

Modelització de dades longitudinals amb efectes aleatoris de intercepció/pendent i presència de dades perdudes en el context dels estudis d'estabilitat – ANNEX 4

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Resultats de les matrius de variància covariància i matrius de correlació en la simulació de models mixtos

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1 RESULTATS DELS CONJUNTS Ho

```
Ho1_B <- list(Comp_I_RI_Ho1[[5]])
names(Ho1_B) <- names(Comp_I_RI_Ho1)[5]

Ho2_B <- list(Comp_I_RI_Ho2[[5]])
names(Ho1_B) <- names(Comp_I_RI_Ho2)[5]

lapply(1:length(Ho1_B), function(B){
  VarCorr(Ho1_B[[B]])
})
## [[1]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 1.291945e-10 1.136638e-05
## Residual    3.279731e-01 5.726893e-01
lapply(1:length(Ho2_B), function(B){
  VarCorr(Ho2_B[[B]])
})
## [[1]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 0.045905006 0.21425454
## Residual    0.004028186 0.06346799
lapply(1:length(Ho1_B), function(B){
  getVarCov(Ho1_B[[B]], type="conditional")
})
## [[1]]
## Lot Lot 1
## Conditional variance covariance matrix
##      1      2      3      4      5      6      7
## 1 0.32797 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
## 2 0.00000 0.32797 0.00000 0.00000 0.00000 0.00000 0.00000
## 3 0.00000 0.00000 0.32797 0.00000 0.00000 0.00000 0.00000
## 4 0.00000 0.00000 0.00000 0.32797 0.00000 0.00000 0.00000
## 5 0.00000 0.00000 0.00000 0.00000 0.32797 0.00000 0.00000
## 6 0.00000 0.00000 0.00000 0.00000 0.00000 0.32797 0.00000
## 7 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.32797
## Standard Deviations: 0.57269 0.57269 0.57269 0.57269 0.57269 0.57269 0.57269
lapply(1:length(Ho2_B), function(B){
  getVarCov(Ho2_B[[B]], type="conditional")
})
## [[1]]
## Lot Lot 1
## Conditional variance covariance matrix
##      1      2      3      4      5      6      7
## 1 0.0040282 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000
## 2 0.0000000 0.0040282 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000
## 3 0.0000000 0.0000000 0.0040282 0.0000000 0.0000000 0.0000000 0.0000000
## 4 0.0000000 0.0000000 0.0000000 0.0040282 0.0000000 0.0000000 0.0000000
## 5 0.0000000 0.0000000 0.0000000 0.0000000 0.0040282 0.0000000 0.0000000
## 6 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0040282 0.0000000
## 7 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0040282
## Standard Deviations: 0.063468 0.063468 0.063468 0.063468 0.063468 0.063468 0.063468
lapply(1:length(Ho1_B), function(B){
  a<-getVarCov(Ho1_B[[B]], type="marginal")
  b<-cov2cor(a[[1]])
  return(list(a,b))
})
```

```

})
## [[1]]
## [[1]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##           1           2           3           4           5           6
## 1 3.2797e-01 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10
## 2 1.2919e-10 3.2797e-01 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10
## 3 1.2919e-10 1.2919e-10 3.2797e-01 1.2919e-10 1.2919e-10 1.2919e-10
## 4 1.2919e-10 1.2919e-10 1.2919e-10 3.2797e-01 1.2919e-10 1.2919e-10
## 5 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10 3.2797e-01 1.2919e-10
## 6 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10 3.2797e-01
## 7 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10 1.2919e-10
##           7
## 1 1.2919e-10
## 2 1.2919e-10
## 3 1.2919e-10
## 4 1.2919e-10
## 5 1.2919e-10
## 6 1.2919e-10
## 7 3.2797e-01
## Standard Deviations: 0.57269 0.57269 0.57269 0.57269 0.57269 0.57269 0.57269
##
## [[1]][[2]]
##           1           2           3           4           5           6
## 1 1.00000e+00 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10
## 2 3.93918e-10 1.00000e+00 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10
## 3 3.93918e-10 3.93918e-10 1.00000e+00 3.93918e-10 3.93918e-10 3.93918e-10
## 4 3.93918e-10 3.93918e-10 3.93918e-10 1.00000e+00 3.93918e-10 3.93918e-10
## 5 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10 1.00000e+00 3.93918e-10
## 6 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10 1.00000e+00
## 7 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10 3.93918e-10
##           7
## 1 3.93918e-10
## 2 3.93918e-10
## 3 3.93918e-10
## 4 3.93918e-10
## 5 3.93918e-10
## 6 3.93918e-10
## 7 1.00000e+00
lapply(1:length(Ho2_B), function(B){
  a<-getVarCov(Ho2_B[[B]], type="marginal")
  b<-cov2cor(a[[1]])
  return(list(a,b))
})
## [[1]]
## [[1]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##           1           2           3           4           5           6           7
## 1 0.049933 0.045905 0.045905 0.045905 0.045905 0.045905 0.045905
## 2 0.045905 0.049933 0.045905 0.045905 0.045905 0.045905 0.045905
## 3 0.045905 0.045905 0.049933 0.045905 0.045905 0.045905 0.045905
## 4 0.045905 0.045905 0.045905 0.049933 0.045905 0.045905 0.045905
## 5 0.045905 0.045905 0.045905 0.045905 0.049933 0.045905 0.045905
## 6 0.045905 0.045905 0.045905 0.045905 0.045905 0.049933 0.045905
## 7 0.045905 0.045905 0.045905 0.045905 0.045905 0.045905 0.049933
## Standard Deviations: 0.22346 0.22346 0.22346 0.22346 0.22346 0.22346 0.22346
##

```

```
## [[1]][[2]]
##          1          2          3          4          5          6          7
## 1 1.0000000 0.9193285 0.9193285 0.9193285 0.9193285 0.9193285 0.9193285
## 2 0.9193285 1.0000000 0.9193285 0.9193285 0.9193285 0.9193285 0.9193285
## 3 0.9193285 0.9193285 1.0000000 0.9193285 0.9193285 0.9193285 0.9193285
## 4 0.9193285 0.9193285 0.9193285 1.0000000 0.9193285 0.9193285 0.9193285
## 5 0.9193285 0.9193285 0.9193285 0.9193285 1.0000000 0.9193285 0.9193285
## 6 0.9193285 0.9193285 0.9193285 0.9193285 0.9193285 1.0000000 0.9193285
## 7 0.9193285 0.9193285 0.9193285 0.9193285 0.9193285 0.9193285 1.0000000
```

2 RESULTATS DELS CONJUNTS He

```
He_B <- list(Comp_IS_RI_W_He1[[10]],Comp_IS_RI_W_He2[[10]],Comp_IS_RI_W_He3[[10]])
names(He_B) <- c(names(Comp_IS_RI_W_He1)[10],names(Comp_IS_RI_W_He2)[10],names(Comp_IS_RI_W_He3)[10])

lapply(1:length(He_B),function(B){
  VarCorr(He_B[[B]])
})
## [[1]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 1.522746e-07 0.0003902238
## Residual    2.286472e-02 0.1512108315
##
## [[2]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 8.002497e-49 8.945668e-25
## Residual    1.592017e-43 3.990008e-22
##
## [[3]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 4.884495e-09 6.988916e-05
## Residual    1.063421e-04 1.031223e-02
lapply(1:length(He_B),function(B){
  getVarCov(He_B[[B]],type="conditional")
})
## [[1]]
## Lot Lot 1
## Conditional variance covariance matrix
##      1      2      3      4      5      6      7
## 1 5.7349 0.0000 0.000 0.000 0.000 0.000 0.00
## 2 0.0000 9.4577 0.000 0.000 0.000 0.000 0.00
## 3 0.0000 0.0000 14.904 0.000 0.000 0.000 0.00
## 4 0.0000 0.0000 0.000 22.614 0.000 0.000 0.00
## 5 0.0000 0.0000 0.000 0.000 33.228 0.000 0.00
## 6 0.0000 0.0000 0.000 0.000 0.000 66.311 0.00
## 7 0.0000 0.0000 0.000 0.000 0.000 0.000 121.68
## Standard Deviations: 2.3948 3.0753 3.8606 4.7554 5.7644 8.1431 11.031
##
## [[2]]
## Lot Lot 1
## Conditional variance covariance matrix
##      1      2      3      4      5      6      7
## 1 5.9403 0.000 0.00 0.000 0.00 0.00 0.00
## 2 0.0000 12.833 0.00 0.000 0.00 0.00 0.00
## 3 0.0000 0.000 27.52 0.000 0.00 0.00 0.00
## 4 0.0000 0.000 0.00 58.593 0.00 0.00 0.00
## 5 0.0000 0.000 0.00 0.000 123.87 0.00 0.00
## 6 0.0000 0.000 0.00 0.000 0.00 542.33 0.00
## 7 0.0000 0.000 0.00 0.000 0.00 0.00 2311.7
## Standard Deviations: 2.4373 3.5823 5.2459 7.6546 11.13 23.288 48.08
##
## [[3]]
## Lot Lot 1
## Conditional variance covariance matrix
##      1      2      3      4      5      6      7
```

```

## 1 2.9705 0.000 0.00 0.0 0.0 0 0
## 2 0.0000 33.714 0.00 0.0 0.0 0 0
## 3 0.0000 0.000 245.19 0.0 0.0 0 0
## 4 0.0000 0.000 0.00 1311.9 0.0 0 0
## 5 0.0000 0.000 0.00 0.0 5607.2 0 0
## 6 0.0000 0.000 0.00 0.0 0.0 63498 0
## 7 0.0000 0.000 0.00 0.0 0.0 0 461120
## Standard Deviations: 1.7235 5.8064 15.659 36.22 74.881 251.99 679.06
lapply(1:length(He_B), function(B){
  a<-getVarCov(He_B[[B]],type="marginal")
  b<-cov2cor(a[[1]])
  return(list(a,b))
})
## [[1]]
## [[1]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##      1      2      3      4      5      6
## 1 5.7349e+00 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07
## 2 1.5227e-07 9.4577e+00 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07
## 3 1.5227e-07 1.5227e-07 1.4904e+01 1.5227e-07 1.5227e-07 1.5227e-07
## 4 1.5227e-07 1.5227e-07 1.5227e-07 2.2614e+01 1.5227e-07 1.5227e-07
## 5 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07 3.3228e+01 1.5227e-07
## 6 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07 6.6311e+01
## 7 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07 1.5227e-07
##      7
## 1 1.5227e-07
## 2 1.5227e-07
## 3 1.5227e-07
## 4 1.5227e-07
## 5 1.5227e-07
## 6 1.5227e-07
## 7 1.2168e+02
## Standard Deviations: 2.3948 3.0753 3.8606 4.7554 5.7644 8.1431 11.031
##
## [[1]][[2]]
##      1      2      3      4      5
## 1 1.000000e+00 2.067628e-08 1.647076e-08 1.337155e-08 1.103090e-08
## 2 2.067628e-08 1.000000e+00 1.282573e-08 1.041238e-08 8.589726e-09
## 3 1.647076e-08 1.282573e-08 1.000000e+00 8.294522e-09 6.842590e-09
## 4 1.337155e-08 1.041238e-08 8.294522e-09 1.000000e+00 5.555059e-09
## 5 1.103090e-08 8.589726e-09 6.842590e-09 5.555059e-09 1.000000e+00
## 6 7.808606e-09 6.080536e-09 4.843765e-09 3.932341e-09 3.243997e-09
## 7 5.764336e-09 4.488669e-09 3.575681e-09 2.902866e-09 2.394728e-09
##      6      7
## 1 7.808606e-09 5.764336e-09
## 2 6.080536e-09 4.488669e-09
## 3 4.843765e-09 3.575681e-09
## 4 3.932341e-09 2.902866e-09
## 5 3.243997e-09 2.394728e-09
## 6 1.000000e+00 1.695191e-09
## 7 1.695191e-09 1.000000e+00
##
##
## [[2]]
## [[2]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##      1      2      3      4      5      6

```



```

## 1 5.9403e+00 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49
## 2 8.0025e-49 1.2833e+01 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49
## 3 8.0025e-49 8.0025e-49 2.7520e+01 8.0025e-49 8.0025e-49 8.0025e-49
## 4 8.0025e-49 8.0025e-49 8.0025e-49 5.8593e+01 8.0025e-49 8.0025e-49
## 5 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49 1.2387e+02 8.0025e-49
## 6 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49 5.4233e+02
## 7 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49 8.0025e-49
##      7
## 1 8.0025e-49
## 2 8.0025e-49
## 3 8.0025e-49
## 4 8.0025e-49
## 5 8.0025e-49
## 6 8.0025e-49
## 7 2.3117e+03
##   Standard Deviations: 2.4373 3.5823 5.2459 7.6546 11.13 23.288 48.08
##
## [[2]][[2]]
##      1      2      3      4      5
## 1 1.000000e+00 9.165659e-50 6.258933e-50 4.289438e-50 2.950086e-50
## 2 9.165659e-50 1.000000e+00 4.258369e-50 2.918390e-50 2.007140e-50
## 3 6.258933e-50 4.258369e-50 1.000000e+00 1.992874e-50 1.370611e-50
## 4 4.289438e-50 2.918390e-50 1.992874e-50 1.000000e+00 9.393217e-51
## 5 2.950086e-50 2.007140e-50 1.370611e-50 9.393217e-51 1.000000e+00
## 6 1.409916e-50 9.592599e-51 6.550476e-51 4.489241e-51 3.087502e-51
## 7 6.829012e-51 4.646231e-51 3.172761e-51 2.174390e-51 1.495450e-51
##      6      7
## 1 1.409916e-50 6.829012e-51
## 2 9.592599e-51 4.646231e-51
## 3 6.550476e-51 3.172761e-51
## 4 4.489241e-51 2.174390e-51
## 5 3.087502e-51 1.495450e-51
## 6 1.000000e+00 7.147109e-52
## 7 7.147109e-52 1.000000e+00
##
##
## [[3]]
## [[3]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##      1      2      3      4      5      6
## 1 2.9705e+00 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09
## 2 4.8845e-09 3.3714e+01 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09
## 3 4.8845e-09 4.8845e-09 2.4519e+02 4.8845e-09 4.8845e-09 4.8845e-09
## 4 4.8845e-09 4.8845e-09 4.8845e-09 1.3119e+03 4.8845e-09 4.8845e-09
## 5 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09 5.6072e+03 4.8845e-09
## 6 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09 6.3498e+04
## 7 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09 4.8845e-09
##      7
## 1 4.8845e-09
## 2 4.8845e-09
## 3 4.8845e-09
## 4 4.8845e-09
## 5 4.8845e-09
## 6 4.8845e-09
## 7 4.6112e+05
##   Standard Deviations: 1.7235 5.8064 15.659 36.22 74.881 251.99 679.06
##
## [[3]][[2]]

```

```
##          1          2          3          4          5
## 1 1.000000e+00 4.880886e-10 1.809884e-10 7.824538e-11 3.784728e-11
## 2 4.880886e-10 1.000000e+00 5.372265e-11 2.322551e-11 1.123418e-11
## 3 1.809884e-10 5.372265e-11 1.000000e+00 8.612266e-12 4.165752e-12
## 4 7.824538e-11 2.322551e-11 8.612266e-12 1.000000e+00 1.800949e-12
## 5 3.784728e-11 1.123418e-11 4.165752e-12 1.800949e-12 1.000000e+00
## 6 1.124670e-11 3.338348e-12 1.237895e-12 5.351699e-13 2.588616e-13
## 7 4.173490e-12 1.238814e-12 4.593652e-13 1.985939e-13 9.605987e-14
##          6          7
## 1 1.124670e-11 4.173490e-12
## 2 3.338348e-12 1.238814e-12
## 3 1.237895e-12 4.593652e-13
## 4 5.351699e-13 1.985939e-13
## 5 2.588616e-13 9.605987e-14
## 6 1.000000e+00 2.854515e-14
## 7 2.854515e-14 1.000000e+00
```

3 RESULTATS DELS CONJUNTS So

```
So_B <- list(Comp_IS_RI_So1[[6]],Comp_IS_RI_So2[[6]],Comp_IS_RIS_So3[[6]])
names(So_B) <- c(names(Comp_IS_RI_So1)[6],names(Comp_IS_RI_So2)[6],names(Comp_IS_RIS_So3)[6])

lapply(1:length(So_B),function(B){
  VarCorr(So_B[[B]])
})
