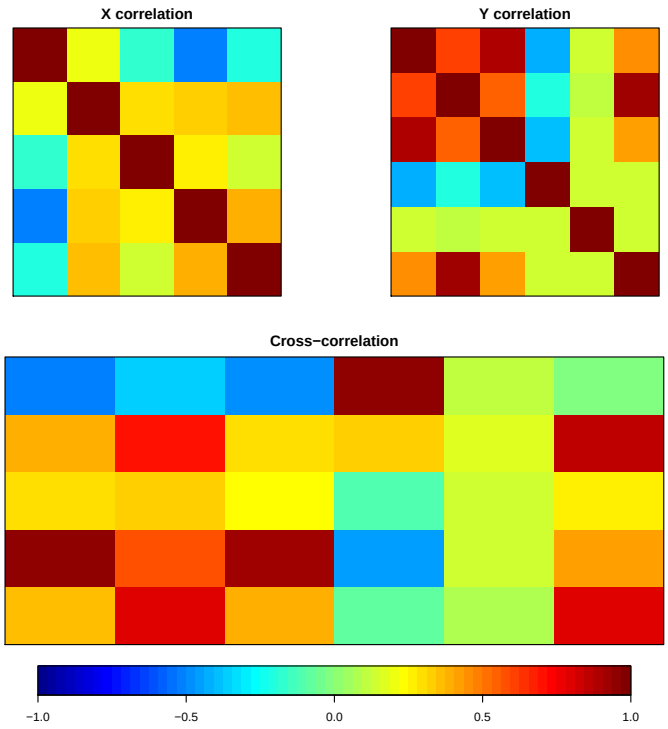


1. Question 1

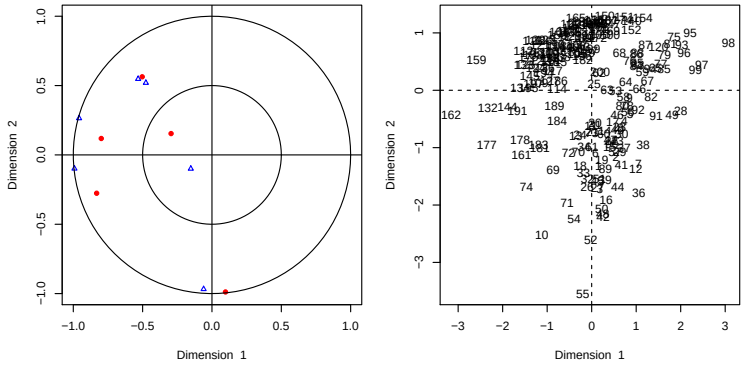
1.1. **a.**

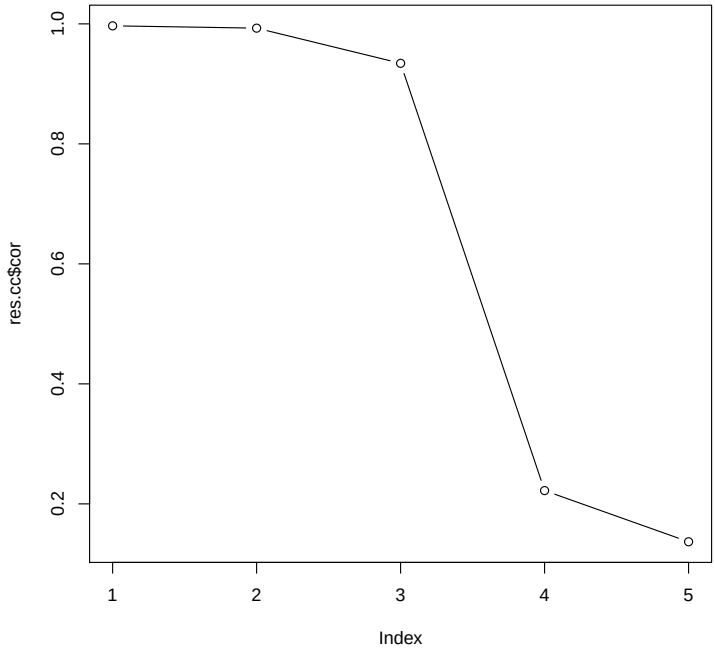
1.2. **b.** The most important variables in the first pair of vectors are 6 from X_1, and 12 from X_2. The correlation between these variables is 0.78, which is close to the values in the vectors for these variables.

