE
```

```
>The subtitle given exceeds 60 characters in length. The first 60 characters
```

```
>will be used.
```

Fleiss Kappa

Three raters classify every subject into low middle or high

```

394 0 COMPUTE fk_low=(G1_cat3=1)+(G2_cat3=1)+(G3_cat3=1).
394 0 M> COMPUTE fk_low=(G1_cat3=1)+(G2_cat3=1)+(G3_cat3=1).
395 0 COMPUTE fk_middle=(G1_cat3=2)+(G2_cat3=2)+(G3_cat3=2).
395 0 M> COMPUTE fk_middle=(G1_cat3=2)+(G2_cat3=2)+(G3_cat3=2).
396 0 COMPUTE fk_high=(G1_cat3=3)+(G2_cat3=3)+(G3_cat3=3).
396 0 M> COMPUTE fk_high=(G1_cat3=3)+(G2_cat3=3)+(G3_cat3=3).
397 0 COMPUTE fk_subject_agreement=(fk_low**2+fk_middle**2+fk_high**2-3)/6.
397 0 M> COMPUTE fk_subject_agreement=(fk_low**2+fk_middle**2+fk_high**2-3)
/6.
398 0 DESCRIPTIVES VARIABLES=fk_low fk_middle fk_high fk_subject_agreement
/STATISTICS=MEAN STDDEV MIN MAX.
398 0 M> DESCRIPTIVES VARIABLES=fk_low fk_middle fk_high fk_subject_agreeme
nt /STATISTICS=MEAN STDDEV MIN MAX.

```

Descriptives

Notes

Output Created		16-JUL-2026 21:09:01
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Kappa\dataset.csv
	Active Dataset	FleissKappaData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=fk_low fk_middle fk_high fk_subject_agreement /STATISTICS=MEAN STDDEV MIN MAX.

Fleiss Kappa

Three raters classify every subject into low middle or high

Notes

Resources	Processor Time	00:00:00.11
	Elapsed Time	00:00:00.32

[FleissKappaData]

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
fk_low	649	.00	3.00	.6194	1.05482
fk_middle	649	.00	3.00	1.6133	1.26193
fk_high	649	.00	3.00	.7673	1.19662
fk_subject_agreement	649	.33	1.00	.7843	.31213
Valid N (listwise)	649				

```
399 0 FREQUENCIES VARIABLES=fk_subject_agreement /STATISTICS=MEAN MEDIAN STDDEV /HISTOGRAM.
```

```
399 0 M> FREQUENCIES VARIABLES=fk_subject_agreement /STATISTICS=MEAN MEDIAN STDDEV /HISTOGRAM.
```

Frequencies

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Three raters classify every subject into low middle or high

Notes

Output Created		16-JUL-2026 21:09:02
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Kappa\dataset.csv
	Active Dataset	FleissKappaData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=fk_subject_a greement /STATISTICS=MEAN MEDIAN STDDEV /HISTOGRAM.
Resources	Processor Time	00:00:01.50
	Elapsed Time	00:00:01.20

Statistics

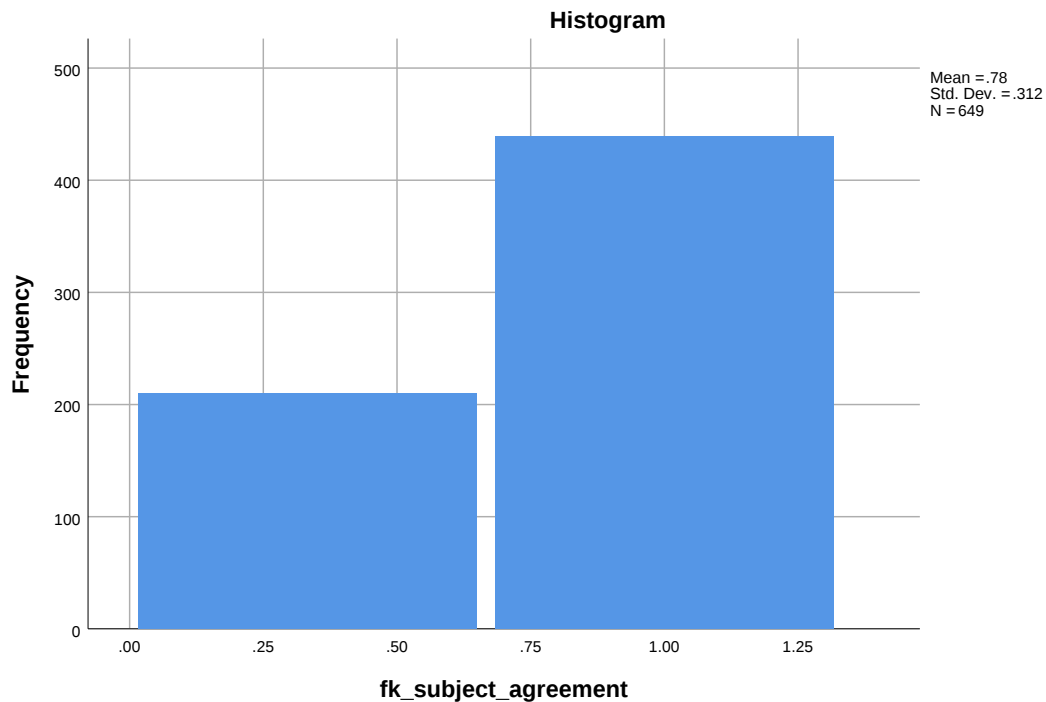
fk_subject_agreement

N	Valid	649
	Missing	0
Mean		.7843
Median		1.0000
Std. Deviation		.31213

Fleiss Kappa
Three raters classify every subject into low middle or high

fk_subject_agreement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.33	210	32.4	32.4	32.4
	1.00	439	67.6	67.6	100.0
	Total	649	100.0	100.0	



```
400 0 CROSSTABS /TABLES=G1_cat3 BY G2_cat3 BY G3_cat3 /CELLS=COUNT ROW COLU
MN.
```

```
400 0 M> CROSSTABS /TABLES=G1_cat3 BY G2_cat3 BY G3_cat3 /CELLS=COUNT ROW C
OLUMN.
```

Crosstabs

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Three raters classify every subject into low middle or high

Notes

Output Created		16-JUL-2026 21:09:03
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Kappa\dataset.csv
	Active Dataset	FleissKappaData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=G1_cat3 BY G2_cat3 BY G3_cat3 /CELLS=COUNT ROW COLUMN.
Resources	Processor Time	00:00:00.11
	Elapsed Time	00:00:00.10
	Dimensions Requested	3
	Cells Available	449353

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
G1_cat3 * G2_cat3 * G3_cat3	649	100.0%	0	0.0%	649	100.0%

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Three raters classify every subject into low middle or high

G1_cat3 * G2_cat3 * G3_cat3 Crosstabulation

G3_cat3				G2_cat3			Total
				1	2	3	
1	G1_cat3	1	Count	80	8		88
			% within G1_cat3	90.9%	9.1%		100.0%
			% within G2_cat3	89.9%	72.7%		88.0%
		2	Count	9	3		12
			% within G1_cat3	75.0%	25.0%		100.0%
			% within G2_cat3	10.1%	27.3%		12.0%
	Total		Count	89	11		100
			% within G1_cat3	89.0%	11.0%		100.0%
			% within G2_cat3	100.0%	100.0%		100.0%
2	G1_cat3	1	Count	27	42	0	69
			% within G1_cat3	39.1%	60.9%	0.0%	100.0%
			% within G2_cat3	48.2%	14.2%	0.0%	19.4%
		2	Count	29	235	3	267
			% within G1_cat3	10.9%	88.0%	1.1%	100.0%
			% within G2_cat3	51.8%	79.4%	100.0%	75.2%
		3	Count	0	19	0	19
			% within G1_cat3	0.0%	100.0%	0.0%	100.0%
			% within G2_cat3	0.0%	6.4%	0.0%	5.4%
	Total		Count	56	296	3	355
			% within G1_cat3	15.8%	83.4%	0.8%	100.0%
			% within G2_cat3	100.0%	100.0%	100.0%	100.0%
3	G1_cat3	2	Count		36	25	61
			% within G1_cat3		59.0%	41.0%	100.0%
			% within G2_cat3		80.0%	16.8%	31.4%
		3	Count		9	124	133
			% within G1_cat3		6.8%	93.2%	100.0%
			% within G2_cat3		20.0%	83.2%	68.6%
	Total		Count		45	149	194
			% within G1_cat3		23.2%	76.8%	100.0%
			% within G2_cat3		100.0%	100.0%	100.0%

Fleiss Kappa
Three raters classify every subject into low middle or high

G1_cat3 * G2_cat3 * G3_cat3 Crosstabulation

G3_cat3				G2_cat3			
				1	2	3	Total
Total	G1_cat3	1	Count	107	50	0	157
			% within G1_cat3	68.2%	31.8%	0.0%	100.0%
			% within G2_cat3	73.8%	14.2%	0.0%	24.2%
		2	Count	38	274	28	340
			% within G1_cat3	11.2%	80.6%	8.2%	100.0%
			% within G2_cat3	26.2%	77.8%	18.4%	52.4%
		3	Count	0	28	124	152
			% within G1_cat3	0.0%	18.4%	81.6%	100.0%
			% within G2_cat3	0.0%	8.0%	81.6%	23.4%
	Total	Count	145	352	152	649	
		% within G1_cat3	22.3%	54.2%	23.4%	100.0%	
		% within G2_cat3	100.0%	100.0%	100.0%	100.0%	

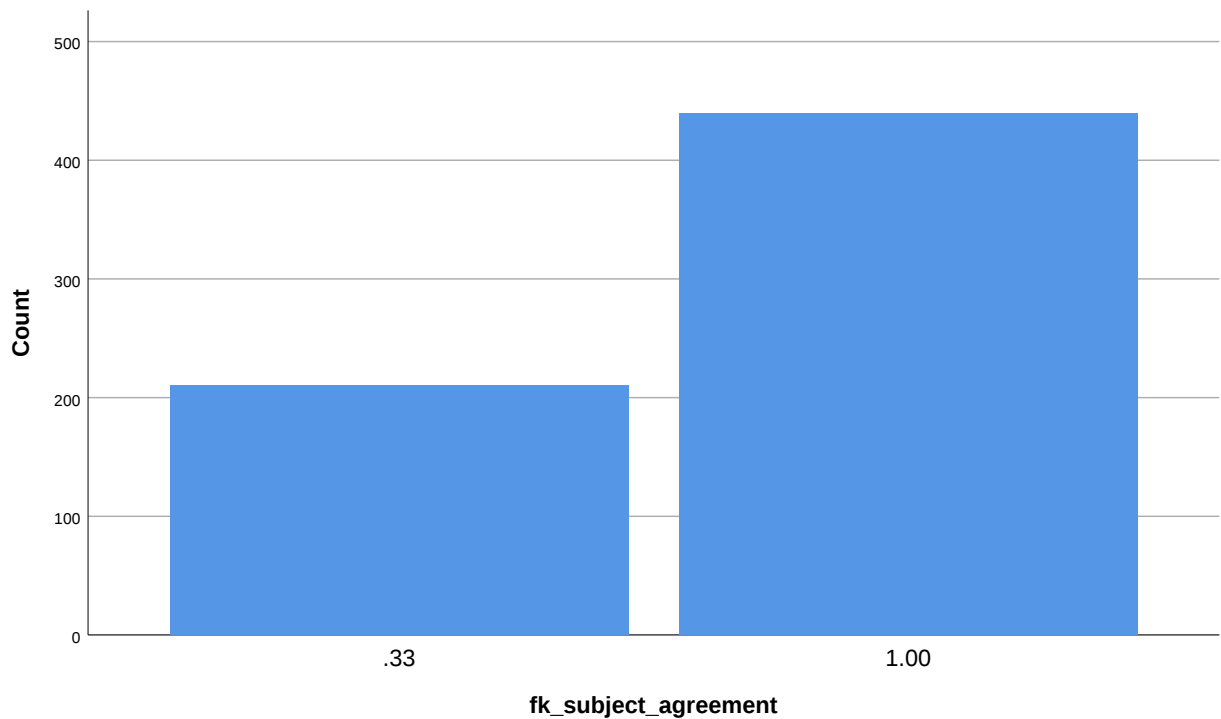
```
401 0 GRAPH /BAR(SIMPLE)=COUNT BY fk_subject_agreement.
401 0 M> GRAPH /BAR(SIMPLE)=COUNT BY fk_subject_agreement.
```

Graph

Fleiss Kappa
Three raters classify every subject into low middle or high

Notes

Output Created		16-JUL-2026 21:09:03
Comments		
Input	Data	D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Kappa\dataset.csv
	Active Dataset	FleissKappaData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /BAR(SIMPLE) =COUNT BY fk_subject_agreement.
Resources	Processor Time	00:00:01.00
	Elapsed Time	00:00:00.65



Fleiss Kappa
Three raters classify every subject into low middle or high

```

402 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
402 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
403 0
403 0 M>
404 0 SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Kappa\SPSS_Output\sav\fleiss-kappa_spss_ready_data.
sav' /COMPRESSED.
404 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tests\Fleiss Kappa\SPSS_Output\sav\fleiss-kappa_spss_ready_data.sav' /COMPRESSED.