## [[1]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 1.894749e-10 1.376499e-05
## Residual    3.414406e-01 5.843292e-01
##
## [[2]]
## Lot = pdLogChol(1)
##          Variance      StdDev
## (Intercept) 48.5056974 6.9646032
## Residual    0.3700509 0.6083181
##
## [[3]]
## Lot = pdLogChol(1 + Temps)
##          Variance      StdDev      Corr
## (Intercept) 49.0543031 7.0038777 (Intr)
## Temps       0.2709538 0.5205323 -0.191
## Residual    0.2691641 0.5188103
lapply(1:length(So_B),function(B){
  getVarCov(So_B[[B]],type="conditional")
})
## [[1]]
## Lot Lot 1
## Conditional variance covariance matrix
##          1          2          3          4          5          6          7
## 1 0.34144 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
## 2 0.00000 0.34144 0.00000 0.00000 0.00000 0.00000 0.00000
## 3 0.00000 0.00000 0.34144 0.00000 0.00000 0.00000 0.00000
## 4 0.00000 0.00000 0.00000 0.34144 0.00000 0.00000 0.00000
## 5 0.00000 0.00000 0.00000 0.00000 0.34144 0.00000 0.00000
## 6 0.00000 0.00000 0.00000 0.00000 0.00000 0.34144 0.00000
## 7 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.34144
## Standard Deviations: 0.58433 0.58433 0.58433 0.58433 0.58433 0.58433 0.58433
##
## [[2]]
## Lot Lot 1
## Conditional variance covariance matrix
##          1          2          3          4          5          6          7
## 1 0.37005 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
## 2 0.00000 0.37005 0.00000 0.00000 0.00000 0.00000 0.00000
## 3 0.00000 0.00000 0.37005 0.00000 0.00000 0.00000 0.00000
## 4 0.00000 0.00000 0.00000 0.37005 0.00000 0.00000 0.00000
## 5 0.00000 0.00000 0.00000 0.00000 0.37005 0.00000 0.00000
## 6 0.00000 0.00000 0.00000 0.00000 0.00000 0.37005 0.00000
## 7 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.37005
## Standard Deviations: 0.60832 0.60832 0.60832 0.60832 0.60832 0.60832 0.60832
##
## [[3]]
## Lot Lot 1
## Conditional variance covariance matrix
##          1          2          3          4          5          6          7
```

```

## 1 0.26916 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
## 2 0.00000 0.26916 0.00000 0.00000 0.00000 0.00000 0.00000
## 3 0.00000 0.00000 0.26916 0.00000 0.00000 0.00000 0.00000
## 4 0.00000 0.00000 0.00000 0.26916 0.00000 0.00000 0.00000
## 5 0.00000 0.00000 0.00000 0.00000 0.26916 0.00000 0.00000
## 6 0.00000 0.00000 0.00000 0.00000 0.00000 0.26916 0.00000
## 7 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.26916
## Standard Deviations: 0.51881 0.51881 0.51881 0.51881 0.51881 0.51881 0.51881
lapply(1:length(So_B), function(B){
  a<-getVarCov(So_B[[B]],type="marginal")
  b<-cov2cor(a[[1]])
  return(list(a,b))
})
## [[1]]
## [[1]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##           1           2           3           4           5           6
## 1 3.4144e-01 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10
## 2 1.8947e-10 3.4144e-01 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10
## 3 1.8947e-10 1.8947e-10 3.4144e-01 1.8947e-10 1.8947e-10 1.8947e-10
## 4 1.8947e-10 1.8947e-10 1.8947e-10 3.4144e-01 1.8947e-10 1.8947e-10
## 5 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10 3.4144e-01 1.8947e-10
## 6 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10 3.4144e-01
## 7 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10 1.8947e-10
##           7
## 1 1.8947e-10
## 2 1.8947e-10
## 3 1.8947e-10
## 4 1.8947e-10
## 5 