

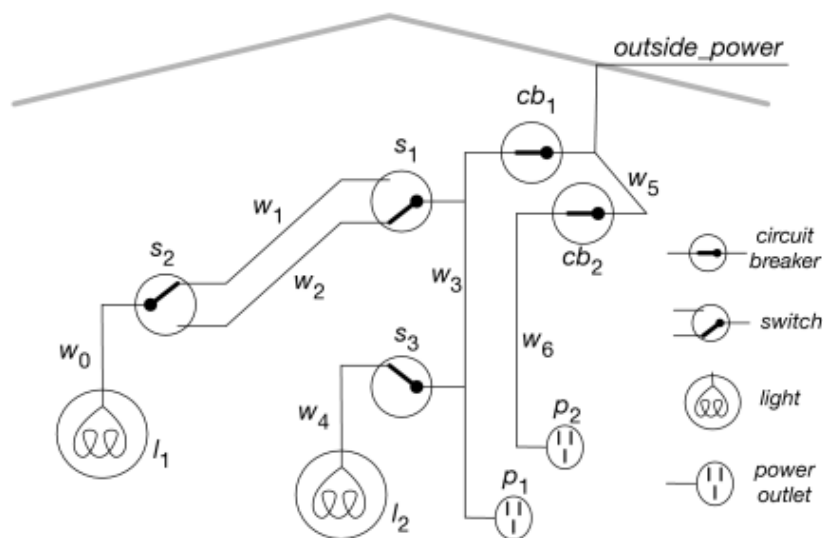
CPSC 322: Introduction to Artificial Intelligence (Section 102)

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, there are 2 circuit breakers cb_1, cb_2 .)

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_s1.

up_s2.

up_s3.

ok_cb1.

ok_cb2.

live_outside.

live_l1 \leftarrow *live_w0*

live_w0 \leftarrow *live_w1* \wedge *up_s2.*

live_w0 \leftarrow *live_w2* \wedge *down_s2.*

live_w1 \leftarrow *live_w3* \wedge *up_s1.*

live_w2 \leftarrow *live_w3* \wedge *down_s1.*

live_l2 \leftarrow *live_w4.*

live_w4 \leftarrow *live_w3* \wedge *up_s3.*

live_p1 \leftarrow *live_w3.*

live_w3 \leftarrow *live_w5* \wedge *ok_cb1.*

live_p2 \leftarrow *live_w6.*

live_w6 \leftarrow *live_w5* \wedge *ok_cb2.*

live_w5 \leftarrow *live_outside.*

Question 4: Can you prove *live_l2* with the procedure? What about *live_l1*?