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.

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 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 2002 Winter Olympic Ice Skating Results

 COMMENT Men's Finals

 COMMENT # RECORDS = 24

 COMMENT 4 TASKS, 9 JUDGES

 COMMENT # VALUES PER RECORD = 36

 OPTIONS RECORDS ALL

 EFFECT \* P 24 0

 EFFECT + T 4 0

 EFFECT + J 9 0

 FORMAT (36F3.1)

 PROCESS

 GENOVA VERSION 3.1 PAGE 2

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 EXPANDED MAIN AND INTERACTION EFFECT TABLE

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

 SAMPLE SIZE 24 4 9 PRIMARY NUMBER OF

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

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

 \* \* \* \* \*

 \* P \* 1 \* 0 \* 0 \* 1 1 23

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

 \* J \* 0 \* 0 \* 1 \* 1 1 8

 \* \* \* \* \*

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

 \* \* \* \* \*

 \* PT \* 1 \* 1 \* 0 \* 2 2 69

 \* PJ \* 1 \* 0 \* 1 \* 2 2 184

 \* TJ \* 0 \* 1 \* 1 \* 2 2 24

 \* \* \* \* \*

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

 \* \* \* \* \*

 \* PTJ \* 1 \* 1 \* 1 \* 3 3 552

 \* \* \* \* \*

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

 GENOVA VERSION 3.1 PAGE 3

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 INPUT RECORD LISTING WITH RECORD MEANS

 RECORD # 1 5.80000 5.80000 5.70000 5.80000 5.90000 5.80000 5.80000 5.80000

 5.80000 5.80000 5.80000 5.80000 5.90000 5.80000 5.90000 5.90000

 5.80000 5.90000 5.90000 5.90000 5.90000 5.90000 5.90000 5.90000

 5.90000 5.90000 5.90000 5.90000 5.90000 6.00000 6.00000 5.90000

 6.00000 5.90000 5.90000 6.00000 5.87222

 RECORD # 2 5.30000 5.40000 5.30000 5.40000 5.40000 5.50000 5.30000 5.50000

 5.60000 5.60000 5.90000 5.80000 5.70000 5.90000 5.80000 5.80000

 5.80000 5.90000 5.80000 5.80000 5.70000 5.90000 5.80000 5.80000

 5.80000 5.80000 5.80000 5.70000 5.80000 5.90000 5.80000 5.80000

 5.80000 5.90000 5.80000 5.80000 5.70556

 RECORD # 3 5.70000 5.50000 5.70000 5.70000 5.70000 5.70000 5.70000 5.60000

 5.70000 5.50000 5.50000 5.60000 5.50000 5.50000 5.70000 5.70000

 5.60000 5.60000 5.70000 5.60000 5.90000 5.90000 5.80000 5.70000

 5.80000 5.80000 5.80000 5.40000 5.40000 5.70000 5.70000 5.70000

 5.70000 5.70000 5.70000 5.50000 5.65833

 RECORD # 4 5.60000 5.70000 5.50000 5.70000 5.70000 5.60000 5.60000 5.60000

 5.70000 5.60000 5.70000 5.70000 5.70000 5.70000 5.60000 5.70000

 5.70000 5.70000 5.30000 5.60000 5.70000 5.70000 5.60000 5.60000

 5.60000 5.70000 5.50000 5.50000 5.60000 5.80000 5.70000 5.80000

 5.60000 5.80000 5.70000 5.70000 5.64722

 RECORD # 5 5.50000 5.50000 5.50000 5.50000 5.50000 5.50000 5.70000 5.80000

 5.50000 5.50000 5.40000 5.60000 5.50000 5.50000 5.50000 5.60000

 5.70000 5.80000 5.50000 5.10000 5.60000 5.50000 5.30000 5.40000

 5.70000 5.60000 5.50000 5.70000 5.50000 5.80000 5.60000 5.50000

 5.60000 5.70000 5.70000 5.60000 5.55556

 RECORD # 6 4.60000 4.90000 5.00000 5.00000 5.00000 4.90000 4.80000 4.70000

 5.10000 5.60000 5.70000 5.70000 5.70000 5.70000 5.70000 5.50000

 5.50000 5.70000 5.50000 5.30000 5.50000 5.60000 5.50000 5.40000

 5.50000 5.50000 5.40000 5.60000 5.50000 5.80000 5.60000 5.70000

 5.50000 5.50000 5.60000 5.70000 5.40278

 RECORD # 7 5.30000 4.90000 5.20000 5.40000 5.00000 5.10000 5.20000 5.20000

 5.20000 5.50000 5.50000 5.60000 5.50000 5.50000 5.50000 5.50000

 5.50000 5.50000 5.30000 5.50000 5.70000 5.70000 5.60000 5.60000

 5.50000 5.40000 5.40000 5.40000 5.30000 5.70000 5.60000 5.70000

 5.50000 5.40000 5.60000 5.50000 5.43056

 RECORD # 8 5.00000 5.00000 5.20000 5.30000 5.20000 5.40000 4.90000 5.20000

 5.40000 5.50000 5.50000 5.70000 5.50000 5.60000 5.70000 5.70000

 5.60000 5.70000 5.40000 5.30000 5.50000 5.50000 5.40000 5.60000

 5.60000 5.60000 5.50000 5.30000 5.40000 5.50000 5.50000 5.50000

 5.40000 5.60000 5.60000 5.50000 5.43889

 GENOVA VERSION 3.1 PAGE 4

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 INPUT RECORD LISTING WITH RECORD MEANS