1.8947e-10
## 6 1.8947e-10
## 7 3.4144e-01
## Standard Deviations: 0.58433 0.58433 0.58433 0.58433 0.58433 0.58433 0.58433
##
## [[1]][[2]]
##           1           2           3           4           5
## 1 1.000000e+00 5.549279e-10 5.549279e-10 5.549279e-10 5.549279e-10
## 2 5.549279e-10 1.000000e+00 5.549279e-10 5.549279e-10 5.549279e-10
## 3 5.549279e-10 5.549279e-10 1.000000e+00 5.549279e-10 5.549279e-10
## 4 5.549279e-10 5.549279e-10 5.549279e-10 1.000000e+00 5.549279e-10
## 5 5.549279e-10 5.549279e-10 5.549279e-10 5.549279e-10 1.000000e+00
## 6 5.549279e-10 5.549279e-10 5.549279e-10 5.549279e-10 5.549279e-10
## 7 5.549279e-10 5.549279e-10 5.549279e-10 5.549279e-10 5.549279e-10
##           6           7
## 1 5.549279e-10 5.549279e-10
## 2 5.549279e-10 5.549279e-10
## 3 5.549279e-10 5.549279e-10
## 4 5.549279e-10 5.549279e-10
## 5 5.549279e-10 5.549279e-10
## 6 1.000000e+00 5.549279e-10
## 7 5.549279e-10 1.000000e+00
##
##
## [[2]]
## [[2]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##           1           2           3           4           5           6           7

```

```

## 1 48.876 48.506 48.506 48.506 48.506 48.506 48.506
## 2 48.506 48.876 48.506 48.506 48.506 48.506 48.506
## 3 48.506 48.506 48.876 48.506 48.506 48.506 48.506
## 4 48.506 48.506 48.506 48.876 48.506 48.506 48.506
## 5 48.506 48.506 48.506 48.506 48.876 48.506 48.506
## 6 48.506 48.506 48.506 48.506 48.506 48.876 48.506
## 7 48.506 48.506 48.506 48.506 48.506 48.506 48.876
## Standard Deviations: 6.9911 6.9911 6.9911 6.9911 6.9911 6.9911 6.9911
##
## [[2]][[2]]
##      1      2      3      4      5      6      7
## 1 1.0000000 0.9924287 0.9924287 0.9924287 0.9924287 0.9924287 0.9924287
## 2 0.9924287 1.0000000 0.9924287 0.9924287 0.9924287 0.9924287 0.9924287
## 3 0.9924287 0.9924287 1.0000000 0.9924287 0.9924287 0.9924287 0.9924287
## 4 0.9924287 0.9924287 0.9924287 1.0000000 0.9924287 0.9924287 0.9924287
## 5 0.9924287 0.9924287 0.9924287 0.9924287 1.0000000 0.9924287 0.9924287
## 6 0.9924287 0.9924287 0.9924287 0.9924287 0.9924287 1.0000000 0.9924287
## 7 0.9924287 0.9924287 0.9924287 0.9924287 0.9924287 0.9924287 1.0000000
##
##
## [[3]]
## [[3]][[1]]
## Lot Lot 1
## Marginal variance covariance matrix
##      1      2      3      4      5      6      7
## 1 49.323 46.962 44.870 42.777 40.685 36.500 32.316
## 2 46.962 47.577 47.654 48.001 48.347 49.039 49.732
## 3 44.870 47.654 50.708 53.224 56.009 61.579 67.148
## 4 42.777 48.001 53.224 58.717 63.671 74.118 84.565
## 5 40.685 48.347 56.009 63.671 71.602 86.657 101.980
## 6 36.500 49.039 61.579 74.118 86.657 112.000 136.810
## 7 32.316 49.732 67.148 84.565 101.980 136.810 171.920
## Standard Deviations: 7.0231 6.8976 7.121 7.6627 8.4618 10.583 13.112
##
## [[3]][[2]]
##      1      2      3      4      5      6      7
## 1 1.0000000 0.9694362 0.8971922 0.7948876 0.6846115 0.4910798 0.3509365
## 2 0.9694362 1.0000000 0.9702041 0.9081688 0.8283350 0.6717812 0.5498928
## 3 0.8971922 0.9702041 1.0000000 0.9754107 0.9295106 0.8170943 0.7191797
## 4 0.7948876 0.9081688 0.9754107 1.0000000 0.9819686 0.9139533 0.8416867
## 5 0.6846115 0.8283350 0.9295106 0.9819686 1.0000000 0.9676601 0.9191761
## 6 0.4910798 0.6717812 0.8170943 0.9139533 0.9676601 1.0000000 0.9859485
## 7 0.3509365 0.5498928 0.7191797 0.8416867 0.9191761 0.9859485 1.0000000

```