

# Free Completely Distributive Extensions G.B. J.H. M.J.

1.

Defn A complete lattice  $L$  is completely distributive (CD) if

$$\bigwedge_{I} \bigvee_{J_i} a_{ij} = \bigvee_{\prod J_i} \bigwedge_{I} a_{i \langle i \rangle}$$

Note Throughout, all lattices bounded & distributive and all homomorphisms preserve bounds.

Defn  $F$  is a free CD lattice over a set  $X$  if (1)  $F$  is CD, (2)  $F$  is completely generated by  $X$ , and (3) any set map  $f: X \rightarrow C$  to a CD  $C$  extends to a complete homo  $f^*: F \rightarrow C$























