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

 AUTHORS

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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

 GSTUDY P X (R:T) DESIGN -- RANDOM MODEL

 OPTIONS RECORDS 2

 EFFECT \* P 10 0

 EFFECT + T 3 0

 EFFECT + R:T 4 0

 FORMAT (12F2.0)

 PROCESS

 GENOVA VERSION 3.1 PAGE 2

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 EXPANDED MAIN AND INTERACTION EFFECT TABLE

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

 SAMPLE SIZE 10 3 4 PRIMARY NUMBER OF

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

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

 \* \* \* \* \*

 \* P \* 1 \* 0 \* 0 \* 1 1 9

 \* T \* 0 \* 1 \* 0 \* 1 1 2

 \* R:T \* 0 \* 2 \* 1 \* 1 2 9

 \* \* \* \* \*

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

 \* \* \* \* \*

 \* PT \* 1 \* 1 \* 0 \* 2 2 18

 \* PR:T \* 1 \* 2 \* 1 \* 2 3 81

 \* \* \* \* \*

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

 GENOVA VERSION 3.1 PAGE 3

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 INPUT RECORD LISTING WITH RECORD MEANS

 RECORD # 1 5.00000 6.00000 5.00000 5.00000 5.00000 3.00000 4.00000 5.00000

 6.00000 7.00000 3.00000 3.00000 4.75000

 RECORD # 2 9.00000 3.00000 7.00000 7.00000 7.00000 5.00000 5.00000 5.00000

 7.00000 7.00000 5.00000 2.00000 5.75000

 RECORD # 9 9.00000 9.00000 8.00000 8.00000 6.00000 6.00000 6.00000 5.00000

 5.00000 8.00000 1.00000 1.00000 6.00000

 RECORD # 10 4.00000 4.00000 4.00000 3.00000 3.00000 5.00000 6.00000 5.00000

 5.00000 7.00000 1.00000 1.00000 4.00000

 GENOVA VERSION 3.1 PAGE 4

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 CELL MEAN SCORES

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

 \*\*\* GRAND MEAN = 4.7500000 \*\*\*

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

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

 (1) = 5.500000 (2) = 4.800000 (3) = 3.950000

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

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

 (1,1) = 6.100000 (1,2) = 4.800000 (1,3) = 5.600000 (1,4) = 5.500000

 (2,1) = 5.300000 (2,2) = 4.300000 (2,3) = 4.700000 (2,4) = 4.900000

 (3,1) = 4.800000 (3,2) = 5.600000 (3,3) = 2.600000 (3,4) = 2.800000

 GENOVA VERSION 3.1 PAGE 5

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 ANOVA TABLE

 (\*\* = INFINITE) P T R

 SAMPLE SIZE 10 3 4

 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 9 2800.16667 92.66667 10.29630 2.22935 9 18

 T 2 2755.70000 48.20000 24.10000 2.17238 QF 2 QF 12 QF

 R:T 9 2835.40000 79.70000 8.85556 3.72044 9 81

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

 PT 18 2931.50000 83.13333 4.61852 1.94035 18 81

 PR:T 81 3204.00000 192.80000 2.38025

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

 MEAN 2707.50000

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

 TOTAL 119 496.50000

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

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

 GENOVA VERSION 3.1 PAGE 6

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 G STUDY RESULTS

 (\*\* = INFINITE) P T R

 SAMPLE SIZE 10 3 4

 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 9 .4731481 .4731481 .3855758

 T 2 .3251543 .3251543 .4379875

 R:T 9 .6475309 .6475309 .3794056

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

 PT 18 .5595679 .5595679 .3766291

 PR:T 81 2.3802469 2.3802469 .3694860

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

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

 IDENTICAL IF THERE ARE NO NEGATIVE ESTIMATES

 GENOVA VERSION 3.1 PAGE 7

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 EXPECTED MEAN SQUARE EQUATIONS

