

**Definition** (Product operator  $\otimes$ ). For two maps  $h_1 : F_1 \rightarrow \mathcal{A}R_1$  and  $h_2 : F_2 \rightarrow \mathcal{A}R_2$ , define

$$h_1 \otimes h_2 : (F_1 \times F_2) \rightarrow \mathcal{A}(R_1 \times R_2),$$

$$\langle f_1, f_2 \rangle \mapsto h_1(f_1) \times h_2(f_2),$$

where  $\times$  is the product of two antichains.