GGGGGGGGGG EEEEEEEEEEEE NN NN OOOOOOOO VV VV AAAAAAAAAA

GGGGGGGGGGGG EEEEEEEEEEEE NNN NN OOOOOOOOOO VV VV AAAAAAAAAAAA

GG G EE NNNN NN OO OO VV VV AA AA

GG EE NN NN NN OO OO VV VV AA AA

GG EE NN NN NN OO OO VV VV AA AA

GG EE NN NN NN OO OO VV VV AA AA

GG EE NN NN NN OO OO VV VV AA AA

GG EEEEEEEE NN NN NN OO OO VV VV AA AA

GG GGGG EEEEEEEE NN NNNN OO OO VV VV AAAAAAAAAAAA

GG GGGG EE NN NNN OO OO VV VV AAAAAAAAAAAA

GG GG EE NN NN OO OO VV VV AA AA

GG GG EE NN NN OO OO VV VV AA AA

GG GG EE NN NN OO OO V V AA AA

GG GG EE NN NN OO OO VVVV AA AA

GGGGGGGGGGGG EEEEEEEEEEEE NN NN OOOOOOOOOO VVVV AA AA

GGGGGGGGGG EEEEEEEEEEEE NN NN OOOOOOOO VV AA AA

A GENERAL PURPOSE ANALYSIS OF VARIANCE SYSTEM

--- - --

GENOVA IS A FORTRAN 77 PROGRAM FOR ANALYSIS OF VARIANCE

AND GENERALIZABILITY ANALYSES WITH BALANCED DESIGNS

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VERSION 3.1

January, 2001

GENOVA has been checked for accuracy of output, however the authors

can make no assurances that the program is totally without error.

GENOVA was developed in part under contract No. N00123-78-C-1206 with the Navy Personnel Research and

Development Center (NPRDC); Robert L. Brennan Principal Investigator. GENOVA does not necessarily

reflect NPRDC positions or policy, and no official endorsement should be inferred

GENOVA VERSION 3.1 PAGE 1

CONTROL CARD INPUT LISTING

COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

12345678901234567890123456789012345678901234567890123456789012345678901234567890

STUDY G-Study of 2000 Summer Olympic Diving Results

COMMENT Men's Finals

COMMENT # RECORDS = 12

COMMENT 4 TASKS, 7 JUDGES

COMMENT # VALUES PER RECORD = 28

OPTIONS RECORDS ALL

EFFECT \* P 12 0

EFFECT + T 4 0

EFFECT + J 7 0

FORMAT (28F3.1)

PROCESS

GENOVA VERSION 3.1 PAGE 2

G STUDY G-Study of 2000 Summer Olympic Diving Results

EXPANDED MAIN AND INTERACTION EFFECT TABLE

(\*\* = INFINITE) P T J TOTAL DEGREES

SAMPLE SIZE 12 4 7 PRIMARY NUMBER OF

UNIVERSE SIZE \*\*\*\* \*\*\*\* \*\*\*\* INDICES INDICES FREEDOM

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* \* \* \* \*

\* P \* 1 \* 0 \* 0 \* 1 1 11

\* T \* 0 \* 1 \* 0 \* 1 1 3

\* J \* 0 \* 0 \* 1 \* 1 1 6

\* \* \* \* \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* \* \* \* \*

\* PT \* 1 \* 1 \* 0 \* 2 2 33

\* PJ \* 1 \* 0 \* 1 \* 2 2 66

\* TJ \* 0 \* 1 \* 1 \* 2 2 18

\* \* \* \* \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* \* \* \* \*

\* PTJ \* 1 \* 1 \* 1 \* 3 3 198

\* \* \* \* \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GENOVA VERSION 3.1 PAGE 3