 (\*\* = INFINITE) P T R

 SAMPLE SIZE 10 3 4

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

 EMS(P) = 1.00\*VC(PR:T) + 4.00\*VC(PT) + 12.00\*VC(P)

 EMS(T) = 1.00\*VC(PR:T) + 4.00\*VC(PT) + 10.00\*VC(R:T) + 40.00\*VC(T)

 EMS(R:T) = 1.00\*VC(PR:T) + 10.00\*VC(R:T)

 EMS(PT) = 1.00\*VC(PR:T) + 4.00\*VC(PT)

 EMS(PR:T) = 1.00\*VC(PR:T)

 GENOVA VERSION 3.1 PAGE 8

 G STUDY P X (R:T) DESIGN -- RANDOM MODEL

 VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (V)

 P T R:T PT PR:T

 P .1486687

 T .0044439 .1918331

 R:T .0000000 -.0359871 .1439486

 PT -.0444390 -.0141849 .0034130 .1418495

 PR:T .0000000 .0034130 -.0136520 -.0341300 .1365199

 GENOVA VERSION 3.1 PAGE 9

 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 COMMENT

 COMMENT What if we vary the number of raters?

 DSTUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 DEFFECT $ P

 DEFFECT T 3

 DEFFECT R:T 1 2 3 4

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 10

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-001

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 3 .10838 .14600 .32515 1.0000 3 .10838 .14600

 R:T .64753 1.0000 3 .21584 .12647 .64753 1.0000 3 .21584 .12647

 PT .55957 1.0000 3 .18652 .12554 .55957 1.0000 3 .18652 .12554

 PR:T 2.38025 1.0000 3 .79342 .12316 2.38025 1.0000 3 .79342 .12316

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.45309 1.20544 .37734

 LOWER CASE DELTA .97994 .98992 .15279 GENERALIZABILITY COEFFICIENT = .32562 ( .48283)

 UPPER CASE DELTA 1.30417 1.14200 .21906 PHI = .26622 ( .36280)

 MEAN .46954 .68523

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 11

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-001

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

 P T R:T PT PR:T

 P .1486687

 T .0014813 .0213148

 R:T .0000000 -.0039986 .0159943

 PT -.0148130 -.0015761 .0003792 .0157611

 PR:T .0000000 .0003792 -.0015169 -.0037922 .0151689

 GENOVA VERSION 3.1 PAGE 12

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-002

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 3 .10838 .14600 .32515 1.0000 3 .10838 .14600

 R:T .64753 1.0000 6 .10792 .06323 .64753 1.0000 6 .10792 .06323

 PT .55957 1.0000 3 .18652 .12554 .55957 1.0000 3 .18652 .12554

 PR:T 2.38025 1.0000 6 .39671 .06158 2.38025 1.0000 6 .39671 .06158

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.05638 1.02780 .36716

 LOWER CASE DELTA .58323 .76370 .12554 GENERALIZABILITY COEFFICIENT = .44790 ( .81125)

 UPPER CASE DELTA .79954 .89417 .18418 PHI = .37177 ( .59178)

 MEAN .32194 .56740

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 13

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-002

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

 P T R:T PT PR:T

 P .1486687

 T .0014813 .0213148

 R:T .0000000 -.0019993 .0039986

 PT -.0148130 -.0015761 .0001896 .0157611

 PR:T .0000000 .0001896 -.0003792 -.0018961 .0037922

 GENOVA VERSION 3.1 PAGE 14

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-003

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 3 .10838 .14600 .32515 1.0000 3 .10838 .14600

 R:T .64753 1.0000 9 .07195 .04216 .64753 1.0000 9 .07195 .04216

 PT .55957 1.0000 3 .18652 .12554 .55957 1.0000 3 .18652 .12554

 PR:T 2.38025 1.0000 9 .26447 .04105 2.38025 1.0000 9 .26447 .04105

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE .92414 .96132 .36601

 LOWER CASE DELTA .45099 .67156 .12214 GENERALIZABILITY COEFFICIENT = .51199 ( 1.04912)

 UPPER CASE DELTA .63133 .79456 .17989 PHI = .42839 ( .74945)

 MEAN .27275 .52225

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 15

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-003

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

 P T R:T PT PR:T

 P .1486687

 T .0014813 .0213148

 R:T .0000000 -.0013329 .0017771

 PT -.0148130 -.0015761 .0001264 .0157611

 PR:T .0000000 .0001264 -.0001685 -.0012641 .0016854

 GENOVA VERSION 3.1 PAGE 16

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-004

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 4

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 3 .10838 .14600 .32515 1.0000 3 .10838 .14600

 R:T .64753 1.0000 12 .05396 .03162 .64753 1.0000 12 .05396 .03162

 PT .55957 1.0000 3 .18652 .12554 .55957 1.0000 3 .18652 .12554

 PR:T 2.38025 1.0000 12 .19835 .03079 2.38025 1.0000 12 .19835 .03079

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE .85802 .92630 .36586

 LOWER CASE DELTA .38488 .62038 .12171 GENERALIZABILITY COEFFICIENT = .55144 ( 1.22935)

 UPPER CASE DELTA .54722 .73974 .17935 PHI = .46370 ( .86464)

 MEAN .24815 .49814

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 17

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 001-004

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

 P T R:T PT PR:T

 P .1486687

 T .0014813 .0213148

 R:T .0000000 -.0009996 .0009996

 PT -.0148130 -.0015761 .0000948 .0157611

 PR:T .0000000 .0000948 -.0000948 -.0009481 .0009481

 GENOVA VERSION 3.1 PAGE 18

 D STUDY #1 -- P X (R:T) DESIGN -- R AND T RANDOM

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

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

 V A R I A N C E S

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

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

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

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

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

 001-001 10 3 1 .47315 1.45309 .97994 1.30417 .46954 .32562 .26622

 001-002 10 3 2 .47315 1.05638 .58323 .79954 .32194 .44790 .37177

 001-003 10 3 3 .47315 .92414 .45099 .63133 .27275 .51199 .42839

 001-004 10 3 4 .47315 .85802 .38488 .54722 .24815 .55144 .46370

 GENOVA VERSION 3.1 PAGE 19

 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 COMMENT

 COMMENT What if we vary the number of tasks?

 DSTUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 DEFFECT $ P

 DEFFECT T 2 3 4 5 6

 DEFFECT R:T 2

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 20

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-001

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 2 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 2 .16258 .21899 .32515 1.0000 2 .16258 .21899

 R:T .64753 1.0000 4 .16188 .09485 .64753 1.0000 4 .16188 .09485

 PT .55957 1.0000 2 .27978 .18831 .55957 1.0000 2 .27978 .18831

 PR:T 2.38025 1.0000 4 .59506 .09237 2.38025 1.0000 4 .59506 .09237

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.34799 1.16103 .37375

 LOWER CASE DELTA .87485 .93533 .18831 GENERALIZABILITY COEFFICIENT = .35100 ( .54084)

 UPPER CASE DELTA 1.19931 1.09513 .27628 PHI = .28291 ( .39452)

 MEAN .45926 .67769

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 21

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-001

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

 P T R:T PT PR:T

 P .1486687

 T .0022219 .0479583

 R:T .0000000 -.0044984 .0089968

 PT -.0222195 -.0035462 .0004266 .0354624

 PR:T .0000000 .0004266 -.0008532 -.0042662 .0085325

 GENOVA VERSION 3.1 PAGE 22

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-002

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 3 .10838 .14600 .32515 1.0000 3 .10838 .14600