405 0
405 0 M>
406 0 ECHO '=====
====='.
406 0 M> ECHO '=====
====='.
=====
407 0 ECHO 'FLEISS MULTI-RATER KAPPA'.
407 0 M> ECHO 'FLEISS MULTI-RATER KAPPA'.
FLEISS MULTI-RATER KAPPA
408 0 ECHO 'Design: Agreement among G1, G2, and G3 treated as three exchangeable raters of three grade categories.'.
408 0 M> ECHO 'Design: Agreement among G1, G2, and G3 treated as three exchangeable raters of three grade categories.'.
Design: Agreement among G1, G2, and G3 treated as three exchangeable raters of three grade categories.
409 0 ECHO 'Null hypothesis: Average observed multi-rater agreement equals chance agreement from pooled category margins.'.
409 0 M> ECHO 'Null hypothesis: Average observed multi-rater agreement equals chance agreement from pooled category margins.'.
Null hypothesis: Average observed multi-rater agreement equals chance agreement from pooled category margins.
410 0 ECHO 'Formula:  $\kappa_F = (P_{\bar{}} - P_e) / (1 - P_e)$ ,  $P_i = [\sum_j n_{ij}^2 - k] / [k(k-1)]$ .'.
410 0 M> ECHO 'Formula:  $\kappa_F = (P_{\bar{}} - P_e) / (1 - P_e)$ ,  $P_i = [\sum_j n_{ij}^2 - k] / [k(k-1)]$ .'.
Formula:  $\kappa_F = (P_{\bar{}} - P_e) / (1 - P_e)$ ,  $P_i = [\sum_j n_{ij}^2 - k] / [k(k-1)]$ .
411 0 ECHO 'Variables: categorized G1, categorized G2, categorized G3'.
411 0 M> ECHO 'Variables: categorized G1, categorized G2, categorized G3'.

```

Fleiss Kappa
Three raters classify every subject into low middle or high

Variables: categorized G1, categorized G2, categorized G3

```
412 0 ECHO 'Rows analyzed: 649'.
412 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
413 0 ECHO 'expected_agreement = 0.3972284016419714'.
413 0 M> ECHO 'expected_agreement = 0.3972284016419714'.
expected_agreement = 0.3972284016419714
414 0 ECHO 'fleiss_kappa = 0.6421256617091001'.
414 0 M> ECHO 'fleiss_kappa = 0.6421256617091001'.
fleiss_kappa = 0.6421256617091001
415 0 ECHO 'observed_agreement = 0.7842835130970724'.
415 0 M> ECHO 'observed_agreement = 0.7842835130970724'.
observed_agreement = 0.7842835130970724
416 0 ECHO 'raters = 3'.
416 0 M> ECHO 'raters = 3'.
raters = 3
417 0 ECHO 'subjects = 649'.
417 0 M> ECHO 'subjects = 649'.
subjects = 649
418 0 ECHO 'expected_agreement = 0.3972284016419714'.
418 0 M> ECHO 'expected_agreement = 0.3972284016419714'.
expected_agreement = 0.3972284016419714
419 0 ECHO 'fleiss_kappa = 0.6421256617091001'.
419 0 M> ECHO 'fleiss_kappa = 0.6421256617091001'.
fleiss_kappa = 0.6421256617091001
420 0 ECHO 'observed_agreement = 0.7842835130970724'.
420 0 M> ECHO 'observed_agreement = 0.7842835130970724'.
observed_agreement = 0.7842835130970724
421 0 ECHO 'raters = 3'.
421 0 M> ECHO 'raters = 3'.
raters = 3
422 0 ECHO 'subjects = 649'.
422 0 M> ECHO 'subjects = 649'.
subjects = 649
423 0 ECHO 'Cross-check status: pass'.
423 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
424 0 ECHO '=====
====='
```

Fleiss Kappa
Three raters classify every subject into low middle or high

```
424  0 M> ECHO '=====
====='.
=====
425  0
425  0 M>
426  0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement Tes
ts\Fleiss Kappa\SPSS_Output\spv\fleiss-kappa_spss_outp
ut.spv'.
426  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\K Reliability and Agreement
Tests\Fleiss Kappa\SPSS_Output\spv\fleiss-kappa_spss_o
utput.spv'.
427  0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
427  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```