G STUDY G-Study of 2000 Summer Olympic Diving Results

INPUT RECORD LISTING WITH RECORD MEANS

RECORD # 1 8.00000 9.00000 8.50000 8.50000 8.50000 8.50000 8.50000 8.50000

8.00000 8.00000 9.00000 8.00000 8.00000 8.00000 9.00000 9.00000

9.00000 9.00000 9.50000 9.00000 9.00000 7.50000 8.50000 8.00000

9.00000 8.00000 8.00000 7.50000 8.46429

RECORD # 2 8.50000 9.00000 8.50000 9.00000 9.00000 9.00000 9.00000 8.50000

8.00000 8.50000 8.50000 8.00000 8.00000 8.50000 9.50000 8.50000

9.00000 9.00000 9.00000 8.00000 8.50000 9.00000 8.50000 8.50000

8.50000 8.00000 8.00000 8.00000 8.57143

RECORD # 3 8.50000 9.00000 9.50000 9.50000 9.00000 8.50000 9.50000 7.00000

7.50000 8.50000 7.50000 7.00000 8.50000 9.00000 8.50000 9.00000

9.50000 9.50000 8.50000 9.00000 9.00000 7.00000 7.00000 7.50000

8.50000 8.00000 7.50000 8.00000 8.39286

RECORD # 4 8.50000 8.50000 8.50000 9.00000 9.00000 8.50000 8.50000 6.50000

6.00000 5.50000 7.00000 6.50000 6.50000 6.00000 6.50000 7.00000

7.50000 7.00000 5.00000 7.00000 7.00000 8.00000 8.50000 8.00000

8.50000 8.50000 8.50000 8.00000 7.48214

RECORD # 5 7.50000 7.50000 7.50000 8.50000 8.00000 7.50000 8.00000 6.50000

6.00000 6.00000 7.50000 7.00000 6.50000 5.00000 7.50000 7.50000

7.50000 8.00000 7.00000 7.50000 7.00000 8.00000 8.00000 8.00000

8.50000 7.50000 8.00000 8.00000 7.39286

RECORD # 6 8.00000 8.50000 8.00000 8.50000 8.00000 8.00000 8.00000 6.00000

6.00000 5.50000 4.50000 5.50000 5.50000 5.00000 6.50000 6.50000

6.50000 5.50000 6.00000 5.50000 6.50000 8.00000 8.80000 8.00000

8.50000 9.00000 8.00000 8.00000 7.01071

RECORD # 7 7.50000 7.50000 7.50000 7.00000 7.50000 7.50000 7.00000 7.50000

7.50000 7.00000 6.50000 7.50000 6.00000 7.00000 7.00000 7.00000

7.50000 7.00000 7.00000 7.50000 7.00000 7.50000 8.00000 8.00000

7.50000 7.50000 8.00000 7.50000 7.30357

RECORD # 8 7.50000 7.50000 8.00000 7.50000 8.00000 7.00000 8.00000 7.50000

7.00000 7.00000 7.50000 7.00000 7.00000 7.00000 8.00000 8.00000

8.00000 8.00000 8.50000 8.00000 8.00000 7.00000 7.00000 6.50000

7.00000 7.00000 7.00000 6.50000 7.42857

RECORD # 9 7.50000 7.50000 7.50000 8.00000 7.50000 7.00000 7.00000 7.00000

7.00000 7.50000 7.50000 7.00000 7.00000 7.00000 7.50000 7.00000

7.00000 7.00000 7.50000 7.00000 7.00000 7.00000 7.00000 7.00000

7.50000 8.00000 7.00000 7.00000 7.23214

RECORD # 10 7.50000 7.50000 7.50000 7.00000 7.50000 8.00000 8.00000 7.00000

6.50000 7.50000 6.50000 7.00000 6.50000 7.00000 7.00000 7.50000

7.00000 7.00000 6.50000 7.00000 7.00000 4.50000 5.50000 5.50000

5.00000 5.00000 6.00000 6.00000 6.69643

GENOVA VERSION 3.1 PAGE 4

G STUDY G-Study of 2000 Summer Olympic Diving Results

INPUT RECORD LISTING WITH RECORD MEANS

RECORD # 11 8.00000 8.00000 7.50000 8.00000 8.00000 7.50000 7.00000 6.00000

7.50000 7.50000 7.50000 6.50000 7.00000 7.00000 7.00000 6.50000

6.50000 6.50000 6.50000 6.50000 6.50000 6.00000 6.50000 6.00000

5.50000 5.50000 5.50000 6.00000 6.78571

RECORD # 12 7.00000 7.50000 7.50000 7.50000 7.50000 7.50000 7.50000 6.00000

7.50000 7.50000 7.50000 6.50000 7.00000 7.00000 6.50000 5.50000

5.50000 6.00000 6.00000 5.50000 6.00000 7.00000 7.50000 7.50000

7.50000 7.50000 7.00000 7.50000 6.91071

GENOVA VERSION 3.1 PAGE 5

G STUDY G-Study of 2000 Summer Olympic Diving Results

CELL MEAN SCORES

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\* GRAND MEAN = 7.4726190 \*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MEAN SCORES FOR EFFECT: T SUBSCRIPT NOTATION: (T)

(1) = 8.011905 (2) = 7.047619 (3) = 7.410714 (4) = 7.420238

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MEAN SCORES FOR EFFECT: J SUBSCRIPT NOTATION: (J)

(1) = 7.395833 (2) = 7.527083 (3) = 7.520833 (4) = 7.625000

(5) = 7.447917 (6) = 7.375000 (7) = 7.416667

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MEAN SCORES FOR EFFECT: TJ SUBSCRIPT NOTATION: (T,J)

(1,1) = 7.833333 (1,2) = 8.083333 (1,3) = 8.000000 (1,4) = 8.166667

(2,1) = 7.000000 (2,2) = 7.041667 (2,3) = 7.166667 (2,4) = 7.250000

(3,1) = 7.541667 (3,2) = 7.416667 (3,3) = 7.541667 (3,4) = 7.458333

(4,1) = 7.208333 (4,2) = 7.566667 (4,3) = 7.375000 (4,4) = 7.625000

(4,5) = 7.458333 (4,6) = 7.375000 (4,7) = 7.333333

GENOVA VERSION 3.1 PAGE 6

G STUDY G-Study of 2000 Summer Olympic Diving Results

ANOVA TABLE

(\*\* = INFINITE) P T J

SAMPLE SIZE 12 4 7

UNIVERSE SIZE \*\*\*\* \*\*\*\* \*\*\*\*

------------------------------------------------------------------------------------------------------------------

