Proof the Third for CS250

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Proofs in two parts ...

1 Proof [2.3.42]: The following premises can be used to prove t

1	$p \vee q$		
2	$q \longrightarrow r$		
3	$p \wedge s \longrightarrow t$		
4	$\neg r$		
5	$\neg q \longrightarrow u \wedge s$		
6	$\neg q$	4 , 2	*Modus Tollens*
7	p	6 , 1	*Elimination*
8	$u \wedge s$	6 , 5	*Modus Ponens*
9	s	8	*Specialization*
10	$p \wedge s$	7 , 9	*Conjunction*
11	t	10 , 3	*Modus Ponens*

Conclusion: $\therefore t$ □

2 Proof [2.3.44]: The following premises can be used to prove $u \wedge w$

1	$p \longrightarrow q$		
2	$r \vee s$		
3	$\neg s \longrightarrow \neg t$		
4	$\neg q \vee s$		
5	$\neg s$		
6	$\neg p \wedge r \longrightarrow u$		
7	$w \vee t$		
8	$\neg t$	5 , 3	*Modus Ponens*
9	r	5 , 2	*Elimination*
10	$\neg q$	4 , 5	*Elimination*
11	$\neg p$	1 , 10	*Modus Tollens*
12	$\neg p \wedge r$	9 , 11	*Conjunction*
13	u	12 , 6	*Modus Ponens*
14	w	7 , 8	*Elimination*
15	$u \wedge w$	13 , 14	*Conjunction*

Conclusion: $\therefore u \wedge w$ $\square$