Algorithm

Draw the Hasse diagram for the factors in $\mathcal{F}$.
Calculate the degrees of freedom recursively from the numbers of levels.
In exactly the same way, calculate sums of squares recursively from the crude sums of squares.

Do the same thing for the factors in $\mathcal{G}$.

Draw a combined Hasse diagram for $\mathcal{F}$ and $\mathcal{G}$.
Use this to find $h(G)$ for each in $\mathcal{G}$.
For each F in $\mathcal{F}$, split up the sum of squares for the stratum W_F into
- the sum of squares for G in $\mathcal{G}$ for which $h(G) = F$
- the residual.

This algorithm works for all of the examples that we have seen, and many many more.

Example (Ryegrass)

$\mathcal{F} = \{U, \text{Field}, \text{Strip}, \text{Plot}\}$

$\mathcal{G} = \{U, \text{Cultivar}, \text{Fertilizer}, \text{Treatment}\}$

Calculate $F \vee G$ for F in $\mathcal{F}$ and G in $\mathcal{G}$

$F \in \mathcal{F}$ \ $G \in \mathcal{G}$	U	C	Fert	T
U	U	U	U	U
Field	U	U	U	U
Strip	U	C	U	C
E = Plot	U	C	Fert	T

If $\mathcal{G}$ was just $\{T, U\}$ this process tells us to put cult into $\mathcal{G}^*$

$U \vee \text{anything} = \text{anything} \vee U = U$

$\text{Plot} \vee G = E \vee G = G$

Every treatment occurs in every field, so $\text{Field} \vee T = U$.

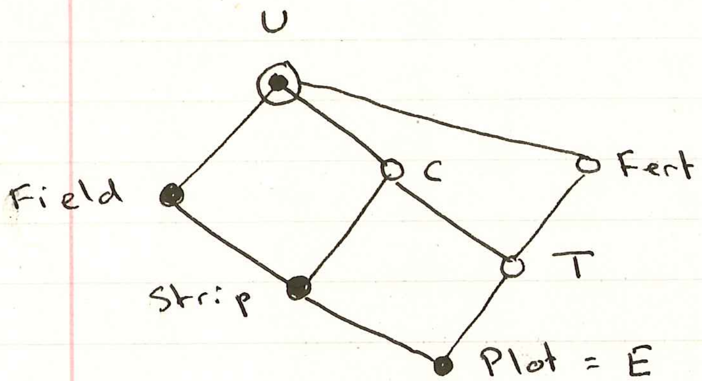
Similarly, $\text{Field} \vee C = \text{Field} \vee \text{Fert} = U$

and $\text{Strip} \vee \text{Fert} = U$.

Each cultivar is applied to a whole strip,

so $\text{Strip} \preccurlyeq C$ so $\text{Strip} \vee C = C$.

Previously we saw that $\text{Strip} \vee T = C$.



so $h(C) = \text{Strip}$

$h(\text{Fert}) = h(T) = E$

Skeleton ANOVA

Stratum	Source	df	
Mean	mean		1
Fields			1
Strips in Fields	Cultivar	2	
	residual	2	
	total		4
Plots in Strips in Fields	Fertilizer	3	
	C-by-F interaction	6	
	residual	9	
	total		18
TOTAL			24

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