DEGREES SUMS OF SUMS OF (QF = QUASI F RATIO)

OF SQUARES FOR SQUARES FOR MEAN F F-TEST DEGREES OF FREEDOM

EFFECT FREEDOM MEAN SCORES SCORE EFFECTS SQUARES STATISTIC NUMERATOR DENOMINATOR

------------------------------------------------------------------------------------------------------------------

P 11 18894.85500 132.60310 12.05483 3.48910 QF 11 QF 34 QF

T 3 18802.40643 40.15452 13.38484 3.99142 QF 3 QF 32 QF

J 6 18764.54042 2.28851 .38142 1.99530 QF 6 QF 22 QF

------------------------------------------------------------------------------------------------------------------

PT 33 19046.73429 111.72476 3.38560 21.99019 33 198

PJ 66 18911.88500 14.74149 .22336 1.45074 66 198

TJ 18 18806.88667 2.19173 .12176 .79087 18 198

------------------------------------------------------------------------------------------------------------------

PTJ 198 19096.44000 30.48399 .15396

------------------------------------------------------------------------------------------------------------------

MEAN 18762.25190

------------------------------------------------------------------------------------------------------------------

TOTAL 335 334.18810

------------------------------------------------------------------------------------------------------------------

NOTE: FOR GENERALIZABILITY ANALYSES, F-STATISTICS SHOULD BE IGNORED

GENOVA VERSION 3.1 PAGE 7

G STUDY G-Study of 2000 Summer Olympic Diving Results

G STUDY RESULTS

(\*\* = INFINITE) P T J

SAMPLE SIZE 12 4 7

UNIVERSE SIZE \*\*\*\* \*\*\*\* \*\*\*\* QFM = QUADRATIC FORM

-----------------------------------------------------------------------------

M O D E L V A R I A N C E C O M P O N E N T S

DEGREES - - - - - - - - - - - - - - - - - - - - - - -

OF USING USING EMS STANDARD

EFFECT FREEDOM ALGORITHM EQUATIONS ERROR

-----------------------------------------------------------------------------

P 11 .3071368 .3071368 .1713297

T 3 .1194219 .1190386 .1012383

J 6 .0039637 .0032930 .0041435

-----------------------------------------------------------------------------

PT 33 .4616628 .4616628 .1156370

PJ 66 .0173491 .0173491 .0103209

TJ 18 (0.0) (0.0) .0034557

-----------------------------------------------------------------------------

PTJ 198 .1539595 .1539595 .0153960

-----------------------------------------------------------------------------

NOTE: THE "ALGORITHM" AND "EMS" ESTIMATED VARIANCE COMPONENTS WILL BE

IDENTICAL IF THERE ARE NO NEGATIVE ESTIMATES

GENOVA VERSION 3.1 PAGE 8

G STUDY G-Study of 2000 Summer Olympic Diving Results

EXPECTED MEAN SQUARE EQUATIONS

(\*\* = INFINITE) P T J

SAMPLE SIZE 12 4 7

UNIVERSE SIZE \*\*\*\* \*\*\*\* \*\*\*\*

EMS(P) = 1.00\*VC(PTJ) + 4.00\*VC(PJ) + 7.00\*VC(PT) + 28.00\*VC(P)

EMS(T) = 1.00\*VC(PTJ) + 12.00\*VC(TJ) + 7.00\*VC(PT) + 84.00\*VC(T)

EMS(J) = 1.00\*VC(PTJ) + 12.00\*VC(TJ) + 4.00\*VC(PJ) + 48.00\*VC(J)

EMS(PT) = 1.00\*VC(PTJ) + 7.00\*VC(PT)

EMS(PJ) = 1.00\*VC(PTJ) + 4.00\*VC(PJ)

EMS(TJ) = 1.00\*VC(PTJ) + 12.00\*VC(TJ)

EMS(PTJ) = 1.00\*VC(PTJ)

GENOVA VERSION 3.1 PAGE 9

G STUDY G-Study of 2000 Summer Olympic Diving Results

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (V)

P T J PT PJ TJ PTJ

P .0293539

T .0002786 .0102492

J .0000013 .0000004 .0000172

PT -.0033430 -.0011143 -.0000007 .0133719

PJ -.0000152 -.0000007 -.0000089 .0000085 .0001065

TJ -.0000007 -.0000017 -.0000030 .0000028 .0000049 .0000119

PTJ .0000085 .0000028 .0000049 -.0000339 -.0000593 -.0000198 .0002370

GENOVA VERSION 3.1 PAGE 10

CONTROL CARD INPUT LISTING

COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

12345678901234567890123456789012345678901234567890123456789012345678901234567890

COMMENT STEP TWO

COMMENT D STUDY 1 VARYING THE NUMBER OF JUDGES

COMMENT

DSTUDY P x T x J DESIGN

DEFFECT $ P

DEFFECT T 4

DEFFECT J 1 3 5 7

ENDDSTUDY

GENOVA VERSION 3.1 PAGE 11

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-001

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 1

----------------------------------------------------------------------------------------------------------------------------------

VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

---------------------------------------------------------- -----------------------------------------------------------

VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 4 .02976 .02531 .11904 1.0000 4 .02976 .02531

J .00329 1.0000 1 .00329 .00414 .00329 1.0000 1 .00329 .00414

PT .46166 1.0000 4 .11542 .02891 .46166 1.0000 4 .11542 .02891

PJ .01735 1.0000 1 .01735 .01032 .01735 1.0000 1 .01735 .01032

TJ .00000E+00 1.0000 4 .00000E+00 .00086 .00000E+00 1.0000 4 .00000E+00 .00086

PTJ .15396 1.0000 4 .03849 .00385 .15396 1.0000 4 .03849 .00385

----------------------------------------------------------------------------------------------------------------------------------

QFM = QUADRATIC FORM

----------------------------------------------------------------------------------------------------------------------------------

STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .47839 .69166 .16907

LOWER CASE DELTA .17125 .41383 .03045 GENERALIZABILITY COEFFICIENT = .64202 ( 1.79345)

UPPER CASE DELTA .20431 .45200 .03781 PHI = .60053 ( 1.50331)

MEAN .07292 .27003

----------------------------------------------------------------------------------------------------------------------------------

NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 12

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-001

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000696 .0006406

J .0000013 .0000001 .0000172

PT -.0008357 -.0000696 -.0000002 .0008357

PJ -.0000152 -.0000002 -.0000089 .0000021 .0001065

TJ -.0000002 -.0000001 -.0000007 .0000002 .0000012 .0000007

PTJ .0000021 .0000002 .0000012 -.0000021 -.0000148 -.0000012 .0000148

GENOVA VERSION 3.1 PAGE 13

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-002

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 3

----------------------------------------------------------------------------------------------------------------------------------

VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

---------------------------------------------------------- -----------------------------------------------------------

VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 4 .02976 .02531 .11904 1.0000 4 .02976 .02531

J .00329 1.0000 3 .00110 .00138 .00329 1.0000 3 .00110 .00138

PT .46166 1.0000 4 .11542 .02891 .46166 1.0000 4 .11542 .02891

PJ .01735 1.0000 3 .00578 .00344 .01735 1.0000 3 .00578 .00344

TJ .00000E+00 1.0000 12 .00000E+00 .00029 .00000E+00 1.0000 12 .00000E+00 .00029

PTJ .15396 1.0000 12 .01283 .00128 .15396 1.0000 12 .01283 .00128

----------------------------------------------------------------------------------------------------------------------------------

QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .44117 .66420 .16888

LOWER CASE DELTA .13403 .36610 .02908 GENERALIZABILITY COEFFICIENT = .69619 ( 2.29158)

UPPER CASE DELTA .16489 .40606 .03671 PHI = .65068 ( 1.86272)

MEAN .06762 .26004

----------------------------------------------------------------------------------------------------------------------------------

NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 14

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-002

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000696 .0006406

J .0000004 .0000000 .0000019

PT -.0008357 -.0000696 -.0000001 .0008357

PJ -.0000051 -.0000001 -.0000010 .0000007 .0000118

TJ -.0000001 .0000000 -.0000001 .0000001 .0000001 .0000001

PTJ .0000007 .0000001 .0000001 -.0000007 -.0000016 -.0000001 .0000016

GENOVA VERSION 3.1 PAGE 15

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-003

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 5

----------------------------------------------------------------------------------------------------------------------------------

VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

---------------------------------------------------------- -----------------------------------------------------------

VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 4 .02976 .02531 .11904 1.0000 4 .02976 .02531

J .00329 1.0000 5 .00066 .00083 .00329 1.0000 5 .00066 .00083

PT .46166 1.0000 4 .11542 .02891 .46166 1.0000 4 .11542 .02891

PJ .01735 1.0000 5 .00347 .00206 .01735 1.0000 5 .00347 .00206

TJ .00000E+00 1.0000 20 .00000E+00 .00017 .00000E+00 1.0000 20 .00000E+00 .00017

PTJ .15396 1.0000 20 .00770 .00077 .15396 1.0000 20 .00770 .00077

----------------------------------------------------------------------------------------------------------------------------------

QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .43372 .65857 .16887

LOWER CASE DELTA .12658 .35579 .02897 GENERALIZABILITY COEFFICIENT = .70814 ( 2.42636)

UPPER CASE DELTA .15700 .39623 .03662 PHI = .66174 ( 1.95626)

MEAN .06656 .25800

----------------------------------------------------------------------------------------------------------------------------------

NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 16

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-003

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000696 .0006406

J .0000003 .0000000 .0000007

PT -.0008357 -.0000696 .0000000 .0008357

PJ -.0000030 .0000000 -.0000004 .0000004 .0000043

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000004 .0000000 .0000000 -.0000004 -.0000006 .0000000 .0000006

