

The Resolution Rule Motivated

Start with Truth Table for a, b and c:

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$	$(a \vee c)$
T	T	T			
T	T	F			
T	F	T			
T	F	F			
F	T	T			
F	T	F			
F	F	T			
F	F	F			

Fill in $\neg b$

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$	$(a \vee c)$
T	T	T	F		
T	T	F	F		
T	F	T	T		
T	F	F	T		
F	T	T	F		
F	T	F	F		
F	F	T	T		
F	F	F	T		

Fill in $(a \vee \neg b)$

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$	$(a \vee c)$
T	T	T	F	T	
T	T	F	F	T	
T	F	T	T	T	
T	F	F	T	T	
F	T	T	F	F	
F	T	F	F	F	
F	F	T	T	T	
F	F	F	T	T	

Fill in $(b \vee c)$

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$		$(a \vee c)$
T	T	T	F	T	T	
T	T	F	F	T	T	
T	F	T	T	T	T	
T	F	F	T	T	F	
F	T	T	F	F	T	
F	T	F	F	F	T	
F	F	T	T	T	T	
F	F	F	T	T	F	

Fill in $(a \vee \neg b) \wedge (b \vee c)$

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$			$(a \vee c)$
T	T	T	F	T	T	T	
T	T	F	F	T	T	T	
T	F	T	T	T	T	T	
T	F	F	T	T	F	F	
F	T	T	F	F	F	T	
F	T	F	F	F	F	T	
F	F	T	T	T	T	T	
F	F	F	T	T	F	F	

Fill in $(a \vee c)$

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$			$(a \vee c)$
T	T	T	F	T	T	T	T
T	T	F	F	T	T	T	T
T	F	T	T	T	T	T	T
T	F	F	T	T	F	F	T
F	T	T	F	F	F	T	T
F	T	F	F	F	F	T	F
F	F	T	T	T	T	T	T
F	F	F	T	T	F	F	F

Only consider those rows that have a T in $(a \vee \neg b) \wedge (b \vee c)$
 Check that $(a \vee c)$ has a T too.

a	b	c	$\neg b$	$(a \vee \neg b) \wedge (b \vee c)$	$(a \vee c)$
T	T	T	F	T	T
T	T	F	F	T	T
T	F	T	T	T	T
T	F	F	T	F	T
F	T	T	F	F	T
F	T	F	F	F	F
F	F	T	T	T	T
F	F	F	T	F	F