 RECORD # 9 5.40000 5.60000 5.40000 5.60000 5.60000 5.60000 5.40000 5.50000

 5.40000 5.40000 5.50000 5.60000 5.60000 5.50000 5.50000 5.20000

 5.40000 5.50000 5.20000 5.50000 5.20000 5.40000 5.40000 5.50000

 5.40000 5.50000 5.40000 4.90000 5.20000 5.00000 5.40000 5.40000

 5.20000 5.40000 5.30000 5.40000 5.40000

 RECORD # 10 5.40000 5.30000 5.20000 5.10000 5.20000 5.50000 5.30000 5.30000

 5.00000 5.30000 5.10000 5.30000 5.20000 4.90000 5.30000 5.40000

 5.20000 5.30000 5.00000 5.40000 5.50000 4.90000 5.20000 5.40000

 5.00000 5.30000 5.30000 5.00000 5.30000 5.30000 4.90000 5.20000

 5.10000 5.30000 5.10000 5.30000 5.21667

 RECORD # 11 4.80000 5.00000 5.10000 5.00000 5.00000 5.10000 4.90000 4.60000

 4.90000 5.30000 5.50000 5.50000 5.20000 5.40000 5.40000 5.50000

 5.30000 5.30000 4.60000 5.20000 5.10000 5.30000 5.10000 5.20000

 4.90000 5.10000 5.10000 5.20000 5.40000 5.10000 5.30000 5.30000

 5.20000 5.00000 5.40000 5.40000 5.15833

 RECORD # 12 5.00000 5.40000 5.20000 5.10000 4.90000 5.30000 4.80000 5.00000

 5.00000 5.00000 5.40000 5.40000 5.10000 4.90000 5.10000 4.80000

 5.00000 5.10000 5.10000 5.20000 5.20000 5.30000 5.30000 5.00000

 5.10000 5.20000 5.20000 5.10000 5.30000 5.10000 5.10000 5.10000

 5.00000 5.10000 5.20000 5.30000 5.12222

 RECORD # 13 4.90000 4.50000 5.00000 4.80000 5.00000 4.70000 4.50000 4.90000

 5.10000 5.20000 5.00000 5.40000 5.20000 5.30000 5.10000 5.20000

 5.30000 5.50000 4.70000 5.30000 5.00000 5.40000 5.00000 4.70000

 5.30000 5.20000 5.20000 4.60000 5.20000 5.10000 5.30000 5.20000

 4.90000 5.30000 5.30000 5.40000 5.07500

 RECORD # 14 4.30000 4.90000 4.70000 4.20000 4.60000 4.70000 4.20000 4.80000

 4.70000 4.90000 5.30000 5.30000 4.80000 4.90000 5.20000 5.00000

 5.40000 5.30000 4.90000 5.40000 5.30000 5.00000 5.40000 4.80000

 5.10000 5.20000 5.20000 4.90000 5.30000 5.30000 4.90000 5.20000

 5.10000 5.20000 5.00000 5.30000 4.99167

 RECORD # 15 4.80000 4.50000 4.70000 4.60000 4.70000 5.00000 4.70000 5.00000

 4.60000 4.60000 4.30000 5.20000 4.60000 5.00000 5.40000 4.90000

 5.10000 5.00000 4.70000 5.00000 4.80000 5.10000 4.70000 4.70000

 4.80000 4.90000 4.70000 5.00000 5.00000 5.20000 5.20000 5.10000

 5.20000 4.90000 5.10000 5.00000 4.88333

 RECORD # 16 4.30000 4.10000 4.10000 4.10000 4.50000 4.70000 4.50000 4.30000

 4.60000 4.80000 5.10000 4.90000 4.80000 5.00000 4.90000 5.30000

 4.70000 5.20000 4.80000 5.30000 5.30000 5.20000 5.00000 5.20000

 5.30000 5.50000 5.40000 4.40000 5.30000 4.90000 4.80000 4.90000

 4.50000 5.00000 5.00000 5.10000 4.85556

 GENOVA VERSION 3.1 PAGE 5

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 INPUT RECORD LISTING WITH RECORD MEANS

 RECORD # 17 3.60000 4.60000 4.40000 4.50000 4.40000 4.60000 4.20000 4.10000

 4.20000 4.30000 4.90000 5.00000 5.20000 5.00000 5.20000 4.90000

 5.00000 5.00000 4.40000 4.80000 4.70000 4.60000 4.90000 4.80000

 4.80000 4.90000 4.90000 4.70000 4.90000 4.70000 4.70000 5.20000

 4.80000 4.70000 5.20000 4.90000 4.71389

 RECORD # 18 4.10000 4.00000 4.20000 3.80000 4.30000 4.80000 4.00000 4.10000

 4.20000 5.30000 4.80000 5.00000 5.00000 5.20000 5.20000 4.90000

 4.90000 4.90000 4.50000 4.80000 4.80000 4.40000 4.80000 4.80000

 4.40000 4.70000 4.70000 4.90000 4.80000 5.00000 5.00000 5.10000

 5.00000 4.40000 4.90000 4.90000 4.68333

 RECORD # 19 4.10000 4.80000 4.30000 4.30000 4.50000 4.30000 4.20000 4.40000

 4.60000 4.70000 4.90000 4.80000 4.60000 4.70000 4.80000 4.70000

 4.90000 5.00000 4.60000 4.60000 4.80000 5.00000 5.10000 4.80000

 4.70000 4.70000 4.80000 4.50000 4.50000 4.50000 4.80000 5.00000

 4.70000 4.80000 4.80000 4.90000 4.67222

 RECORD # 20 4.50000 5.10000 5.30000 4.90000 5.00000 5.10000 5.00000 5.00000

 4.90000 4.60000 5.20000 5.00000 4.80000 4.80000 5.00000 4.90000

 4.80000 5.20000 4.00000 4.40000 3.90000 4.00000 4.30000 4.60000

 4.00000 4.00000 4.00000 4.40000 4.40000 3.90000 4.20000 4.70000

 4.70000 4.10000 4.00000 4.20000 4.58056

 RECORD # 21 4.90000 5.30000 5.10000 4.60000 5.00000 5.10000 4.50000 4.60000

 4.80000 4.80000 5.00000 5.10000 5.00000 5.20000 5.10000 4.70000

 4.80000 5.10000 3.70000 4.00000 4.00000 3.70000 4.20000 3.50000

 3.80000 4.20000 3.80000 4.60000 4.30000 4.20000 4.40000 4.90000

 4.20000 4.00000 4.40000 4.10000 4.51944

 RECORD # 22 3.80000 4.50000 4.00000 3.70000 4.00000 4.30000 4.10000 3.80000

 4.10000 5.10000 5.10000 4.90000 4.40000 4.70000 5.10000 5.10000

 4.80000 4.80000 4.30000 4.70000 4.60000 4.60000 4.70000 4.70000

 4.50000 4.60000 4.60000 4.20000 4.80000 4.50000 4.50000 4.90000

 4.70000 4.60000 4.80000 4.80000 4.53889

 RECORD # 23 4.20000 4.30000 4.00000 4.30000 4.30000 4.00000 4.30000 4.00000

 4.30000 5.00000 4.80000 4.60000 4.60000 4.60000 4.80000 4.70000

 4.60000 4.70000 4.10000 4.50000 4.50000 4.70000 4.90000 4.50000

 4.50000 4.80000 4.50000 4.30000 4.40000 4.40000 4.60000 4.80000

 4.50000 4.40000 5.00000 4.50000 4.50000

 RECORD # 24 4.20000 4.20000 4.60000 4.40000 4.30000 4.50000 4.20000 4.10000

 4.30000 4.80000 4.50000 4.90000 4.70000 4.50000 4.80000 4.60000

 4.60000 4.80000 3.90000 4.00000 4.10000 4.10000 4.10000 4.00000

 4.10000 4.10000 4.00000 4.00000 4.20000 4.30000 4.20000 4.20000

 4.10000 4.20000 4.20000 4.30000 4.30833

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 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 CELL MEAN SCORES

