

Applying first the commutative law and then the distributive law, we obtain:

$$\begin{aligned}(p \wedge q) \vee r &= r \vee (p \wedge q) \\ &= (r \vee p) \wedge (r \vee q).\end{aligned}$$

Applying the commutative law to both brackets on the right side, gives:

$$(p \wedge q) \vee r = (p \vee r) \wedge (q \vee r).$$

Figure 1:

1 Logic