Iterative DPS - DPS with ever increasing max depth limit
Uniform cost search - put all into priority queue and pick the best
A* - select node with min f:
$f = g\,(cost\ so\ far\ +\ cost\ to\ node)\ +\ h\,(est.\ best\ case\ cost\ to\ finish)$
Greedy BFS - A* with $f = h$
Beam search - evaluate all possible directions and pick the best
Local beam search - evaluate some subset
Hill climbing - always pick the best
Stochastic hill-climbing - pick a random direction and decide whether to go there
Simulated annealing - Stochastic hill-climbing but worse fitness is accepted sometimes
Simple Reflex agent - react to now
Model-based reflex agent - compare now to internal model
Goal-based agents - long term planning
Utility-based agents - like goal… but also optimize for efficiency/utility by measuring it
Learning Agents - learn and adjust
Admissible heuristic - doesn't overestimate the cost
Consistent heuristic - cost so far plus cost to end is more than cost from start to end
Horizon effect - a significant change may exist just outside the depth limit of a game tree
Quiescence - dormancy
Begin min max from max
CNF form: ORs separated by ANDs. Combine by eliminating contradictions

1. $P \rightarrow L \Rightarrow \neg P \lor L$
2. DeMorgan to move negations inward

$$
\begin{aligned}
&Init(At(C_1,\ SFO) \land At(C_2,\ JFK) \land At(P_1,\ SFO) \land At(P_2,\ JFK) \\
&\quad \land Cargo(C_1) \land Cargo(C_2) \land Plane(P_1) \land Plane(P_2) \\
&\quad \land Airport(JFK) \land Airport(SFO)) \\
&Goal(At(C_1,\ JFK) \land At(C_2,\ SFO)) \\
&Action(Load(c,\ p,\ a), \\
&\quad \textsc{Precond}: At(c,\ a) \land At(p,\ a) \land Cargo(c) \land Plane(p) \land Airport(a) \\
&\quad \textsc{Effect}: \neg\, At(c,\ a) \land In(c,\ p))
\end{aligned}
$$

DPLL (stolen from Tani):

Step 1: Clauses: $\neg Y$, $\neg Y \vee \neg R$, $Y \vee R$, $Y \vee M$, $R \vee M$, $\neg M \vee H$

Pure: $\neg Y$

Model: Y = False (since $\neg Y$ = True)

Step 2: Clauses: $Y \vee R$, $Y \vee M$, $R \vee H$, $\neg M \vee H$

Since Y = False

R = True, M = True

Model: Y = False, R = True, M = True

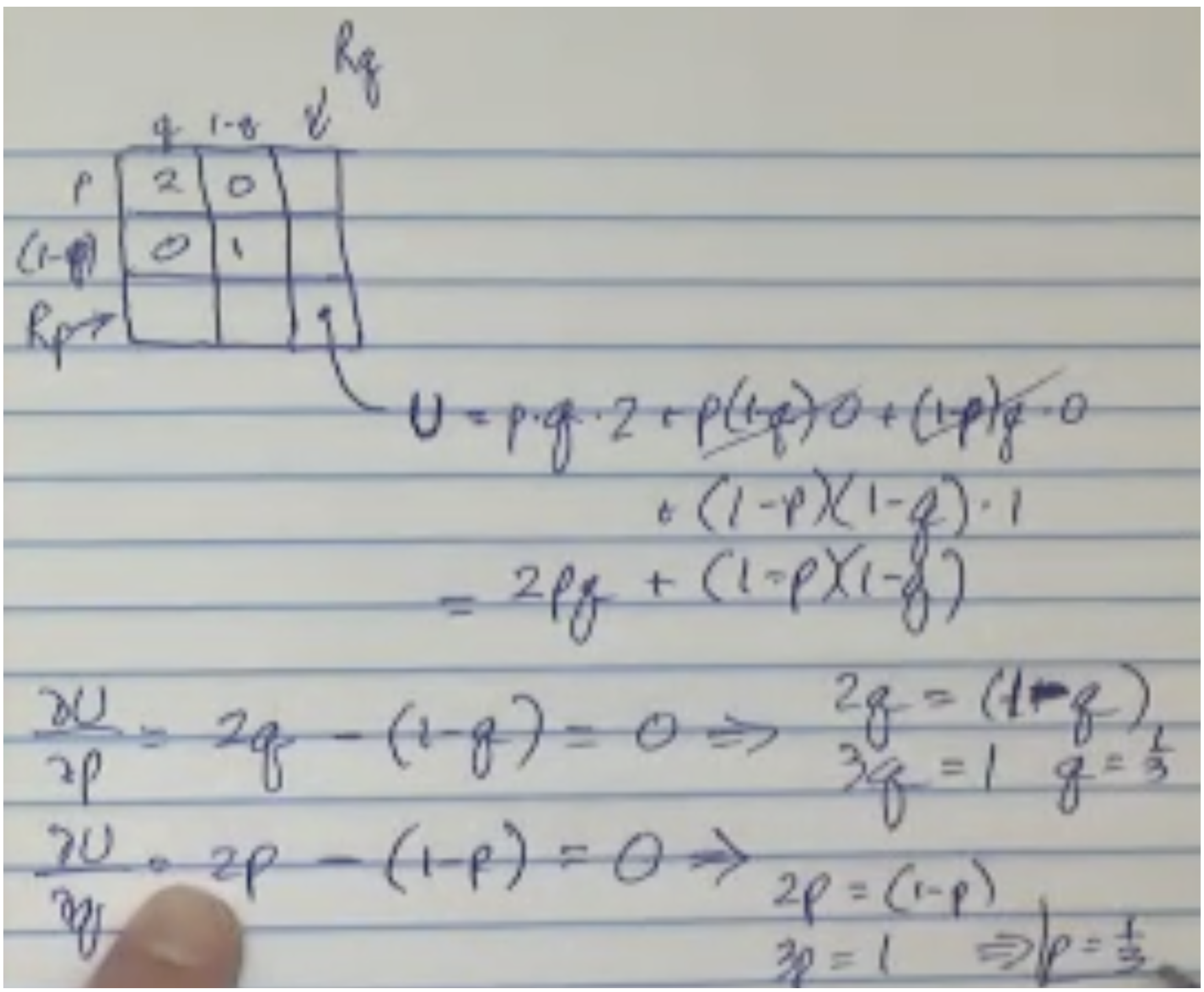
Step 3: Clauses: $R \vee H$, $\neg M \vee H$

Since M = True, $\neg M$ = False

H = True

Model: Y = False, R = True, M = True, H = True

$Y =$ False, $R =$ True, $M =$ True, $H =$ True



$P(A\&B) = P(A|B)P(B)$

$P(B|A) = \frac{P(A|B)P(B)}{P(A)}$

$H = -\sum_{i} p_i \log_2 p_i$ # entropy

P(W=G|H=0)P(S=P|H=0)P(H=0) = (3/5)(1/5)(5/8) = 3/40
P(W=G|H=1)P(S=P|H=1)P(H=1) = (1/3)(3/3)(3/8) = 1/8 = 5/40

P(G,M,B,L)=P(G|B)P(M|B,L)P(B)P(L)
P(C) = P(C|E)P(E) + P(C|not E)P(not E)
P(B|A) = P(B|A,C)P(C) + P(B|A, not C)P(not C)