

Definition (Sum of functionalities for monoidal posets). If the poset \mathbf{A} is monoidal with monoidal product \otimes , then the “*sum*” of m copies of \mathbf{A} is a design problem given by

$$\Sigma_m : \mathbf{A} \times (\mathbf{A}^m)^{\text{op}} \xrightarrow{\text{Pos}} \mathbf{Bool}$$

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

Diagrammatically:

