

**Definition.** [Partial order  $\leq_V$  on valuations] For two valuations  $\boldsymbol{v}_1, \boldsymbol{v}_2 : \mathcal{A} \rightarrow \mathbf{UDP}$ , say that  $\boldsymbol{v}_1 \leq_V \boldsymbol{v}_2$  if  $\boldsymbol{v}_1(a) \leq_{\mathbf{UDP}} \boldsymbol{v}_2(a)$  for all  $a \in \mathcal{A}$ .