Workshop 9.4a: Split-plot designs

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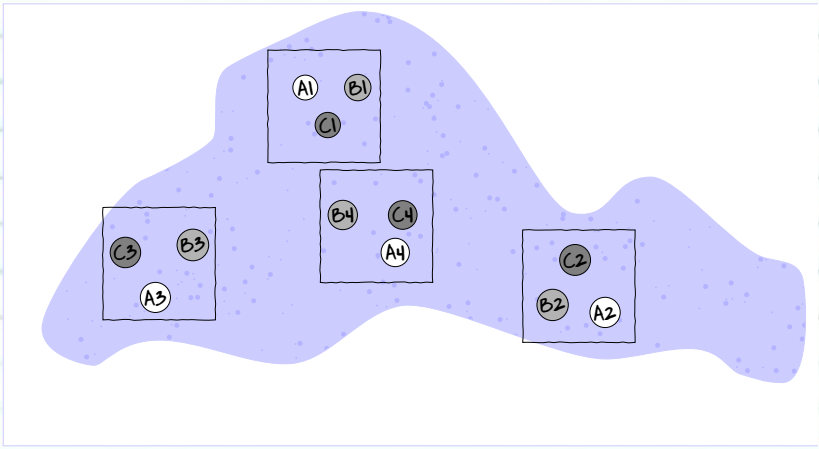
Section 1

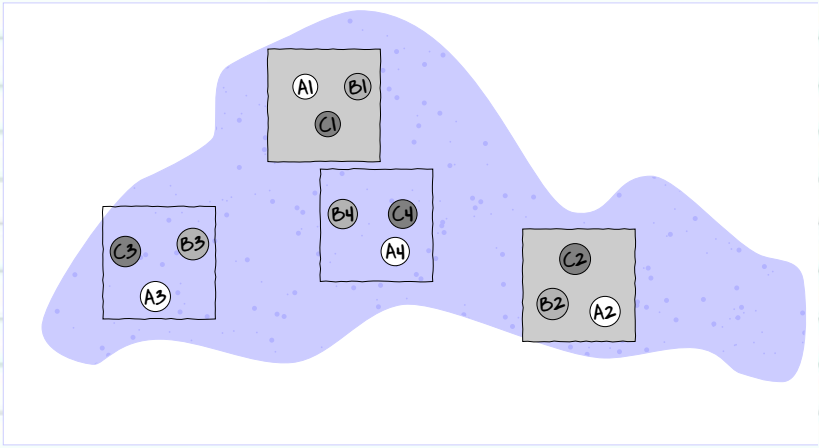
Split-plot designs

Split-plot design

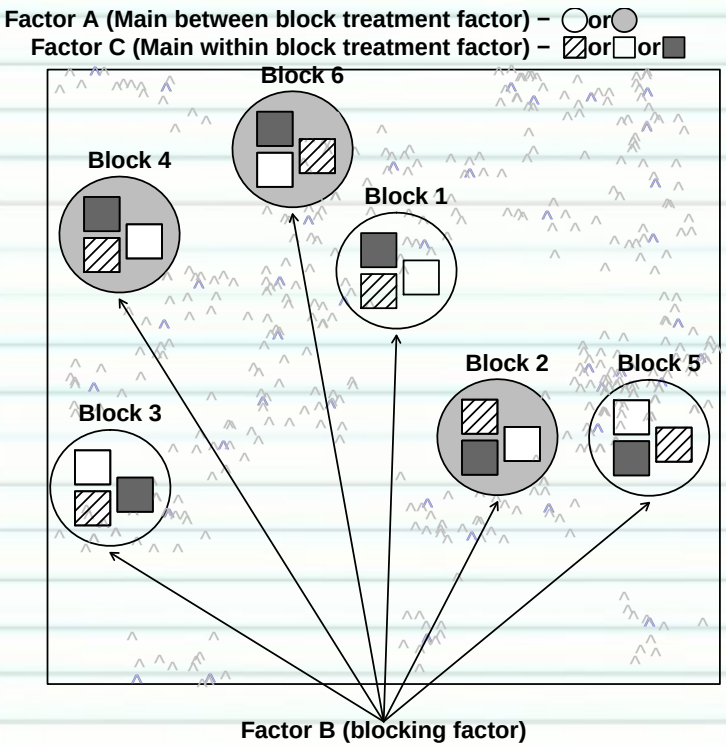
RCB

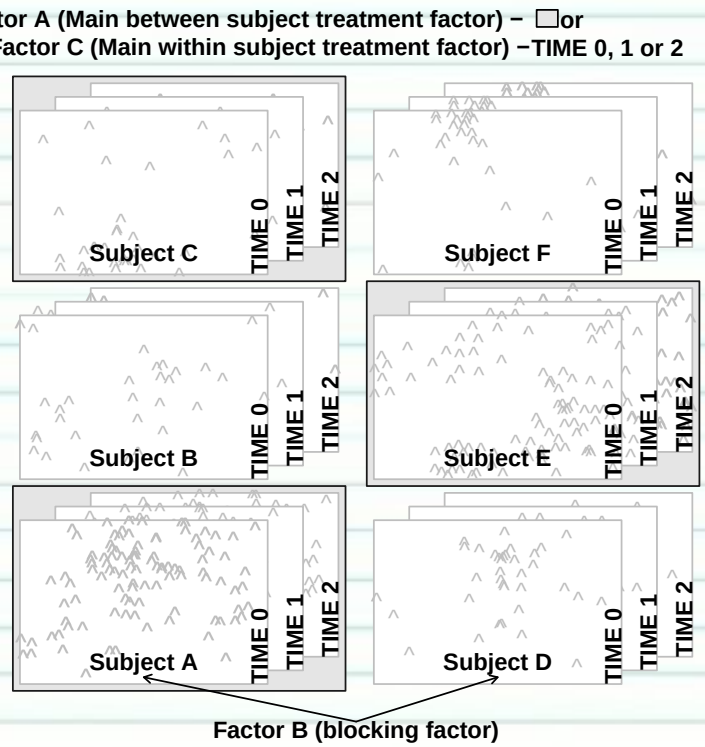


Split-plot



Split-plot design





Split-plot design

Combination of nested and randomized block designs

$$y_{ijkl} = \overbrace{\mu + \alpha_i + \beta_{j(i)}}^{\text{Nested component}} + \underbrace{\gamma_k + \alpha\gamma_{ik} + \beta\gamma_{j(i)k}}_{\text{Randomized block component}} + \varepsilon_{ijkl}$$

$$\text{Abund}_{ijkl} = \text{Base} + \text{Shade}_i + \text{Block}_{j(i)} + \text{Treat}_k + \text{Shade} : \text{Treat}_{ik} + \text{Block} : \text{Treat}_{j(i)k} + \varepsilon_{ijkl}$$

Assumptions

- Normality and Homogeneity of variance
  - appropriate level of replication
- Independence
  - spatial/temporal autocorrelation
  - sphericity
- Design balance (SS)
- Block by within-block interactions

Section 2

Worked examples

Worked examples