Searching for optimal two-phase experimental designs using simulated annealing algorithm for randomised block designs as the Phase 1 experiment

1. Introduction

Discussed pervious section.

2. Design parameter and model

3. Information matrix

4. Objective function

Describe the previous objective function

2 stages of maximising the DF for residual MS and then maximising the average efficiency factor of treatment effects.

We did it this way, because there are four components has to be considered, hence weight of each component need to be tested for different designs. That is why I use the 2 stages maximising method to focus on maximising one component at a time so I don’t have to consider the weights.

better control in optimisation

If the average efficiency factor is not as high as expected by comparing the average efficiency factor from when the Phase 1 experiment is arranged in CRD. The DF of residual is reduced by one and then we try to optimise the design by maximising the treatment average efficiency factor. Until the treatment average efficiency factor cannot be maximized further.

5. Simulated annealing algorithm

The search algorithm is the same as before. It has to run twice

6. Illustrate two examples with 6 treatments and compare it with the CRD

7. Overall summary of the optimal designs

8. Summary and Conclusion