 R:T .64753 1.0000 6 .10792 .06323 .64753 1.0000 6 .10792 .06323

 PT .55957 1.0000 3 .18652 .12554 .55957 1.0000 3 .18652 .12554

 PR:T 2.38025 1.0000 6 .39671 .06158 2.38025 1.0000 6 .39671 .06158

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.05638 1.02780 .36716

 LOWER CASE DELTA .58323 .76370 .12554 GENERALIZABILITY COEFFICIENT = .44790 ( .81125)

 UPPER CASE DELTA .79954 .89417 .18418 PHI = .37177 ( .59178)

 MEAN .32194 .56740

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 23

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-002

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

 P T R:T PT PR:T

 P .1486687

 T .0014813 .0213148

 R:T .0000000 -.0019993 .0039986

 PT -.0148130 -.0015761 .0001896 .0157611

 PR:T .0000000 .0001896 -.0003792 -.0018961 .0037922

 GENOVA VERSION 3.1 PAGE 24

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-003

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 4 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 4 .08129 .10950 .32515 1.0000 4 .08129 .10950

 R:T .64753 1.0000 8 .08094 .04743 .64753 1.0000 8 .08094 .04743

 PT .55957 1.0000 4 .13989 .09416 .55957 1.0000 4 .13989 .09416

 PR:T 2.38025 1.0000 8 .29753 .04619 2.38025 1.0000 8 .29753 .04619

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE .91057 .95424 .36785

 LOWER CASE DELTA .43742 .66138 .09416 GENERALIZABILITY COEFFICIENT = .51962 ( 1.08167)

 UPPER CASE DELTA .59965 .77437 .13814 PHI = .44104 ( .78904)

 MEAN .25329 .50328

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 25

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-003

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

 P T R:T PT PR:T

 P .1486687

 T .0011110 .0119896

 R:T .0000000 -.0011246 .0022492

 PT -.0111097 -.0008866 .0001067 .0088656

 PR:T .0000000 .0001067 -.0002133 -.0010666 .0021331

 GENOVA VERSION 3.1 PAGE 26

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-004

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 5 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 5 .06503 .08760 .32515 1.0000 5 .06503 .08760

 R:T .64753 1.0000 10 .06475 .03794 .64753 1.0000 10 .06475 .03794

 PT .55957 1.0000 5 .11191 .07533 .55957 1.0000 5 .11191 .07533

 PR:T 2.38025 1.0000 10 .23802 .03695 2.38025 1.0000 10 .23802 .03695

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE .82309 .90724 .36955

 LOWER CASE DELTA .34994 .59156 .07533 GENERALIZABILITY COEFFICIENT = .57485 ( 1.35209)

 UPPER CASE DELTA .47972 .69262 .11051 PHI = .49655 ( .98630)

 MEAN .21209 .46054

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 27

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-004

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

 P T R:T PT PR:T

 P .1486687

 T .0008888 .0076733

 R:T .0000000 -.0007197 .0014395

 PT -.0088878 -.0005674 .0000683 .0056740

 PR:T .0000000 .0000683 -.0001365 -.0006826 .0013652

 GENOVA VERSION 3.1 PAGE 28

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-005

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 6 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .32515 1.0000 6 .05419 .07300 .32515 1.0000 6 .05419 .07300

 R:T .64753 1.0000 12 .05396 .03162 .64753 1.0000 12 .05396 .03162

 PT .55957 1.0000 6 .09326 .06277 .55957 1.0000 6 .09326 .06277

 PR:T 2.38025 1.0000 12 .19835 .03079 2.38025 1.0000 12 .19835 .03079

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE .76476 .87451 .37121

 LOWER CASE DELTA .29162 .54001 .06277 GENERALIZABILITY COEFFICIENT = .61869 ( 1.62251)

 UPPER CASE DELTA .39977 .63227 .09209 PHI = .54203 ( 1.18356)

 MEAN .18463 .42969

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 29

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 002-005

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

 P T R:T PT PR:T

 P .1486687

 T .0007406 .0053287

 R:T .0000000 -.0004998 .0009996

 PT -.0074065 -.0003940 .0000474 .0039403

 PR:T .0000000 .0000474 -.0000948 -.0004740 .0009481

 GENOVA VERSION 3.1 PAGE 30

 D STUDY #2 -- P X (R:T) DESIGN -- R AND T RANDOM

 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 R UNIVERSE OBSERVED CASE CASE GEN.