GENOVA VERSION 3.1 PAGE 17

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-004

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 7

----------------------------------------------------------------------------------------------------------------------------------

VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

---------------------------------------------------------- -----------------------------------------------------------

VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 4 .02976 .02531 .11904 1.0000 4 .02976 .02531

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 4 .11542 .02891 .46166 1.0000 4 .11542 .02891

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 28 .00000E+00 .00012 .00000E+00 1.0000 28 .00000E+00 .00012

PTJ .15396 1.0000 28 .00550 .00055 .15396 1.0000 28 .00550 .00055

----------------------------------------------------------------------------------------------------------------------------------

QFM = QUADRATIC FORM

----------------------------------------------------------------------------------------------------------------------------------

STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .43053 .65615 .16887

LOWER CASE DELTA .12339 .35127 .02894 GENERALIZABILITY COEFFICIENT = .71339 ( 2.48910)

UPPER CASE DELTA .15362 .39195 .03659 PHI = .66659 ( 1.99929)

MEAN .06611 .25711

----------------------------------------------------------------------------------------------------------------------------------

NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 18

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 001-004

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000696 .0006406

J .0000002 .0000000 .0000004

PT -.0008357 -.0000696 .0000000 .0008357

PJ -.0000022 .0000000 -.0000002 .0000003 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000003 .0000000 .0000000 -.0000003 -.0000003 .0000000 .0000003

GENOVA VERSION 3.1 PAGE 19

D STUDY P x T x J DESIGN

SUMMARY OF D STUDY RESULTS FOR SET OF CONTROL CARDS NO. 001

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V A R I A N C E S

SAMPLE SIZES --------------------------------------------------------

D STUDY ------------------------------------- EXPECTED LOWER UPPER

DESIGN INDEX= $P T J UNIVERSE OBSERVED CASE CASE GEN.

NO UNIV.= INF. INF. INF. SCORE SCORE DELTA DELTA MEAN COEF. PHI

---------------------------------------------------------------------------------------------------------------------------------

001-001 12 4 1 .30714 .47839 .17125 .20431 .07292 .64202 .60053

001-002 12 4 3 .30714 .44117 .13403 .16489 .06762 .69619 .65068

001-003 12 4 5 .30714 .43372 .12658 .15700 .06656 .70814 .66174

001-004 12 4 7 .30714 .43053 .12339 .15362 .06611 .71339 .66659

GENOVA VERSION 3.1 PAGE 20

CONTROL CARD INPUT LISTING

COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

12345678901234567890123456789012345678901234567890123456789012345678901234567890

COMMENT D STUDY 2 VARYING THE NUMBER OF TASKS

COMMENT

DSTUDY P x T x J DESIGN

DEFFECT $ P

DEFFECT T 2 3 4 5 12 15 20

DEFFECT J 7

ENDDSTUDY

GENOVA VERSION 3.1 PAGE 21

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-001

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 2 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 2 .05952 .05062 .11904 1.0000 2 .05952 .05062

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 2 .23083 .05782 .46166 1.0000 2 .23083 .05782

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 14 .00000E+00 .00025 .00000E+00 1.0000 14 .00000E+00 .00025

PTJ .15396 1.0000 14 .01100 .00110 .15396 1.0000 14 .01100 .00110

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .55144 .74259 .17132

LOWER CASE DELTA .24431 .49427 .05783 GENERALIZABILITY COEFFICIENT = .55697 ( 1.25718)

UPPER CASE DELTA .30430 .55163 .07314 PHI = .50232 ( 1.00933)

MEAN .10594 .32549

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 22

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-001

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0001393 .0025623

J .0000002 .0000000 .0000004

PT -.0016715 -.0002786 -.0000001 .0033430

PJ -.0000022 -.0000001 -.0000002 .0000006 .0000022

TJ -.0000001 -.0000001 .0000000 .0000001 .0000001 .0000001

PTJ .0000006 .0000001 .0000001 -.0000012 -.0000006 -.0000001 .0000012

GENOVA VERSION 3.1 PAGE 23

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-002

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 3 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 3 .03968 .03375 .11904 1.0000 3 .03968 .03375

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 3 .15389 .03855 .46166 1.0000 3 .15389 .03855

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 21 .00000E+00 .00016 .00000E+00 1.0000 21 .00000E+00 .00016

PTJ .15396 1.0000 21 .00733 .00073 .15396 1.0000 21 .00733 .00073

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .47083 .68617 .16914

LOWER CASE DELTA .16370 .40460 .03857 GENERALIZABILITY COEFFICIENT = .65232 ( 1.87625)

UPPER CASE DELTA .20385 .45149 .04877 PHI = .60107 ( 1.50670)

MEAN .07939 .28176

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 24

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-002

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000929 .0011388

J .0000002 .0000000 .0000004

PT -.0011143 -.0001238 .0000000 .0014858

PJ -.0000022 .0000000 -.0000002 .0000004 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000004 .0000000 .0000000 -.0000005 -.0000004 .0000000 .0000005

GENOVA VERSION 3.1 PAGE 25

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-003

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 4 .02976 .02531 .11904 1.0000 4 .02976 .02531

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 4 .11542 .02891 .46166 1.0000 4 .11542 .02891

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 28 .00000E+00 .00012 .00000E+00 1.0000 28 .00000E+00 .00012

PTJ .15396 1.0000 28 .00550 .00055 .15396 1.0000 28 .00550 .00055

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .43053 .65615 .16887

LOWER CASE DELTA .12339 .35127 .02894 GENERALIZABILITY COEFFICIENT = .71339 ( 2.48910)

UPPER CASE DELTA .15362 .39195 .03659 PHI = .66659 ( 1.99929)

MEAN .06611 .25711

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 26

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-003

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000696 .0006406

J .0000002 .0000000 .0000004

PT -.0008357 -.0000696 .0000000 .0008357

PJ -.0000022 .0000000 -.0000002 .0000003 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000003 .0000000 .0000000 -.0000003 -.0000003 .0000000 .0000003

GENOVA VERSION 3.1 PAGE 27

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-004

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 5 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 5 .02381 .02025 .11904 1.0000 5 .02381 .02025

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 5 .09233 .02313 .46166 1.0000 5 .09233 .02313

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 35 .00000E+00 .00010 .00000E+00 1.0000 35 .00000E+00 .00010

PTJ .15396 1.0000 35 .00440 .00044 .15396 1.0000 35 .00440 .00044

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .40635 .63745 .16897

LOWER CASE DELTA .09921 .31498 .02317 GENERALIZABILITY COEFFICIENT = .75585 ( 3.09583)

UPPER CASE DELTA .12349 .35141 .02929 PHI = .71324 ( 2.48718)

MEAN .05814 .24112

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 28

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-004

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000557 .0004100

J .0000002 .0000000 .0000004

PT -.0006686 -.0000446 .0000000 .0005349

PJ -.0000022 .0000000 -.0000002 .0000002 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000002 .0000000 .0000000 -.0000002 -.0000002 .0000000 .0000002

GENOVA VERSION 3.1 PAGE 29

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-005

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 12 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 12 .00992 .00844 .11904 1.0000 12 .00992 .00844

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 12 .03847 .00964 .46166 1.0000 12 .03847 .00964

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 84 .00000E+00 .00004 .00000E+00 1.0000 84 .00000E+00 .00004

PTJ .15396 1.0000 84 .00183 .00018 .15396 1.0000 84 .00183 .00018

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .34992 .59154 .16996

LOWER CASE DELTA .04278 .20684 .00975 GENERALIZABILITY COEFFICIENT = .87773 ( 7.17891)

UPPER CASE DELTA .05317 .23059 .01228 PHI = .85242 ( 5.77613)

MEAN .03955 .19887

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 30

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-005

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000232 .0000712

J .0000002 .0000000 .0000004

PT -.0002786 -.0000077 .0000000 .0000929

PJ -.0000022 .0000000 -.0000002 .0000001 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000001 .0000000 .0000000 .0000000 -.0000001 .0000000 .0000000

GENOVA VERSION 3.1 PAGE 31

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-006

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 15 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 15 .00794 .00675 .11904 1.0000 15 .00794 .00675

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 15 .03078 .00771 .46166 1.0000 15 .03078 .00771

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 105 .00000E+00 .00003 .00000E+00 1.0000 105 .00000E+00 .00003

PTJ .15396 1.0000 105 .00147 .00015 .15396 1.0000 105 .00147 .00015

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .34186 .58469 .17019

LOWER CASE DELTA .03472 .18634 .00785 GENERALIZABILITY COEFFICIENT = .89843 ( 8.84554)

UPPER CASE DELTA .04313 .20767 .00986 PHI = .87687 ( 7.12142)

MEAN .03689 .19208

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 32

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-006

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000186 .0000456

J .0000002 .0000000 .0000004

PT -.0002229 -.0000050 .0000000 .0000594

PJ -.0000022 .0000000 -.0000002 .0000001 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000001 .0000000 .0000000 .0000000 -.0000001 .0000000 .0000000

GENOVA VERSION 3.1 PAGE 33

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-007

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 20 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

----------------------------------------------------------------------------------------------------------------------------------

P .30714 1.0000 1 .30714 .17133 .30714 1.0000 1 .30714 .17133

T .11904 1.0000 20 .00595 .00506 .11904 1.0000 20 .00595 .00506

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00059

PT .46166 1.0000 20 .02308 .00578 .46166 1.0000 20 .02308 .00578

PJ .01735 1.0000 7 .00248 .00147 .01735 1.0000 7 .00248 .00147

TJ .00000E+00 1.0000 140 .00000E+00 .00002 .00000E+00 1.0000 140 .00000E+00 .00002

PTJ .15396 1.0000 140 .00110 .00011 .15396 1.0000 140 .00110 .00011

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .30714 .55420 .17133

EXPECTED OBSERVED SCORE .33380 .57775 .17044

LOWER CASE DELTA .02666 .16328 .00597 GENERALIZABILITY COEFFICIENT = .92013 (11.51995)

UPPER CASE DELTA .03308 .18189 .00746 PHI = .90276 ( 9.28365)

MEAN .03424 .18504

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 34

D STUDY P x T x J DESIGN

D STUDY DESIGN NUMBER 002-007

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P T J PT PJ TJ PTJ

P .0293539

T .0000139 .0000256

J .0000002 .0000000 .0000004

PT -.0001671 -.0000028 .0000000 .0000334

PJ -.0000022 .0000000 -.0000002 .0000001 .0000022

TJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

PTJ .0000001 .0000000 .0000000 .0000000 -.0000001 .0000000 .0000000

GENOVA VERSION 3.1 PAGE 35

D STUDY P x T x J DESIGN

SUMMARY OF D STUDY RESULTS FOR SET OF CONTROL CARDS NO. 002

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V A R I A N C E S

SAMPLE SIZES --------------------------------------------------------

D STUDY ------------------------------------- EXPECTED LOWER UPPER

DESIGN INDEX= $P T J UNIVERSE OBSERVED CASE CASE GEN.

NO UNIV.= INF. INF. INF. SCORE SCORE DELTA DELTA MEAN COEF. PHI

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002-001 12 2 7 .30714 .55144 .24431 .30430 .10594 .55697 .50232

002-002 12 3 7 .30714 .47083 .16370 .20385 .07939 .65232 .60107

002-003 12 4 7 .30714 .43053 .12339 .15362 .06611 .71339 .66659

002-004 12 5 7 .30714 .40635 .09921 .12349 .05814 .75585 .71324

002-005 12 12 7 .30714 .34992 .04278 .05317 .03955 .87773 .85242

002-006 12 15 7 .30714 .34186 .03472 .04313 .03689 .89843 .87687

002-007 12 20 7 .30714 .33380 .02666 .03308 .03424 .92013 .90276

GENOVA VERSION 3.1 PAGE 36

CONTROL CARD INPUT LISTING

COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

12345678901234567890123456789012345678901234567890123456789012345678901234567890

COMMENT D STUDY 3 VARYING THE NUMBER OF RATERS

COMMENT

DSTUDY P x T x J DESIGN; T FIXED

DEFFECT $ P

DEFFECT T 4 / 4

DEFFECT J 1 3 5 7

ENDDSTUDY

GENOVA VERSION 3.1 PAGE 37

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-001

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 4 INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 1

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .42255 1.0000 1 .42255 .16887

T .11904 1.0000 4 .02976 .02531 .11904QFM0000E+00 4 ------- -------

J .00329 1.0000 1 .00329 .00414 .00329 1.0000 1 .00329 .00405

PT .46166 1.0000 4 .11542 .02891 .46166 .0000E+00 4 ------- -------

PJ .01735 1.0000 1 .01735 .01032 .05584 1.0000 1 .05584 .00958

TJ .00000E+00 1.0000 4 .00000E+00 .00086 .00000E+00 .0000E+00 4 ------- -------

PTJ .15396 1.0000 4 .03849 .00385 .15396 .0000E+00 4 ------- -------

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .42255 .65004 .16887

EXPECTED OBSERVED SCORE .47839 .69166 .16907

LOWER CASE DELTA .05584 .23630 .00958 GENERALIZABILITY COEFFICIENT = .88328 ( 7.56734)

UPPER CASE DELTA .05913 .24317 .00964 PHI = .87724 ( 7.14593)

MEAN .04316 .20775

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 38

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-001

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P J PJ

P .0285181

J .0000011 .0000164

PJ -.0000131 -.0000076 .0000917

GENOVA VERSION 3.1 PAGE 39

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-002

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 4 INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 3

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .42255 1.0000 1 .42255 .16887

T .11904 1.0000 4 .02976 .02531 .11904QFM0000E+00 4 ------- -------

J .00329 1.0000 3 .00110 .00138 .00329 1.0000 3 .00110 .00135

PT .46166 1.0000 4 .11542 .02891 .46166 .0000E+00 4 ------- -------

PJ .01735 1.0000 3 .00578 .00344 .05584 1.0000 3 .01861 .00319

TJ .00000E+00 1.0000 12 .00000E+00 .00029 .00000E+00 .0000E+00 12 ------- -------

PTJ .15396 1.0000 12 .01283 .00128 .15396 .0000E+00 12 ------- -------

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .42255 .65004 .16887

EXPECTED OBSERVED SCORE .44117 .66420 .16888

LOWER CASE DELTA .01861 .13643 .00319 GENERALIZABILITY COEFFICIENT = .95781 (22.70202)

UPPER CASE DELTA .01971 .14039 .00321 PHI = .95543 (21.43778)

MEAN .03786 .19458

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 40

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-002

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P J PJ

P .0285181

J .0000004 .0000018

PJ -.0000044 -.0000008 .0000102

GENOVA VERSION 3.1 PAGE 41

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-003

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 4 INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 5

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .42255 1.0000 1 .42255 .16887

T .11904 1.0000 4 .02976 .02531 .11904QFM0000E+00 4 ------- -------

J .00329 1.0000 5 .00066 .00083 .00329 1.0000 5 .00066 .00081

PT .46166 1.0000 4 .11542 .02891 .46166 .0000E+00 4 ------- -------

PJ .01735 1.0000 5 .00347 .00206 .05584 1.0000 5 .01117 .00192

TJ .00000E+00 1.0000 20 .00000E+00 .00017 .00000E+00 .0000E+00 20 ------- -------

PTJ .15396 1.0000 20 .00770 .00077 .15396 .0000E+00 20 ------- -------

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .42255 .65004 .16887

EXPECTED OBSERVED SCORE .43372 .65857 .16887

LOWER CASE DELTA .01117 .10568 .00192 GENERALIZABILITY COEFFICIENT = .97425 (37.83671)

UPPER CASE DELTA .01183 .10875 .00193 PHI = .97277 (35.72963)

MEAN .03680 .19184

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 42

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-003

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P J PJ

P .0285181

J .0000002 .0000007

PJ -.0000026 -.0000003 .0000037

GENOVA VERSION 3.1 PAGE 43

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-004

OBJECT OF MEASUREMENT : P FACETS : T J

G STUDY POPULATION SIZE : INFINITE G STUDY UNIVERSE SIZES : INFINITE INFINITE

D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 4 INFINITE

D STUDY SAMPLE SIZE : 12 D STUDY SAMPLE SIZES : 4 7

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VARIANCE COMPONENTS IN TERMS OF VARIANCE COMPONENTS IN TERMS OF

G STUDY UNIVERSE (OF ADMISSIBLE OBSERVATIONS) SIZES D STUDY UNIVERSE (OF GENERALIZATION) SIZES

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VARIANCE COMPONENTS VARIANCE COMPONENTS

VARIANCE FINITE D STUDY FOR MEAN SCORES VARIANCE FINITE D STUDY FOR MEAN SCORES

COMPONENTS UNIVERSE SAMPLING -------------------------- COMPONENTS UNIVERSE SAMPLING ---------------------------

FOR SINGLE COR- FRE- STANDARD FOR SINGLE COR- FRE- STANDARD

EFFECT OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS OBSERVATIONS RECTIONS QUENCIES ESTIMATES ERRORS

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P .30714 1.0000 1 .30714 .17133 .42255 1.0000 1 .42255 .16887

T .11904 1.0000 4 .02976 .02531 .11904QFM0000E+00 4 ------- -------

J .00329 1.0000 7 .00047 .00059 .00329 1.0000 7 .00047 .00058

PT .46166 1.0000 4 .11542 .02891 .46166 .0000E+00 4 ------- -------

PJ .01735 1.0000 7 .00248 .00147 .05584 1.0000 7 .00798 .00137

TJ .00000E+00 1.0000 28 .00000E+00 .00012 .00000E+00 .0000E+00 28 ------- -------

PTJ .15396 1.0000 28 .00550 .00055 .15396 .0000E+00 28 ------- -------

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QFM = QUADRATIC FORM

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STANDARD

STANDARD ERROR OF

VARIANCE DEVIATION VARIANCE

UNIVERSE SCORE .42255 .65004 .16887

EXPECTED OBSERVED SCORE .43053 .65615 .16887

LOWER CASE DELTA .00798 .08931 .00137 GENERALIZABILITY COEFFICIENT = .98147 (52.97139)

UPPER CASE DELTA .00845 .09191 .00138 PHI = .98040 (50.02149)

MEAN .03635 .19065

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NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

GENOVA VERSION 3.1 PAGE 44

D STUDY P x T x J DESIGN; T FIXED

D STUDY DESIGN NUMBER 003-004

VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (FOR MEAN SCORES) IN UNIVERSE OF GENERALIZATION (W)

P J PJ

P .0285181

J .0000002 .0000003

PJ -.0000019 -.0000002 .0000019

GENOVA VERSION 3.1 PAGE 45

D STUDY P x T x J DESIGN; T FIXED

SUMMARY OF D STUDY RESULTS FOR SET OF CONTROL CARDS NO. 003

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V A R I A N C E S

SAMPLE SIZES --------------------------------------------------------

D STUDY ------------------------------------- EXPECTED LOWER UPPER

DESIGN INDEX= $P T J UNIVERSE OBSERVED CASE CASE GEN.

NO UNIV.= INF. 4 INF. SCORE SCORE DELTA DELTA MEAN COEF. PHI

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003-001 12 4 1 .42255 .47839 .05584 .05913 .04316 .88328 .87724

003-002 12 4 3 .42255 .44117 .01861 .01971 .03786 .95781 .95543

003-003 12 4 5 .42255 .43372 .01117 .01183 .03680 .97425 .97277

003-004 12 4 7 .42255 .43053 .00798 .00845 .03635 .98147 .98040

GENOVA VERSION 3.1 PAGE 46

CONTROL CARD INPUT LISTING

COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

12345678901234567890123456789012345678901234567890123456789012345678901234567890

FINISH