Genstat 64-bit Release 22.1 ( PC/Windows 11) 30 September 2022 15:27:33

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Genstat Twenty-second Edition

Genstat Procedure Library Release PL30.1

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1 SET [WORKINGDIRECTORY='C:/Users/mgr/OneDrive - University of St Andrews/Desktop/Final Multiv'; DIAGNOSTIC=messages]  
 2 "Data taken from file: '\  
 -3 C:/Users/mgr/OneDrive - University of St Andrews/Desktop/Final Multiv/Females.gsh\  
 -4 '"  
 5 DELETE [REDEFINE=yes] \_stitle\_: TEXT \_stitle\_  
 6 READ [PRINT=\*; SETNVALUES=yes] \_stitle\_  
 10 PRINT [IPRINT=\*] \_stitle\_; JUST=left

Data imported from Excel file: C:\Users\mgr\OneDrive - University of St Andrews\Desktop\Final Multiv\Females.xlsx

on: 30-Sep-2022 15:27:44

taken from sheet "Females", cells A2:O174

11 DELETE [REDEFINE=yes] Population,Line,CCRT\_F,CSM\_F,DT\_A\_F,Dia\_F,DW\_F,Fec\_F,\  
 12 HSM\_F,LS\_F,Pgm\_Total\_F,SR\_F,TL\_F,Via\_NA,WA\_L\_F  
 13 UNITS [NVALUES=\*]  
 14 DELETE [REDEFINE=yes] Population  
 15 FACTOR [MODIFY=no; NVALUES=173; LEVELS=9; LABELS=!t('AK','GI','KA','MA',\  
 16 'MU','RE','UM','VA','YE'); REFERENCE=1] Population  
 17 READ Population; FREPRESENTATION=ordinal

