Definition (Sum of functionalities for monoidal posets)

If the poset **P** is monoidal with monoidal product \otimes , then the "sum" of m copies of **P** is a design problem given by

$$\Sigma_m : \mathbf{P} \times (\mathbf{P}^m)^{\mathrm{op}} \longrightarrow_{\mathbf{Pos}} \mathbf{Bool}$$

$$\langle x^*, \langle y_1, \dots, y_m \rangle \rangle \longmapsto (x \leq_{\mathbf{P}} y_1 \otimes \dots \otimes y_m).$$

Diagrammatically:

