AI Planning for Autonomy

Solution Problem Set V: PDDL and Project 1

1.

- If computed with respect to each food it's roughly a Minimum Spanning Tree (techincally a Steiner Tree, since paths can branch in non-food location, i.e. the Steiner Points)
- Shortest path to eat the hardest m food points
- Equivalent, look at slides
- $h_{max} << h^+ << h^*$, $h_{max} << h^+ << h_{add}$. $<<$ stands for dominance. h^* dominates admissible heuristics, that's why it doesn't dominate h_{add}.

3.

$h_{ff} = 4$ for both cases. Even if $h_{add}(s_0, G) \neq h_{max}(s_0, G)$, the best supporter function doesn't change.

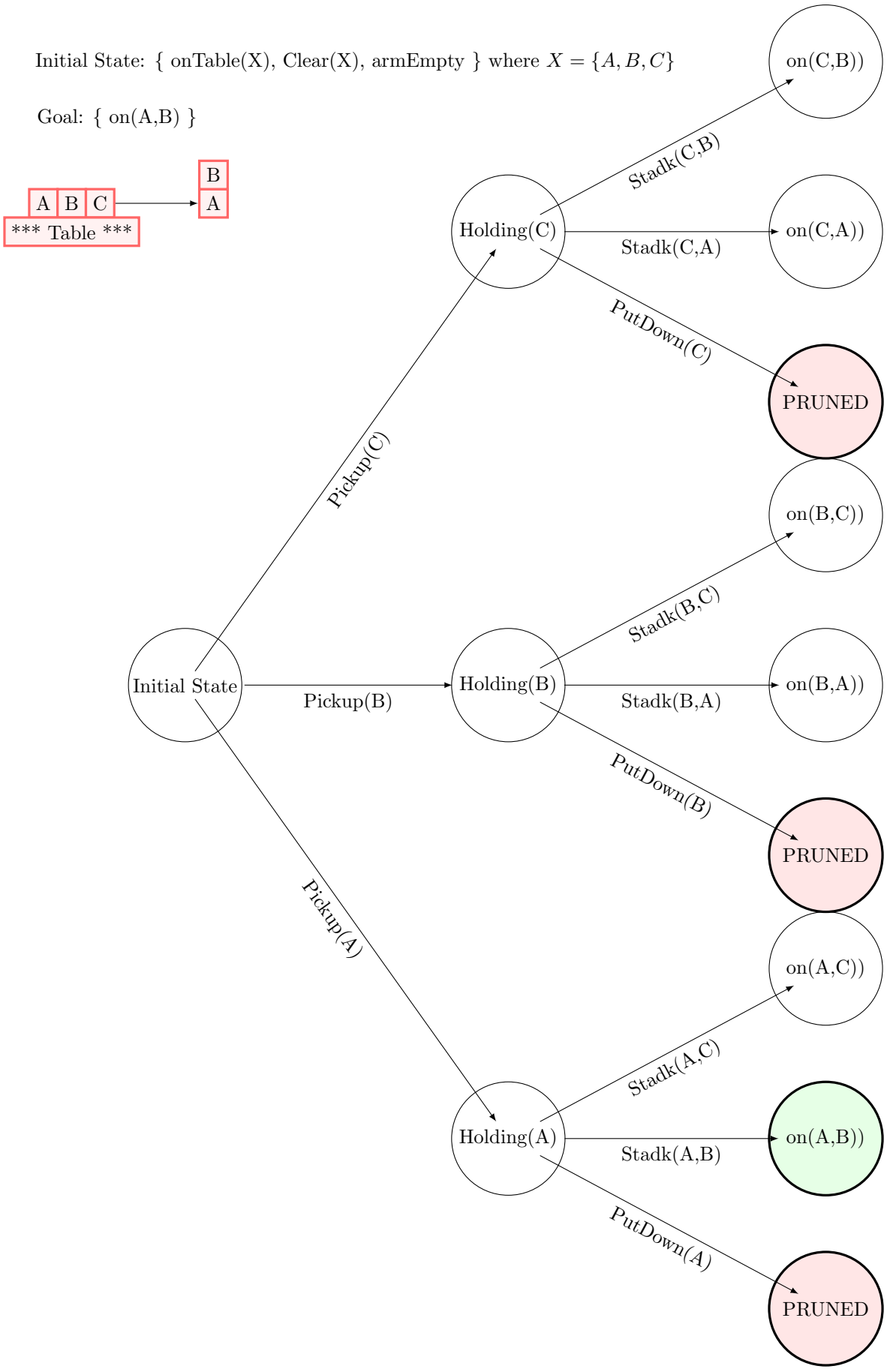

Figure 1: IW tree for question 2.a) Each node shows the atomic fluents that state make true for the first time. States that do not add a new atom for the first time are pruned

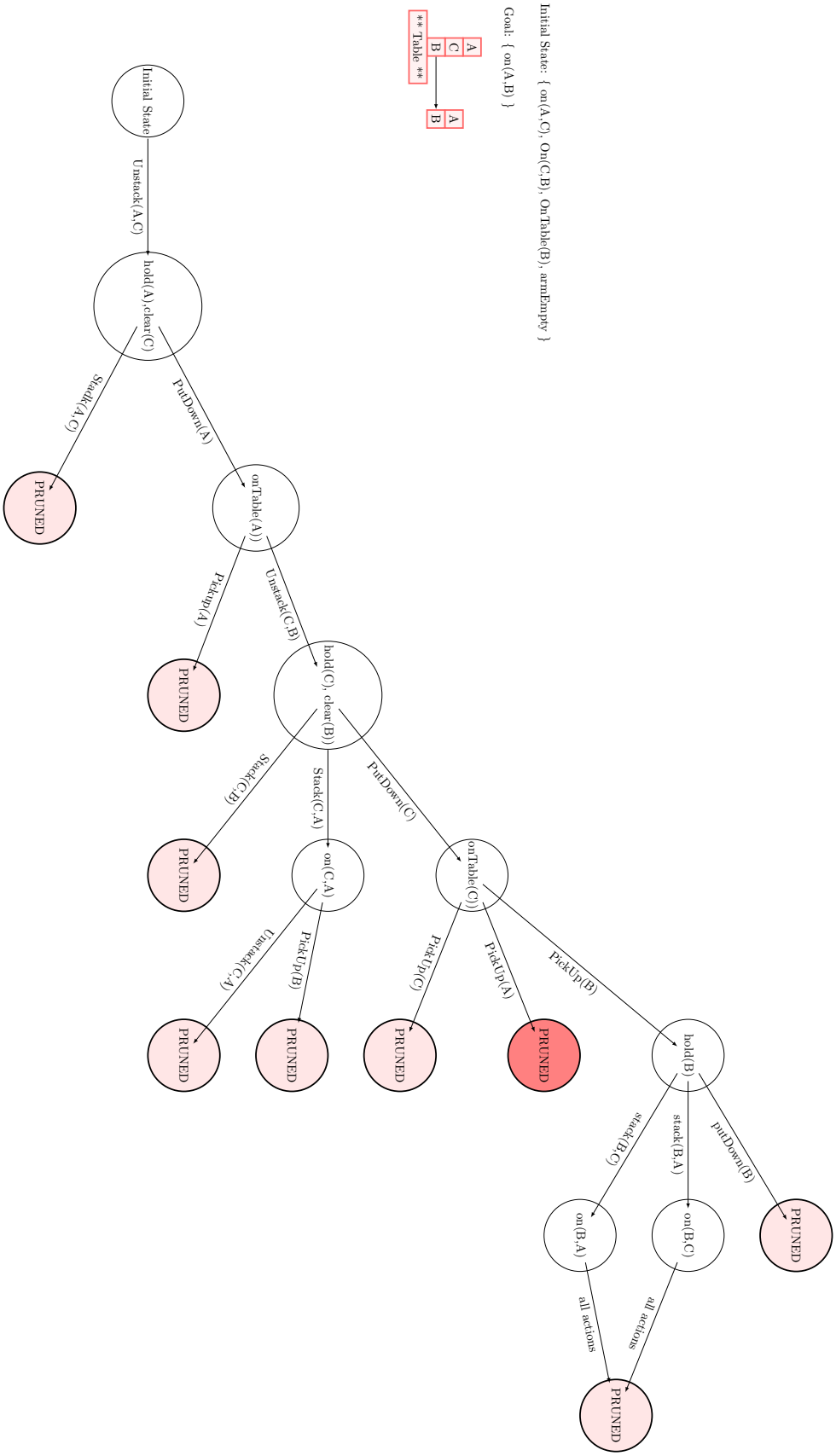

Figure 2: IW tree for question 2.b) Note that the pruned state with darker red is the node that was leading to the goal but was pruned because all its atomic fluents have been seen before.