Identifier Values Missing Levels

Population 173 0 9

23 DELETE [REDEFINE=yes] Line  
 24 TEXT [NVALUES=173] Line  
 25 READ Line

Identifier Minimum Mean Maximum Values Missing

Line 173 0

42 DELETE [REDEFINE=yes] CCRT\_F  
 43 VARIATE [NVALUES=173] CCRT\_F  
 44 READ CCRT\_F

Identifier Minimum Mean Maximum Values Missing

CCRT\_F -2.073 0.0000 3.355 173 1

88 DELETE [REDEFINE=yes] CSM\_F  
 89 VARIATE [NVALUES=173] CSM\_F  
 90 READ CSM\_F

Identifier Minimum Mean Maximum Values Missing

CSM\_F -3.139 0.0000 2.916 173 1

134 DELETE [REDEFINE=yes] DT\_A\_F  
 135 VARIATE [NVALUES=173] DT\_A\_F  
 136 READ DT\_A\_F

Identifier Minimum Mean Maximum Values Missing

DT\_A\_F -1.575 0.0000 3.463 173 2

180 DELETE [REDEFINE=yes] Dia\_F  
 181 VARIATE [NVALUES=173] Dia\_F  
 182 READ Dia\_F

Identifier Minimum Mean Maximum Values Missing

Dia\_F -2.691 0.0000 4.122 173 5

226 DELETE [REDEFINE=yes] DW\_F  
 227 VARIATE [NVALUES=173] DW\_F  
 228 READ DW\_F

Identifier Minimum Mean Maximum Values Missing

DW\_F -2.415 0.0000 3.029 173 4

272 DELETE [REDEFINE=yes] Fec\_F  
 273 VARIATE [NVALUES=173] Fec\_F  
 274 READ Fec\_F

Identifier Minimum Mean Maximum Values Missing

Fec\_F -2.283 0.0000 2.791 173 4

318 DELETE [REDEFINE=yes] HSM\_F  
 319 VARIATE [NVALUES=173] HSM\_F  
 320 READ HSM\_F

Identifier Minimum Mean Maximum Values Missing

HSM\_F -3.180 0.0000 2.292 173 2

364 DELETE [REDEFINE=yes] LS\_F  
 365 VARIATE [NVALUES=173] LS\_F  
 366 READ LS\_F

Identifier Minimum Mean Maximum Values Missing

LS\_F -2.587 0.0000 2.740 173 2

410 DELETE [REDEFINE=yes] Pgm\_Total\_F  
 411 VARIATE [NVALUES=173] Pgm\_Total\_F  
 412 READ Pgm\_Total\_F

Identifier Minimum Mean Maximum Values Missing

Pgm\_Total\_F -2.266 0.0000 3.904 173 4

456 DELETE [REDEFINE=yes] SR\_F  
 457 VARIATE [NVALUES=173] SR\_F  
 458 READ SR\_F

Identifier Minimum Mean Maximum Values Missing

SR\_F -2.479 0.0000 2.823 173 2

502 DELETE [REDEFINE=yes] TL\_F  
 503 VARIATE [NVALUES=173] TL\_F  
 504 READ TL\_F

Identifier Minimum Mean Maximum Values Missing

TL\_F -2.641 0.0000 3.115 173 7

547 DELETE [REDEFINE=yes] Via\_NA  
 548 VARIATE [NVALUES=173] Via\_NA  
 549 READ Via\_NA

Identifier Minimum Mean Maximum Values Missing

Via\_NA -3.542 0.0000 3.013 173 1

593 DELETE [REDEFINE=yes] WA\_L\_F  
 594 VARIATE [NVALUES=173] WA\_L\_F  
 595 READ WA\_L\_F

Identifier Minimum Mean Maximum Values Missing

WA\_L\_F -3.527 3.19E-14 2.632 173 1

639 %PostMessage 1129; 0; 10000001 "Sheet update completed"  
 640 DISCRIMINATE [PRINT=counts,newgroups,correlations,ccorrelations,gdistances,table; PLOT=means,\  
 641 mlabels,scores,polygon; XROOT=1; YROOT=2; REALLOCATE=no] !p(CCRT\_F,CSM\_F,Dia\_F,DT\_A\_F,\  
 642 DW\_F,Fec\_F,HSM\_F,LS\_F,Pgm\_Total\_F,SR\_F,TL\_F,Via\_NA,WA\_L\_F); GROUPS=Population

Discriminant analysis

Count of units with a complete set of variables

Counts

Population

AK 20

GI 15

KA 20

MA 20

MU 20

RE 14

UM 16

VA 20

YE 20

Nobserved 165

Canonical Correlation Coefficients

1 0.8136

2 0.7847

3 0.6391

4 0.5982

5 0.4644

6 0.3599

7 0.2964

8 0.2216

Correlations between DATA variates and discriminant functions

Scores Scores[1] Scores[2] Scores[3] Scores[4] Scores[5]

CCRT\_F -0.0798 0.2244 -0.5310 0.6229 0.1078

CSM\_F 0.1468 -0.0844 -0.1021 -0.1360 -0.0543

Dia\_F -0.2075 0.2500 -0.0151 0.1625 -0.6350

DT\_A\_F 0.0421 0.1441 0.4668 0.3036 0.5179

DW\_F -0.1108 0.1028 0.3801 -0.2381 -0.2759

Fec\_F 0.2124 0.2133 -0.1052 -0.2102 -0.0977

HSM\_F 0.0035 0.3631 -0.2672 -0.4763 0.2287

LS\_F 0.4107 -0.1430 0.0160 -0.0137 -0.0629

Pgm\_Total\_F -0.2349 0.1871 -0.0788 -0.1923 0.1292

SR\_F 0.2143 0.2941 0.3727 -0.0609 -0.4217

TL\_F -0.2677 -0.1227 0.2861 -0.0384 0.2474

Via\_NA 0.4157 0.6479 0.0398 -0.0714 0.0223

WA\_L\_F -0.4364 0.3360 0.4260 -0.2152 0.1476

Scores Scores[6] Scores[7] Scores[8]

CCRT\_F -0.1309 0.2352 0.2949

CSM\_F 0.1963 0.7398 -0.5011

Dia\_F -0.2243 0.0526 -0.1701

DT\_A\_F -0.3438 0.3382 0.0263

DW\_F -0.0418 0.2744 0.5298

Fec\_F 0.1539 0.0898 -0.1446

HSM\_F -0.3820 0.0602 0.2424

LS\_F 0.2514 0.0042 0.2168

Pgm\_Total\_F -0.0277 -0.2184 -0.3279

SR\_F -0.3195 0.1939 0.0009

TL\_F 0.0587 0.0860 -0.0505

Via\_NA 0.4327 -0.3251 -0.0667

WA\_L\_F 0.3377 0.2686 -0.0730

Intergroup distances - Mahalanobis (D-squared)

