

Props = { L1W, L1Y, L1B, L2W, L2Y, L2B, L3W, L3Y, L3B, C1W, C1Y, C1B, C2W, C2Y, C2B, C3W, C3Y, C3B, O1W, O1Y, O2W, O2Y, O3W, O3Y }

Propositional rules

O1Y (Observed)

O2W

O3Y

L1W (Given)

L2Y

L3B

L3B \rightarrow -C3B (If label 3 is both then 3rd box cannot contain both)

L2Y \rightarrow -C2Y

L1W \rightarrow -C1W

C1B \vee C1W \vee C1Y (Should contain atleast one type each box)

C2B \vee C2W \vee C2Y

C3B \vee C3W \vee C3Y

C1B \rightarrow -C1W \wedge -C1Y (if 1st contains Both then it cannot contain White or Yellow

C1Y \rightarrow -C1W \wedge -C1B

C1W \rightarrow -C1B \wedge -C1Y

C2B \rightarrow -C2W \wedge -C2Y

C2Y \rightarrow -C2W \wedge -C2B

C2W \rightarrow -C2B \wedge -C2Y

C3B \rightarrow -C3W \wedge -C3Y

C3Y \rightarrow -C1W \wedge -C3B

C3W \rightarrow -C3B \wedge -C3Y

O1Y \rightarrow C1Y \vee C1B (if observed is yellow then the box contains both or yellow)

O1W \rightarrow C1W \vee C1B

O2Y \rightarrow C2Y \vee C2B

O2W \rightarrow C2W \vee C2B

O3Y \rightarrow C3Y \vee C3B

O3W \rightarrow C3W \vee C3B

L1W \rightarrow -C1W (Wrong label implication)

L1B \rightarrow -C1B

L1Y \rightarrow -C1Y

L2W \rightarrow -C2W

L2B \rightarrow -C2B

L2Y \rightarrow -C2Y

L3W \rightarrow -C3W

L3B \rightarrow -C3B

L3Y \rightarrow -C3Y