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

 \*\*\* GRAND MEAN = 5.0804398 \*\*\*

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

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

 (1) = 4.907407 (2) = 5.231944 (3) = 5.064352 (4) = 5.118056

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

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

 (1) = 4.946875 (2) = 5.094792 (3) = 5.112500 (4) = 5.060417

 (5) = 5.128125 (6) = 5.117708 (7) = 5.041667 (8) = 5.097917

 (9) = 5.123958

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

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

 (1,1) = 4.795833 (1,2) = 4.950000 (1,3) = 4.933333 (1,4) = 4.866667

 (1,5) = 4.945833 (1,6) = 5.033333 (1,7) = 4.825000 (1,8) = 4.870833

 (2,1) = 5.154167 (2,2) = 5.225000 (2,3) = 5.308333 (2,4) = 5.158333

 (2,5) = 5.200000 (2,6) = 5.304167 (2,7) = 5.216667 (2,8) = 5.208333

 (3,1) = 4.870833 (3,2) = 5.091667 (3,3) = 5.095833 (3,4) = 5.100000

 (3,5) = 5.125000 (3,6) = 5.050000 (3,7) = 5.045833 (3,8) = 5.133333

 (4,1) = 4.966667 (4,2) = 5.112500 (4,3) = 5.112500 (4,4) = 5.116667

 (4,5) = 5.241667 (4,6) = 5.083333 (4,7) = 5.079167 (4,8) = 5.179167

 (4,9) = 5.170833

 GENOVA VERSION 3.1 PAGE 7

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 ANOVA TABLE

 (\*\* = INFINITE) P T J

 SAMPLE SIZE 24 4 9

 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 23 22470.83639 170.24582 7.40199 16.32229 QF 23 QF 77 QF

 T 3 22312.37718 11.78661 3.92887 8.29960 QF 3 QF 79 QF

 J 8 22303.16719 2.57662 .32208 3.66503 QF 8 QF 42 QF

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

 PT 69 22512.26556 29.64256 .42960 21.25382 69 552

 PJ 184 22481.52750 8.11449 .04410 2.18179 184 552

 TJ 24 22316.48958 1.53579 .06399 3.16585 24 552

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

 PTJ 552 22535.65000 11.15755 .02021

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

 MEAN 22300.59057

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

 TOTAL 863 235.05943

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

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

 GENOVA VERSION 3.1 PAGE 8

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 G STUDY RESULTS

 (\*\* = INFINITE) P T J

 SAMPLE SIZE 24 4 9

 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 23 .1930140 .1930140 .0581902

 T 3 .0159976 .0159976 .0115090

 J 8 .0024396 .0024396 .0015125

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

 PT 69 .0454877 .0454877 .0080126

 PJ 184 .0059719 .0059719 .0011829

 TJ 24 .0018241 .0018241 .0007412

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

 PTJ 552 .0202129 .0202129 .0012145

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

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

 IDENTICAL IF THERE ARE NO NEGATIVE ESTIMATES

 GENOVA VERSION 3.1 PAGE 9

 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 EXPECTED MEAN SQUARE EQUATIONS

 (\*\* = INFINITE) P T J

 SAMPLE SIZE 24 4 9

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

 EMS(P) = 1.00\*VC(PTJ) + 4.00\*VC(PJ) + 9.00\*VC(PT) + 36.00\*VC(P)

 EMS(T) = 1.00\*VC(PTJ) + 24.00\*VC(TJ) + 9.00\*VC(PT) + 216.00\*VC(T)

 EMS(J) = 1.00\*VC(PTJ) + 24.00\*VC(TJ) + 4.00\*VC(PJ) + 96.00\*VC(J)

 EMS(PT) = 1.00\*VC(PTJ) + 9.00\*VC(PT)

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

 EMS(TJ) = 1.00\*VC(PTJ) + 24.00\*VC(TJ)

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

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 G STUDY G-Study of 2002 Winter Olympic Ice Skating Results

 VARIANCE - COVARIANCE MATRIX FOR ESTIMATED VARIANCE COMPONENTS (V)

 P T J PT PJ TJ PTJ

 P .0033861

 T .0000007 .0001325

 J .0000000 .0000000 .0000023

 PT -.0000161 -.0000027 .0000000 .0000642

 PJ -.0000002 .0000000 -.0000001 .0000000 .0000014

 TJ .0000000 -.0000001 -.0000001 .0000000 .0000000 .0000005

 PTJ .0000000 .0000000 .0000000 -.0000002 -.0000004 -.0000001 .0000015

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 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 COLUMNS 1-12 BLANK WHEN NOT EXPECTED: CARD IMAGE =

 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 9

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 12

 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 : 24 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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 4 .00400 .00288 .01600 1.0000 4 .00400 .00288

 J .00244 1.0000 1 .00244 .00151 .00244 1.0000 1 .00244 .00151

 PT .04549 1.0000 4 .01137 .00200 .04549 1.0000 4 .01137 .00200

 PJ .00597 1.0000 1 .00597 .00118 .00597 1.0000 1 .00597 .00118

 TJ .00182 1.0000 4 .00046 .00019 .00182 1.0000 4 .00046 .00019

 PTJ .02021 1.0000 4 .00505 .00030 .02021 1.0000 4 .00505 .00030

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .21541 .46412 .05816

 LOWER CASE DELTA .02240 .14966 .00231 GENERALIZABILITY COEFFICIENT = .89603 ( 8.61783)

 UPPER CASE DELTA .02929 .17115 .00393 PHI = .86824 ( 6.58929)

 MEAN .01587 .12598

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 13

 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 .0033861

 T .0000002 .0000083

 J .0000000 .0000000 .0000023

 PT -.0000040 -.0000002 .0000000 .0000040

 PJ -.0000002 .0000000 -.0000001 .0000000 .0000014

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

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

 GENOVA VERSION 3.1 PAGE 14

 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 : 24 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

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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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 4 .00400 .00288 .01600 1.0000 4 .00400 .00288

 J .00244 1.0000 3 .00081 .00050 .00244 1.0000 3 .00081 .00050

 PT .04549 1.0000 4 .01137 .00200 .04549 1.0000 4 .01137 .00200

 PJ .00597 1.0000 3 .00199 .00039 .00597 1.0000 3 .00199 .00039

 TJ .00182 1.0000 12 .00015 .00006 .00182 1.0000 12 .00015 .00006

 PTJ .02021 1.0000 12 .00168 .00010 .02021 1.0000 12 .00168 .00010

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

 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .20806 .45614 .05816

 LOWER CASE DELTA .01505 .12267 .00204 GENERALIZABILITY COEFFICIENT = .92768 (12.82743)

 UPPER CASE DELTA .02001 .14146 .00351 PHI = .90606 ( 9.64512)

 MEAN .01363 .11676

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 15

 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 .0033861

 T .0000002 .0000083

 J .0000000 .0000000 .0000003

 PT -.0000040 -.0000002 .0000000 .0000040

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

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 16

 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 : 24 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

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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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 4 .00400 .00288 .01600 1.0000 4 .00400 .00288

 J .00244 1.0000 5 .00049 .00030 .00244 1.0000 5 .00049 .00030

 PT .04549 1.0000 4 .01137 .00200 .04549 1.0000 4 .01137 .00200

 PJ .00597 1.0000 5 .00119 .00024 .00597 1.0000 5 .00119 .00024

 TJ .00182 1.0000 20 .00009 .00004 .00182 1.0000 20 .00009 .00004

 PTJ .02021 1.0000 20 .00101 .00006 .02021 1.0000 20 .00101 .00006

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 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .20659 .45452 .05816

 LOWER CASE DELTA .01358 .11652 .00202 GENERALIZABILITY COEFFICIENT = .93428 (14.21630)

 UPPER CASE DELTA .01816 .13474 .00348 PHI = .91402 (10.63117)

 MEAN .01319 .11483

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 17

 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 .0033861

 T .0000002 .0000083

 J .0000000 .0000000 .0000001

 PT -.0000040 -.0000002 .0000000 .0000040

 PJ .0000000 .0000000 .0000000 .0000000 .0000001

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 18

 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 : 24 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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 4 .00400 .00288 .01600 1.0000 4 .00400 .00288

 J .00244 1.0000 7 .00035 .00022 .00244 1.0000 7 .00035 .00022

 PT .04549 1.0000 4 .01137 .00200 .04549 1.0000 4 .01137 .00200

 PJ .00597 1.0000 7 .00085 .00017 .00597 1.0000 7 .00085 .00017

 TJ .00182 1.0000 28 .00007 .00003 .00182 1.0000 28 .00007 .00003

 PTJ .02021 1.0000 28 .00072 .00004 .02021 1.0000 28 .00072 .00004

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 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .20596 .45383 .05816

 LOWER CASE DELTA .01295 .11378 .00201 GENERALIZABILITY COEFFICIENT = .93714 (14.90807)

 UPPER CASE DELTA .01736 .13176 .00347 PHI = .91748 (11.11831)

 MEAN .01299 .11399

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 19

 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 .0033861

 T .0000002 .0000083

 J .0000000 .0000000 .0000000

 PT -.0000040 -.0000002 .0000000 .0000040

 PJ .0000000 .0000000 .0000000 .0000000 .0000000

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 20

 D STUDY P x T x J DESIGN

 D STUDY DESIGN NUMBER 001-005

 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 : 24 D STUDY SAMPLE SIZES : 4 9

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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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 4 .00400 .00288 .01600 1.0000 4 .00400 .00288

 J .00244 1.0000 9 .00027 .00017 .00244 1.0000 9 .00027 .00017

 PT .04549 1.0000 4 .01137 .00200 .04549 1.0000 4 .01137 .00200

 PJ .00597 1.0000 9 .00066 .00013 .00597 1.0000 9 .00066 .00013

 TJ .00182 1.0000 36 .00005 .00002 .00182 1.0000 36 .00005 .00002

 PTJ .02021 1.0000 36 .00056 .00003 .02021 1.0000 36 .00056 .00003

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

 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .20561 .45344 .05816

 LOWER CASE DELTA .01260 .11224 .00201 GENERALIZABILITY COEFFICIENT = .93873 (15.32229)

 UPPER CASE DELTA .01692 .13007 .00346 PHI = .91941 (11.40874)

 MEAN .01289 .11353

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 21

 D STUDY P x T x J DESIGN

 D STUDY DESIGN NUMBER 001-005

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

 P T J PT PJ TJ PTJ

 P .0033861

 T .0000002 .0000083

 J .0000000 .0000000 .0000000

 PT -.0000040 -.0000002 .0000000 .0000040

 PJ .0000000 .0000000 .0000000 .0000000 .0000000

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 22

 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 24 4 1 .19301 .21541 .02240 .02929 .01587 .89603 .86824

 001-002 24 4 3 .19301 .20806 .01505 .02001 .01363 .92768 .90606

 001-003 24 4 5 .19301 .20659 .01358 .01816 .01319 .93428 .91402

 001-004 24 4 7 .19301 .20596 .01295 .01736 .01299 .93714 .91748

 001-005 24 4 9 .19301 .20561 .01260 .01692 .01289 .93873 .91941

 GENOVA VERSION 3.1 PAGE 23

 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

 DEFFECT J 4

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 24

 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 : 24 D STUDY SAMPLE SIZES : 2 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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 2 .00800 .00575 .01600 1.0000 2 .00800 .00575

 J .00244 1.0000 4 .00061 .00038 .00244 1.0000 4 .00061 .00038

 PT .04549 1.0000 2 .02274 .00401 .04549 1.0000 2 .02274 .00401

 PJ .00597 1.0000 4 .00149 .00030 .00597 1.0000 4 .00149 .00030

 TJ .00182 1.0000 8 .00023 .00009 .00182 1.0000 8 .00023 .00009

 PTJ .02021 1.0000 8 .00253 .00015 .02021 1.0000 8 .00253 .00015

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .21978 .46880 .05819

 LOWER CASE DELTA .02676 .16360 .00402 GENERALIZABILITY COEFFICIENT = .87822 ( 7.21185)

 UPPER CASE DELTA .03560 .18868 .00693 PHI = .84428 ( 5.42172)

 MEAN .01799 .13414

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 25

 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 .0033861

 T .0000003 .0000331

 J .0000000 .0000000 .0000001

 PT -.0000080 -.0000007 .0000000 .0000161

 PJ .0000000 .0000000 .0000000 .0000000 .0000001

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 26

 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 : 24 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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 3 .00533 .00384 .01600 1.0000 3 .00533 .00384

 J .00244 1.0000 4 .00061 .00038 .00244 1.0000 4 .00061 .00038

 PT .04549 1.0000 3 .01516 .00267 .04549 1.0000 3 .01516 .00267

 PJ .00597 1.0000 4 .00149 .00030 .00597 1.0000 4 .00149 .00030

 TJ .00182 1.0000 12 .00015 .00006 .00182 1.0000 12 .00015 .00006

 PTJ .02021 1.0000 12 .00168 .00010 .02021 1.0000 12 .00168 .00010

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .21135 .45973 .05816

 LOWER CASE DELTA .01834 .13543 .00269 GENERALIZABILITY COEFFICIENT = .91323 (10.52423)

 UPPER CASE DELTA .02443 .15632 .00463 PHI = .88763 ( 7.89927)

 MEAN .01490 .12207

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 27

 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 .0033861

 T .0000002 .0000147

 J .0000000 .0000000 .0000001

 PT -.0000054 -.0000003 .0000000 .0000071

 PJ .0000000 .0000000 .0000000 .0000000 .0000001

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 28

 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 : 24 D STUDY SAMPLE SIZES : 4 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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 4 .00400 .00288 .01600 1.0000 4 .00400 .00288

 J .00244 1.0000 4 .00061 .00038 .00244 1.0000 4 .00061 .00038

 PT .04549 1.0000 4 .01137 .00200 .04549 1.0000 4 .01137 .00200

 PJ .00597 1.0000 4 .00149 .00030 .00597 1.0000 4 .00149 .00030

 TJ .00182 1.0000 16 .00011 .00005 .00182 1.0000 16 .00011 .00005

 PTJ .02021 1.0000 16 .00126 .00008 .02021 1.0000 16 .00126 .00008

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .20714 .45513 .05816

 LOWER CASE DELTA .01413 .11886 .00202 GENERALIZABILITY COEFFICIENT = .93179 (13.66160)

 UPPER CASE DELTA .01885 .13730 .00349 PHI = .91102 (10.23864)

 MEAN .01335 .11556

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 29

 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 .0033861

 T .0000002 .0000083

 J .0000000 .0000000 .0000001

 PT -.0000040 -.0000002 .0000000 .0000040

 PJ .0000000 .0000000 .0000000 .0000000 .0000001

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 30

 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 : 24 D STUDY SAMPLE SIZES : 5 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 .19301 1.0000 1 .19301 .05819 .19301 1.0000 1 .19301 .05819

 T .01600 1.0000 5 .00320 .00230 .01600 1.0000 5 .00320 .00230

 J .00244 1.0000 4 .00061 .00038 .00244 1.0000 4 .00061 .00038

 PT .04549 1.0000 5 .00910 .00160 .04549 1.0000 5 .00910 .00160

 PJ .00597 1.0000 4 .00149 .00030 .00597 1.0000 4 .00149 .00030

 TJ .00182 1.0000 20 .00009 .00004 .00182 1.0000 20 .00009 .00004

 PTJ .02021 1.0000 20 .00101 .00006 .02021 1.0000 20 .00101 .00006

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

 QFM = QUADRATIC FORM

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

 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .19301 .43933 .05819

 EXPECTED OBSERVED SCORE .20462 .45234 .05816

 LOWER CASE DELTA .01160 .10771 .00163 GENERALIZABILITY COEFFICIENT = .94330 (16.63747)

 UPPER CASE DELTA .01550 .12451 .00281 PHI = .92566 (12.45108)

 MEAN .01243 .11147

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

 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 31

 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 .0033861

 T .0000001 .0000053

 J .0000000 .0000000 .0000001

 PT -.0000032 -.0000001 .0000000 .0000026

 PJ .0000000 .0000000 .0000000 .0000000 .0000001

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

 PTJ .0000000 .0000000 .0000000 .0000000 .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 32

 D STUDY P x T x J DESIGN

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

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

 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

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

 002-001 24 2 4 .19301 .21978 .02676 .03560 .01799 .87822 .84428

 002-002 24 3 4 .19301 .21135 .01834 .02443 .01490 .91323 .88763

 002-003 24 4 4 .19301 .20714 .01413 .01885 .01335 .93179 .91102

 002-004 24 5 4 .19301 .20462 .01160 .01550 .01243 .94330 .92566

 GENOVA VERSION 3.1 PAGE 33

 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 9

 ENDDSTUDY

 GENOVA VERSION 3.1 PAGE 34

 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 : 24 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 .19301 1.0000 1 .19301 .05819 .20439 1.0000 1 .20439 .05816

 T .01600 1.0000 4 .00400 .00288 .01600QFM0000E+00 4 ------- -------

 J .00244 1.0000 1 .00244 .00151 .00290 1.0000 1 .00290 .00150

 PT .04549 1.0000 4 .01137 .00200 .04549 .0000E+00 4 ------- -------

 PJ .00597 1.0000 1 .00597 .00118 .01103 1.0000 1 .01103 .00114

 TJ .00182 1.0000 4 .00046 .00019 .00182 .0000E+00 4 ------- -------

 PTJ .02021 1.0000 4 .00505 .00030 .02021 .0000E+00 4 ------- -------

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .20439 .45209 .05816

 EXPECTED OBSERVED SCORE .21541 .46412 .05816

 LOWER CASE DELTA .01103 .10500 .00114 GENERALIZABILITY COEFFICIENT = .94882 (18.53819)

 UPPER CASE DELTA .01392 .11799 .00186 PHI = .93623 (14.68214)

 MEAN .01187 .10895

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 35

 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 .0033821

 J .0000000 .0000023

 PJ -.0000001 -.0000001 .0000013

 GENOVA VERSION 3.1 PAGE 36

 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 : 24 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

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

 P .19301 1.0000 1 .19301 .05819 .20439 1.0000 1 .20439 .05816

 T .01600 1.0000 4 .00400 .00288 .01600QFM0000E+00 4 ------- -------

 J .00244 1.0000 3 .00081 .00050 .00290 1.0000 3 .00097 .00050

 PT .04549 1.0000 4 .01137 .00200 .04549 .0000E+00 4 ------- -------

 PJ .00597 1.0000 3 .00199 .00039 .01103 1.0000 3 .00368 .00038

 TJ .00182 1.0000 12 .00015 .00006 .00182 .0000E+00 12 ------- -------

 PTJ .02021 1.0000 12 .00168 .00010 .02021 .0000E+00 12 ------- -------

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .20439 .45209 .05816

 EXPECTED OBSERVED SCORE .20806 .45614 .05816

 LOWER CASE DELTA .00368 .06062 .00038 GENERALIZABILITY COEFFICIENT = .98234 (55.61458)

 UPPER CASE DELTA .00464 .06812 .00062 PHI = .97780 (44.04641)

 MEAN .00963 .09815

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 37

 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 .0033821

 J .0000000 .0000003

 PJ .0000000 .0000000 .0000001

 GENOVA VERSION 3.1 PAGE 38

 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 : 24 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

