

Fitch argument

Show that $\text{forall}(x)(Tx \text{ implies } (Lx \text{ or } Mx))$ given $\text{notexists}(x)(Tx \text{ and } Sx)$ and $\text{forall}(y)(Sy \text{ or } My \text{ or } Ly)$. This is how the argument looks like

1	$\text{notexists}(x)(Tx \text{ and } Sx)$	
2	$\text{forall}(y)(Sy \text{ or } My \text{ or } Ly)$	
3	$[a] Ta$	
4	$Sa \text{ or } (Ma \text{ or } La)$	<i>any</i> Elim 2
5	Sa	
6	$Ta \text{ and } Sa$	<i>and</i> Intro 3,5
7	$\text{exists}(x)(Tx \text{ and } Sx)$	<i>exists()</i> Intro 6
8	falsum	<i>falsum</i> Intro 1,7
9	$La \text{ or } Ma$	<i>falsum</i> Elim 8
10	$Ma \text{ or } La$	
11	Ma	
12	La	
13	$La \text{ or } Ma$	<i>or</i> Elim 10,11,12
14	$La \text{ or } Ma$	<i>or</i> Elim 4,5-9,10-13
15	$\text{forall}(x)(Tx \text{ implies } (Lx \text{ or } Mx))$	<i>any</i> Intro 3-14