

**Definition** (Partial order  $\leq_V$  on valuations). For two valuations  $v_1, v_2 : \mathcal{A} \rightarrow \mathbf{UDP}$ , say that  $v_1 \leq_V v_2$  if  $v_1(a) \leq_{\mathbf{UDP}} v_2(a)$  for all  $a \in \mathcal{A}$ .