$$((f \circ g) \circ h)(a^*, \mathbf{d}) = \bigvee_{c \in \mathbf{C}} \left(\bigvee_{b \in \mathbf{B}} f(a^*, \mathbf{b}) \wedge g(b^*, \mathbf{c}) \right) \wedge h(c^*, \mathbf{d})$$
$$= \bigvee_{c \in \mathbf{C}} \left(\bigvee_{b \in B} f(a^*, \mathbf{b}) \wedge g(b^*, \mathbf{c}) \wedge h(c^*, \mathbf{d}) \right)$$

 $= (f \circ (g \circ h))(a^*, d).$

 $= \bigvee_{b \in \mathbf{B}} f(a^*, \mathbf{b}) \wedge \left(\bigvee_{c \in \mathbf{C}} g(b^*, \mathbf{c}) \wedge h(c^*, \mathbf{d}) \right)$