Definition (Sum of resources)
If the poset $\mathbf{P}$ is monoidal with monoidal product $\otimes$, then the "*sum*" of n copies of $\mathbf{P}$ is a design problem given by

$$\Sigma^n : (\mathbf{P}^n)^{\mathrm{op}} \times \mathbf{P} \longrightarrow_{\mathbf{Pos}} \mathbf{Bool},$$

$$\langle\langle p_1, \dots, p_n\rangle^*, q\rangle \longmapsto (p_1 \otimes \cdots \otimes p_n \preceq_{\mathbf{P}} q).$$

Clearly Σ^n is monotone. Diagrammatically: