

③) Now we are going to show a YES-instance in 3SAT will correspond to a YES-instance in PLUGIT. In the previous example, the 3SAT will satisfy if $x_1 = \text{True}$, $x_2 = \text{True}$, $x_3 = \text{False}$.

Literal	$(x_1 \vee x_2 \vee x_3)$	$(x_1 \vee \neg x_2 \vee x_3)$	$(\neg x_1 \vee \neg x_2 \vee \neg x_3)$
$x_1: (\text{S}) \rightarrow \Delta$	Δ (S)	Δ (S)	Δ
$\neg x_1: (\text{S}) \rightarrow \Delta$	Δ	Δ	Δ (S)
$x_2: (\text{S}) \rightarrow \Delta$	Δ (S)	Δ	Δ
$\neg x_2: (\text{S}) \rightarrow \Delta$	Δ	Δ (S)	Δ (S)
$x_3: (\text{S}) \rightarrow \Delta$	Δ (S)	Δ (S)	Δ
$\neg x_3: (\text{S}) \rightarrow \Delta$	Δ	Δ	Δ (S)

Here we see that all the sockets are powered, therefore a Yes-instance of 3SAT maps to a yes-instance of plugit.