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

 P .19301 1.0000 1 .19301 .05819 .20439 1.0000 1 .20439 .05816

 T .01600 1.0000 4 .00400 .00288 .01600QFM0000E+00 4 ------- -------

 J .00244 1.0000 5 .00049 .00030 .00290 1.0000 5 .00058 .00030

 PT .04549 1.0000 4 .01137 .00200 .04549 .0000E+00 4 ------- -------

 PJ .00597 1.0000 5 .00119 .00024 .01103 1.0000 5 .00221 .00023

 TJ .00182 1.0000 20 .00009 .00004 .00182 .0000E+00 20 ------- -------

 PTJ .02021 1.0000 20 .00101 .00006 .02021 .0000E+00 20 ------- -------

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .20439 .45209 .05816

 EXPECTED OBSERVED SCORE .20659 .45452 .05816

 LOWER CASE DELTA .00221 .04696 .00023 GENERALIZABILITY COEFFICIENT = .98933 (92.69097)

 UPPER CASE DELTA .00278 .05276 .00037 PHI = .98656 (73.41068)

 MEAN .00919 .09585

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 39

 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 .0033821

 J .0000000 .0000001

 PJ .0000000 .0000000 .0000001

 GENOVA VERSION 3.1 PAGE 40

 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 : 24 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

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

 P .19301 1.0000 1 .19301 .05819 .20439 1.0000 1 .20439 .05816

 T .01600 1.0000 4 .00400 .00288 .01600QFM0000E+00 4 ------- -------

 J .00244 1.0000 7 .00035 .00022 .00290 1.0000 7 .00041 .00021

 PT .04549 1.0000 4 .01137 .00200 .04549 .0000E+00 4 ------- -------

 PJ .00597 1.0000 7 .00085 .00017 .01103 1.0000 7 .00158 .00016

 TJ .00182 1.0000 28 .00007 .00003 .00182 .0000E+00 28 ------- -------

 PTJ .02021 1.0000 28 .00072 .00004 .02021 .0000E+00 28 ------- -------

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 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .20439 .45209 .05816

 EXPECTED OBSERVED SCORE .20596 .45383 .05816

 LOWER CASE DELTA .00158 .03969 .00016 GENERALIZABILITY COEFFICIENT = .99235 (\*\*\*\*\*\*\*\*)

 UPPER CASE DELTA .00199 .04459 .00027 PHI = .99036 (\*\*\*\*\*\*\*\*)

 MEAN .00900 .09484

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 41

 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 .0033821

 J .0000000 .0000000

 PJ .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 42

 D STUDY P x T x J DESIGN; T FIXED

 D STUDY DESIGN NUMBER 003-005

 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 : 4 INFINITE

 D STUDY SAMPLE SIZE : 24 D STUDY SAMPLE SIZES : 4 9

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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 .19301 1.0000 1 .19301 .05819 .20439 1.0000 1 .20439 .05816

 T .01600 1.0000 4 .00400 .00288 .01600QFM0000E+00 4 ------- -------

 J .00244 1.0000 9 .00027 .00017 .00290 1.0000 9 .00032 .00017

 PT .04549 1.0000 4 .01137 .00200 .04549 .0000E+00 4 ------- -------

 PJ .00597 1.0000 9 .00066 .00013 .01103 1.0000 9 .00123 .00013

 TJ .00182 1.0000 36 .00005 .00002 .00182 .0000E+00 36 ------- -------

 PTJ .02021 1.0000 36 .00056 .00003 .02021 .0000E+00 36 ------- -------

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

 QFM = QUADRATIC FORM

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 STANDARD

 STANDARD ERROR OF

 VARIANCE DEVIATION VARIANCE

 UNIVERSE SCORE .20439 .45209 .05816

 EXPECTED OBSERVED SCORE .20561 .45344 .05816

 LOWER CASE DELTA .00123 .03500 .00013 GENERALIZABILITY COEFFICIENT = .99404 (\*\*\*\*\*\*\*\*)

 UPPER CASE DELTA .00155 .03933 .00021 PHI = .99249 (\*\*\*\*\*\*\*\*)

 MEAN .00889 .09428

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 NOTE: SIGNAL/NOISE RATIOS ARE IN PARENTHESES

 GENOVA VERSION 3.1 PAGE 43

 D STUDY P x T x J DESIGN; T FIXED

 D STUDY DESIGN NUMBER 003-005

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

 P J PJ

 P .0033821

 J .0000000 .0000000

 PJ .0000000 .0000000 .0000000

 GENOVA VERSION 3.1 PAGE 44

 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 24 4 1 .20439 .21541 .01103 .01392 .01187 .94882 .93623

 003-002 24 4 3 .20439 .20806 .00368 .00464 .00963 .98234 .97780

 003-003 24 4 5 .20439 .20659 .00221 .00278 .00919 .98933 .98656

 003-004 24 4 7 .20439 .20596 .00158 .00199 .00900 .99235 .99036

 003-005 24 4 9 .20439 .20561 .00123 .00155 .00889 .99404 .99249

 GENOVA VERSION 3.1 PAGE 45

 CONTROL CARD INPUT LISTING

 COLUMN 11111111112222222222333333333344444444445555555555666666666677777777778

 12345678901234567890123456789012345678901234567890123456789012345678901234567890

 FINISH