

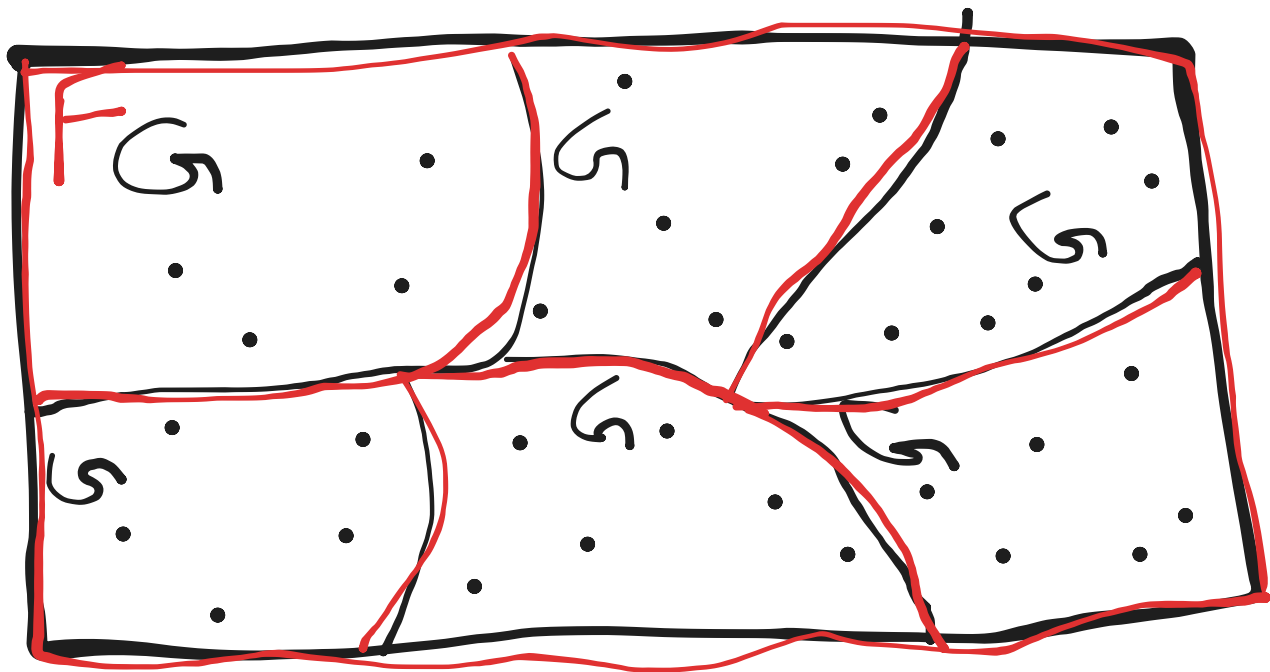
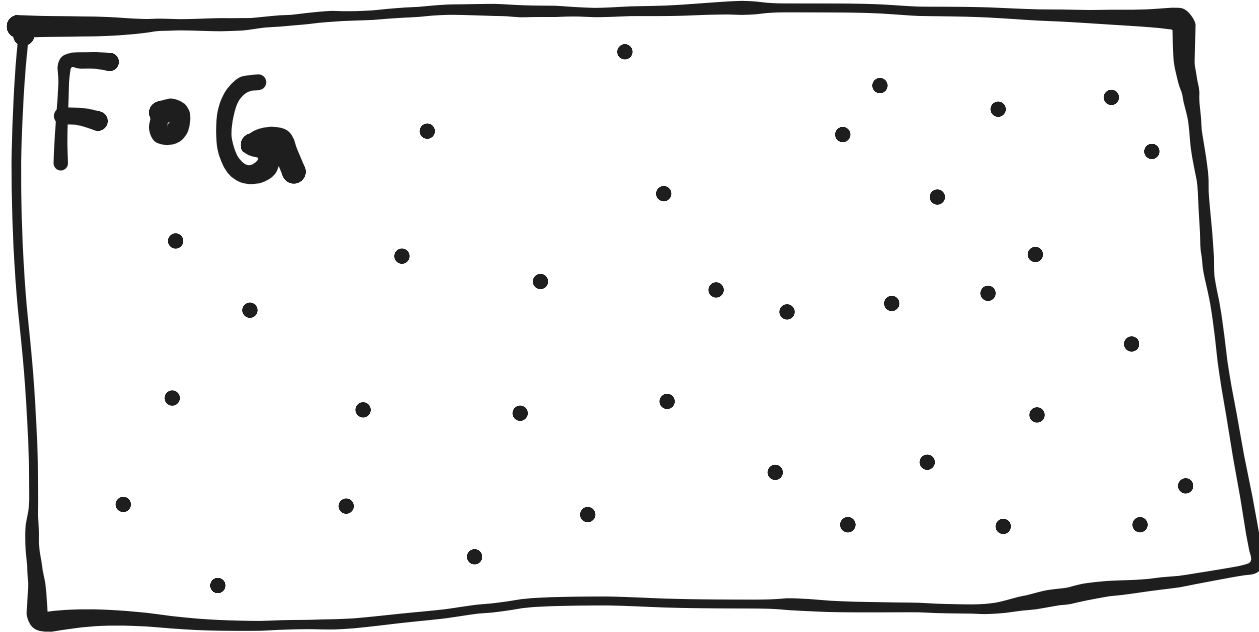
Substitution of species

Definition

Let,

$$\begin{aligned} F, G : \text{Combinatorial structure} \ni G[\emptyset] &= \emptyset \\ \Rightarrow F \circ G &= \sum_{\pi \in \text{Par}[U]} F[\pi] \times \prod_{p \in \pi} G[p] \\ &= \{(\pi, \phi, \gamma) : \text{Par}[U] \times F[\pi] \times (\gamma_p)_{p \in \pi}\} \end{aligned}$$

F ◦ G



This is also called an F -assembly of G -structures.

Example

$$\mathcal{E}nd[U] \subseteq \{F : U \longrightarrow U\}$$

$$\mathcal{E}nd[U] \cong \mathcal{S} \circ \mathcal{A}$$

