

a) L1 is off & L2 is on

? - illuminated(12); not(illuminated(21)).

not(illuminated(L1)),

illuminated(12).

light(12), ok(12), continuous(12, outside).

ok(12), continuous(12, outside).

continuous(12, outside).

connected-to(12, W4), continuous(W4, outside).

continuous(W4, outside).

connected-to(W4, W3), continuous(W3, outside).

up(s3), continuous(W3, outside).

continuous(W3, outside).

connected-to(W3, W5), continuous(W5, outside).

ok(cbl), continuous(W5, outside).

continuous(W5, outside).

connected-to(W5, outside).

true.

b) both $L1$ & $L2$ are on?

? - illuminated($L1$); not (illuminated($L2$)).

not (illuminated($L2$)).

illuminated($L1$).

light($L1$), ok($L1$), continuous($L1$, outside).

continuous($L1$, outside).

connected_to($L1$, $W0$), continuous($W0$, outside).

continuous($W0$, outside).

connected_to($W0$, $W1$), continuous($W1$, outside);

connected_to($W0$, $W2$), continuous($W2$, outside).

up($S1$), down($S2$), continuous($W3$, outside);

down($S1$), up($S2$), continuous($W3$, outside).

continuous($W3$, outside).

connected_to($W3$, $W5$), continuous($W5$, outside).

ok($Cb1$), continuous($W5$, outside).

continuous($W5$, outside).

connected_to($W5$, outside).

true.

c) both L1 & L2 off

? - $\text{not}(\text{illuminated}(L1)) ; \text{not}(\text{illuminated}(L2))$,
 $\text{not}(\text{illuminated}(L1))$,
 $\text{not}(\text{illuminated}(L2))$.

7 $\text{unindoken}(L) :- [x_1, x_2, x_3, x_4] = L,$
 $\text{worthy}([x_1, x_2, x_3, x_4]).$

$\text{worthy}(L) :- \text{valid}(L), \text{diff}(L).$

$\text{validval}(1).$

$\text{validval}(2).$

$\text{validval}(3).$

$\text{validval}(4).$

$\text{valid}([H]) :- \text{validval}(H).$

$\text{valid}([H|T]) :- \text{validval}(H), \text{valid}(T).$

$\text{diff}([H]).$

$\text{diff}([H|T]) :- \text{not}(\text{member}(H, T)),$
 $\text{diff}(T).$

$\text{member}(H, [H|T]).$

$\text{member}(X, [H|T]) :- \text{member}(X, T).$