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

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

 002-001 10 2 2 .47315 1.34799 .87485 1.19931 .45926 .35100 .28291

 002-002 10 3 2 .47315 1.05638 .58323 .79954 .32194 .44790 .37177

 002-003 10 4 2 .47315 .91057 .43742 .59965 .25329 .51962 .44104

 002-004 10 5 2 .47315 .82309 .34994 .47972 .21209 .57485 .49655

 002-005 10 6 2 .47315 .76476 .29162 .39977 .18463 .61869 .54203

 GENOVA VERSION 3.1 PAGE 31

 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 COMMENT

 COMMENT What if raters were nested in tasks nested in persons?

 COMMENT This means persons get different tasks (maybe they select them).

 DSTUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 DEFFECT $ P

 DEFFECT T:P 3

 DEFFECT R:T:P 1 2 3 4

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 32

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-001

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .88472 1.0000 3 .29491 .18418 .88472 1.0000 3 .29491 .18418

 R:T 3.02778 1.0000 3 1.00926 .16772 3.02778 1.0000 3 1.00926 .16772

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.77731 1.33316 .41230

 LOWER CASE DELTA 1.30417 1.14200 .21906 GENERALIZABILITY COEFFICIENT = .26622 ( .36280)

 UPPER CASE DELTA 1.30417 1.14200 .21906 PHI = .26622 ( .36280)

 MEAN .17773 .42158

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 33

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-001

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

 P T R:T

 P .1486687

 T -.0133317 .0339236

 R:T .0000000 -.0070323 .0281294

 GENOVA VERSION 3.1 PAGE 34

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-002

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 2

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .88472 1.0000 3 .29491 .18418 .88472 1.0000 3 .29491 .18418

 R:T 3.02778 1.0000 6 .50463 .08386 3.02778 1.0000 6 .50463 .08386

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.27269 1.12813 .39488

 LOWER CASE DELTA .79954 .89417 .18418 GENERALIZABILITY COEFFICIENT = .37177 ( .59178)

 UPPER CASE DELTA .79954 .89417 .18418 PHI = .37177 ( .59178)

 MEAN .12727 .35675

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 35

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-002

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

 P T R:T

 P .1486687

 T -.0133317 .0339236

 R:T .0000000 -.0035162 .0070323

 GENOVA VERSION 3.1 PAGE 36

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-003

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 3

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .88472 1.0000 3 .29491 .18418 .88472 1.0000 3 .29491 .18418

 R:T 3.02778 1.0000 9 .33642 .05591 3.02778 1.0000 9 .33642 .05591

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.10448 1.05094 .39289

 LOWER CASE DELTA .63133 .79456 .17989 GENERALIZABILITY COEFFICIENT = .42839 ( .74945)

 UPPER CASE DELTA .63133 .79456 .17989 PHI = .42839 ( .74945)

 MEAN .11045 .33234

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 37

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-003

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

 P T R:T

 P .1486687

 T -.0133317 .0339236

 R:T .0000000 -.0023441 .0031255

 GENOVA VERSION 3.1 PAGE 38

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-004

 OBJECT OF MEASUREMENT : P FACETS : T R:T

 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 : 10 D STUDY SAMPLE SIZES : 3 4

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

 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 .47315 1.0000 1 .47315 .38558 .47315 1.0000 1 .47315 .38558

 T .88472 1.0000 3 .29491 .18418 .88472 1.0000 3 .29491 .18418

 R:T 3.02778 1.0000 12 .25231 .04193 3.02778 1.0000 12 .25231 .04193

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .47315 .68786 .38558

 EXPECTED OBSERVED SCORE 1.02037 1.01013 .39265

 LOWER CASE DELTA .54722 .73974 .17935 GENERALIZABILITY COEFFICIENT = .46370 ( .86464)

