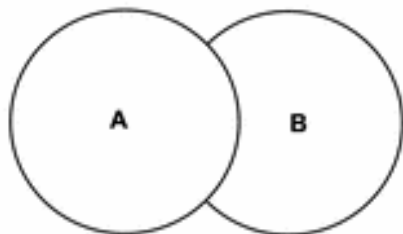


(a) Collinear factors in ANOVA

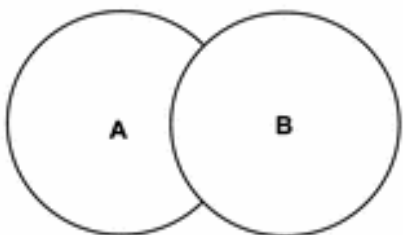
Circles A and B represent the (approximately equal) sums of squares explained by the main effects of factors A and B (no interaction model).

Imbalance in the data introduces a positive correlation between A and B and results in shared, overlapping variation where the circles intersect.



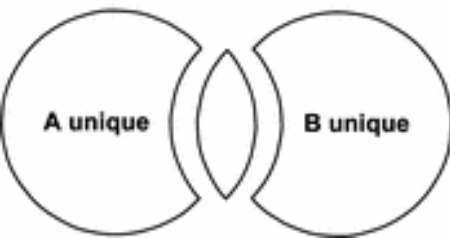
(b) Sequential model: $A + B$

When placed first in the sequence, factor A is attributed all of the overlapping variation.



(c) Sequential model: $B + A$

If the order is reversed, B (ignoring A) is attributed all of the shared variation and A (eliminating B) is reduced.



(d) Full decomposition

Comparison of the two sequential models in (b) and (c) allows a full decomposition into the 'unique' effects of A and B plus the shared variation.