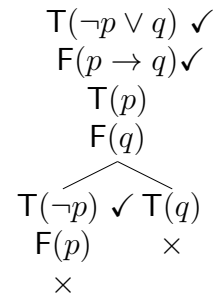
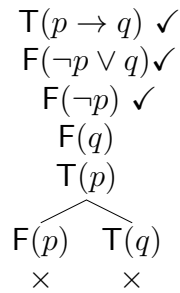


The equivalence $p \rightarrow q \equiv \neg p \vee q$ requires the $(\neg\neg E)$ rule in one direction: $p \rightarrow q \vdash^* \neg p \vee q$, but not the other direction: $\neg p \vee q \vdash p \rightarrow q$. Here are the two directions:

1		$p \rightarrow q$	
2			$\neg(\neg p \vee q)$
3			
4			
5			
6			
7			
8			
9			
10			
11			

1		$\neg p \vee q$	
2			p
3			
4			
5			
6			
7			
8			
9			

With tableaux:



Another, longer, derivation of $p \rightarrow q \vdash \neg p \vee q$, using the $(\neg\neg E)$ rule twice:

1		$p \rightarrow q$	
2			$\neg(\neg p \vee q)$
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			