 UPPER CASE DELTA .54722 .73974 .17935 PHI = .46370 ( .86464)

 MEAN .10204 .31943

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 39

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 D STUDY DESIGN NUMBER 003-004

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

 P T R:T

 P .1486687

 T -.0133317 .0339236

 R:T .0000000 -.0017581 .0017581

 GENOVA VERSION 3.1 PAGE 40

 D STUDY #3 -- R:T:P DESIGN -- R AND T RANDOM

 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 R UNIVERSE OBSERVED CASE CASE GEN.

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

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

 003-001 10 3 1 .47315 1.77731 1.30417 1.30417 .17773 .26622 .26622

 003-002 10 3 2 .47315 1.27269 .79954 .79954 .12727 .37177 .37177

 003-003 10 3 3 .47315 1.10448 .63133 .63133 .11045 .42839 .42839

 003-004 10 3 4 .47315 1.02037 .54722 .54722 .10204 .46370 .46370

 GENOVA VERSION 3.1 PAGE 41

 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 COMMENT

 COMMENT What if tasks are fixed - universe of generalization has 3 tasks?

 DSTUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 DEFFECT $ P

 DEFFECT T 3 / 3

 DEFFECT R:T 1 2 3 4

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 42

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-001

 OBJECT OF MEASUREMENT : P FACETS : T R:T

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

 D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 3 INFINITE

 D STUDY SAMPLE SIZE : 10 D STUDY SAMPLE SIZES : 3 1

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

 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 .47315 1.0000 1 .47315 .38558 .65967 1.0000 1 .65967 .36716

 T .32515 1.0000 3 .10838 .14600 .32515QFM0000E+00 3 ------- -------

 R:T .64753 1.0000 3 .21584 .12647 .64753 1.0000 3 .21584 .12647

 PT .55957 1.0000 3 .18652 .12554 .55957 .0000E+00 3 ------- -------

 PR:T 2.38025 1.0000 3 .79342 .12316 2.38025 1.0000 3 .79342 .12316

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .65967 .81220 .36716

 EXPECTED OBSERVED SCORE 1.45309 1.20544 .37734

 LOWER CASE DELTA .79342 .89074 .12316 GENERALIZABILITY COEFFICIENT = .45398 ( .83143)

 UPPER CASE DELTA 1.00926 1.00462 .16772 PHI = .39527 ( .65362)

 MEAN .36115 .60096

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 43

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-001

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

 P R:T PR:T

 P .1348038

 R:T .0003792 .0159943

 PR:T -.0037922 -.0015169 .0151689

 GENOVA VERSION 3.1 PAGE 44

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-002

 OBJECT OF MEASUREMENT : P FACETS : T R:T

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

 D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 3 INFINITE

 D STUDY SAMPLE SIZE : 10 D STUDY SAMPLE SIZES : 3 2

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

 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 .47315 1.0000 1 .47315 .38558 .65967 1.0000 1 .65967 .36716

 T .32515 1.0000 3 .10838 .14600 .32515QFM0000E+00 3 ------- -------

 R:T .64753 1.0000 6 .10792 .06323 .64753 1.0000 6 .10792 .06323

 PT .55957 1.0000 3 .18652 .12554 .55957 .0000E+00 3 ------- -------

 PR:T 2.38025 1.0000 6 .39671 .06158 2.38025 1.0000 6 .39671 .06158

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .65967 .81220 .36716

 EXPECTED OBSERVED SCORE 1.05638 1.02780 .36716

 LOWER CASE DELTA .39671 .62985 .06158 GENERALIZABILITY COEFFICIENT = .62446 ( 1.66286)

 UPPER CASE DELTA .50463 .71037 .08386 PHI = .56658 ( 1.30724)