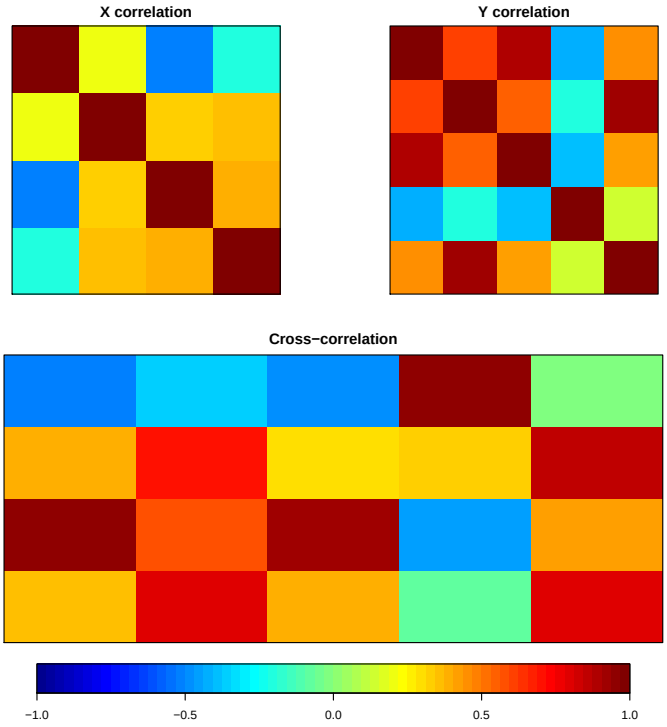
The most important variables in the second pair of vectors are 1 from X_1, and 10 from X_2. The correlation between these variables is 0.96, which is close to minus one times the values in the vectors for these variables.

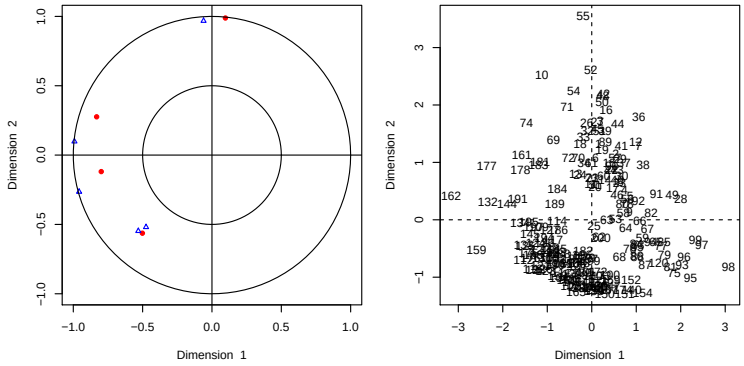
1.3. **c.** You could drop the third variable from X_1, and the 11th variable from X_2. The 11th variable in X_2 is not strongly correlated with any of the other variables in X_2. The third variable in X_1 is not strongly cross-correlated with any of the variables in X_2

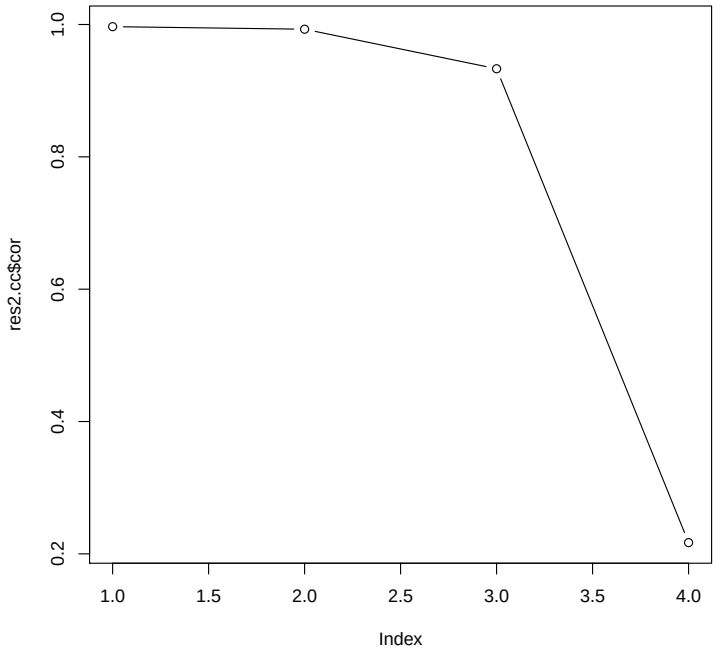
Dropping these variables from X_1 and X_2 and performing the analysis again, we see that the overall result is not much changed:


Dimension 2
Dimension 1
Dimension 2
Dimension 1


res.cc$cor
Index


X correlation
Y correlation
Cross−correlation
−1.0
−0.5
0.0
0.5
1.0


Dimension 2
Dimension 1
−1.0
−0.5
0.0
0.5
1.0
−3
−2
−1
0
1
2
3


res2.cc$cor
0.2
0.4
0.6
0.8
1.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Index