AK 0.000

GI 13.569 0.000

KA 6.644 8.838 0.000

MA 15.479 15.141 8.101 0.000

MU 6.583 9.954 5.236 8.275 0.000

RE 20.721 12.060 13.230 7.305 7.886

UM 20.818 25.784 17.056 8.800 8.028

VA 8.062 5.646 3.411 7.834 3.394

YE 22.480 9.639 14.823 11.382 15.231

AK GI KA MA MU

RE 0.000

UM 10.953 0.000

VA 8.684 15.405 0.000

YE 13.610 18.665 13.220 0.000

RE UM VA YE

Original group and new allocation of units

units 1 2 3 4 5

Population YE YE YE YE YE

Tallocate YE YE YE YE YE

units 6 7 8 9 10

Population YE YE YE YE YE

Tallocate YE YE YE YE YE

units 11 12 13 14 15

Population YE YE YE YE YE

Tallocate YE YE VA YE YE

units 16 17 18 19 20

Population YE YE YE YE YE

Tallocate YE YE YE YE YE

units 21 22 23 24 25

Population RE RE RE RE RE

Tallocate RE MA RE RE

units 26 27 28 29 30

Population RE RE RE RE RE

Tallocate GI MU RE RE RE

units 31 32 33 34 35

Population RE RE RE RE RE

Tallocate RE RE RE RE RE

units 36 37 38 39 40

Population RE RE GI GI GI

Tallocate GI GI GI

units 41 42 43 44 45

Population GI GI GI GI GI

Tallocate GI GI GI GI KA

units 46 47 48 49 50

Population GI GI GI GI GI

Tallocate GI YE YE GI GI

units 51 52 53 54 55

Population GI GI MU MU MU

Tallocate GI GI MU MU VA

units 56 57 58 59 60

Population MU MU MU MU MU

Tallocate MU MU MU AK MU

units 61 62 63 64 65

Population MU MU MU MU MU

Tallocate MU MU MU KA MU

units 66 67 68 69 70

Population MU MU MU MU MU

Tallocate MU RE RE MA MU

units 71 72 73 74 75

Population MU MU MA MA MA

Tallocate MU UM MA MA AK

units 76 77 78 79 80

Population MA MA MA MA MA

Tallocate VA MA MA RE MA

units 81 82 83 84 85

Population MA MA MA MA MA

Tallocate MA MA RE MA UM

units 86 87 88 89 90

Population MA MA MA MA MA

Tallocate MA MA MA MA MA

units 91 92 93 94 95

Population MA MA UM UM UM

Tallocate MA MA MA UM UM

units 96 97 98 99 100

Population UM UM UM UM UM

Tallocate UM UM UM RE UM

units 101 102 103 104 105

Population UM UM UM UM UM

Tallocate UM UM UM UM

units 106 107 108 109 110

Population UM UM UM UM UM

Tallocate UM UM UM

units 111 112 113 114 115

Population UM KA KA KA KA

Tallocate UM KA GI KA KA

units 116 117 118 119 120

Population KA KA KA KA KA

Tallocate KA KA KA GI KA

units 121 122 123 124 125

Population KA KA KA KA KA

Tallocate KA KA GI MU MU

units 126 127 128 129 130

Population KA KA KA KA KA

Tallocate KA KA KA MA KA

units 131 132 133 134 135

Population KA VA VA VA VA

Tallocate KA VA VA YE KA

units 136 137 138 139 140

Population VA VA VA VA VA

Tallocate VA MU RE MU MU

units 141 142 143 144 145

Population VA VA VA VA VA

Tallocate RE MA VA AK MU

units 146 147 148 149 150

Population VA VA VA VA VA

Tallocate MA VA VA VA KA

units 151 152 153 154 155

Population VA AK AK AK AK

Tallocate KA AK AK AK AK

units 156 157 158 159 160

Population AK AK AK AK AK

Tallocate MU AK MU AK AK

units 161 162 163 164 165

Population AK AK AK AK AK

Tallocate AK KA AK AK

units 166 167 168 169 170

Population AK AK AK AK AK

Tallocate KA AK KA AK AK

units 171 172 173

Population AK AK AK

Tallocate AK AK

Table of counts for allocation of training units

Counts

Population AK GI KA MA MU

Tallocate

AK 15 . . 1 1

GI . 12 3 . .

KA 3 1 14 . 1

MA . . 1 15 1

MU 2 . 2 . 13

RE . . . 2 2

UM . . . 1 1

VA . . . 1 1

YE . 2 . . .

Total 20 15 20 20 20

Population RE UM VA YE Total

Tallocate

AK . . 1 . 18

GI 1 . . . 16

KA . . 3 . 22

MA 1 1 2 . 21

MU 1 . 4 . 22

RE 11 1 2 . 18

UM . 14 . . 16

VA . . 7 1 10

YE . . 1 19 22

Total 14 16 20 20 165

Unknown cell

Counts 8