 MEAN .21356 .46213

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 45

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-002

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

 P R:T PR:T

 P .1348038

 R:T .0001896 .0039986

 PR:T -.0018961 -.0003792 .0037922

 GENOVA VERSION 3.1 PAGE 46

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-003

 OBJECT OF MEASUREMENT : P FACETS : T R:T

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

 D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 3 INFINITE

 D STUDY SAMPLE SIZE : 10 D STUDY SAMPLE SIZES : 3 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 .47315 1.0000 1 .47315 .38558 .65967 1.0000 1 .65967 .36716

 T .32515 1.0000 3 .10838 .14600 .32515QFM0000E+00 3 ------- -------

 R:T .64753 1.0000 9 .07195 .04216 .64753 1.0000 9 .07195 .04216

 PT .55957 1.0000 3 .18652 .12554 .55957 .0000E+00 3 ------- -------

 PR:T 2.38025 1.0000 9 .26447 .04105 2.38025 1.0000 9 .26447 .04105

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .65967 .81220 .36716

 EXPECTED OBSERVED SCORE .92414 .96132 .36601

 LOWER CASE DELTA .26447 .51427 .04105 GENERALIZABILITY COEFFICIENT = .71382 ( 2.49429)

 UPPER CASE DELTA .33642 .58002 .05591 PHI = .66226 ( 1.96086)

 MEAN .16436 .40542

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 47

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-003

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

 P R:T PR:T

 P .1348038

 R:T .0001264 .0017771

 PR:T -.0012641 -.0001685 .0016854

 GENOVA VERSION 3.1 PAGE 48

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-004

 OBJECT OF MEASUREMENT : P FACETS : T R:T

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

 D STUDY POPULATION SIZE : INFINITE D STUDY UNIVERSE SIZES : 3 INFINITE

 D STUDY SAMPLE SIZE : 10 D STUDY SAMPLE SIZES : 3 4

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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 .47315 1.0000 1 .47315 .38558 .65967 1.0000 1 .65967 .36716

 T .32515 1.0000 3 .10838 .14600 .32515QFM0000E+00 3 ------- -------

 R:T .64753 1.0000 12 .05396 .03162 .64753 1.0000 12 .05396 .03162

 PT .55957 1.0000 3 .18652 .12554 .55957 .0000E+00 3 ------- -------

 PR:T 2.38025 1.0000 12 .19835 .03079 2.38025 1.0000 12 .19835 .03079

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .65967 .81220 .36716

 EXPECTED OBSERVED SCORE .85802 .92630 .36586

 LOWER CASE DELTA .19835 .44537 .03079 GENERALIZABILITY COEFFICIENT = .76882 ( 3.32573)

 UPPER CASE DELTA .25231 .50231 .04193 PHI = .72333 ( 2.61448)

 MEAN .13976 .37385

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 49

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 D STUDY DESIGN NUMBER 004-004

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

 P R:T PR:T

 P .1348038

 R:T .0000948 .0009996

 PR:T -.0009481 -.0000948 .0009481

 GENOVA VERSION 3.1 PAGE 50

 D STUDY #4 -- P X (R:T) DESIGN -- R RANDOM, T FIXED

 SUMMARY OF D STUDY RESULTS FOR SET OF CONTROL CARDS NO. 004

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 V A R I A N C E S

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

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

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

 NO UNIV.= INF. 3 INF. SCORE SCORE DELTA DELTA MEAN COEF. PHI

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 004-001 10 3 1 .65967 1.45309 .79342 1.00926 .36115 .45398 .39527

 004-002 10 3 2 .65967 1.05638 .39671 .50463 .21356 .62446 .56658

 004-003 10 3 3 .65967 .92414 .26447 .33642 .16436 .71382 .66226

 004-004 10 3 4 .65967 .85802 .19835 .25231 .13976 .76882 .72333

 GENOVA VERSION 3.1 PAGE 51

 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 FINISH