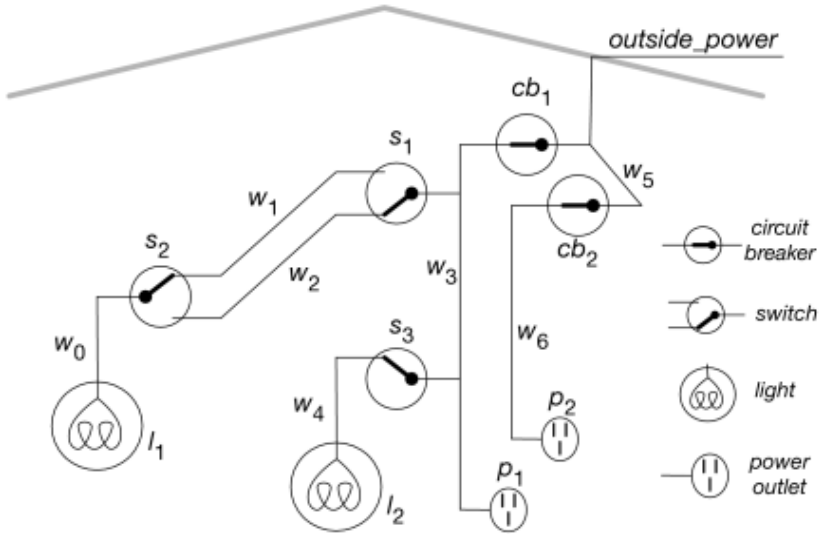
CPSC 322: Introduction to Artificial Intelligence (Section 102)
Logics: Botton-up proof procedures

Do this exercise in pairs. If there's an odd number, do it in a group of 3.

Submit the sheet before leaving.

Name of Student (last, first)	Student Number



Question 1: Define relevant propositions for each of the following. (For example,)

1. For each wire
2. For each circuit breaker
3. For each switch
4. For each light
5. For each outlet

Question 2: How many interpretations are there?

Question 3: Suppose you are given the following knowledge base. Apply the bottom-up proof procedure to the knowledge base.

$down\_s_1$.
up_s_2.
up_s_3.
ok_cb_1.
ok_cb_2.
$live\_outside$.

$live\_l_1 \leftarrow live\_w_0$
$live\_w_0 \leftarrow live\_w_1 \wedge up\_s_2$.
$live\_w_0 \leftarrow live\_w_2 \wedge down\_s_2$.
$live\_w_1 \leftarrow live\_w_3 \wedge up\_s_1$.
$live\_w_2 \leftarrow live\_w_3 \wedge down\_s_1$.
$live\_l_2 \leftarrow live\_w_4$.
$live\_w_4 \leftarrow live\_w_3 \wedge up\_s_3$.
$live\_p_1 \leftarrow live\_w_3$.
$live\_w_3 \leftarrow live\_w_5 \wedge ok\_cb_1$.
$live\_p_2 \leftarrow live\_w_6$.
$live\_w_6 \leftarrow live\_w_5 \wedge ok\_cb_2$.
$live\_w_5 \leftarrow live\_outside$.

Question 4: Can you prove $live\_l_2$ with the procedure? What about $live\_l_1$?