TDT4136 Introduction to Artificial Intelligence
Assignment 6

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The planning graph is shown below where the red lines represent a possible plan. The goal state is the state where we have MP, WP and PH. In the goal state there are no mutexes between these three. First we start with the initial state S0. It's clear why we need to expand the graph. We look at all possible actions A0 and arrive at S1. S1 does not include the condition WP so we have to keep expanding. I do that with A1 (I see now that i only have 17 mutexes in A1 and 22 in A2. I forgot one mutex which I can't easily spot). In S2 we have a mutex between WP and PH because both actions that lead to these are mutual exclusive. Expand once more with A2. Now we see that we have no mutex between WP and PH. The highlighted actions are not mutual exclusive.

The list of actions representing the plan is BPM->RP->RPW->HP. I retrieved this plan by looking at the state S3. To achieve MP we must use the action BPM or RPM, since using the brush for the mouldings make more sense i chose that. Also if you use the rollor on the mouldings you would get -RC and you have no way to paint the walls as can be seen by the mutexes in the graph. The plan must then include the action BPM (Does not matter when we perform BPM). To achieve WP we have to use the action RPW. In order to do that we must have -PH and RC. Thats why RP must come before RPW. Lastly to achieve PH we have to use HP at the end after we used RPW.
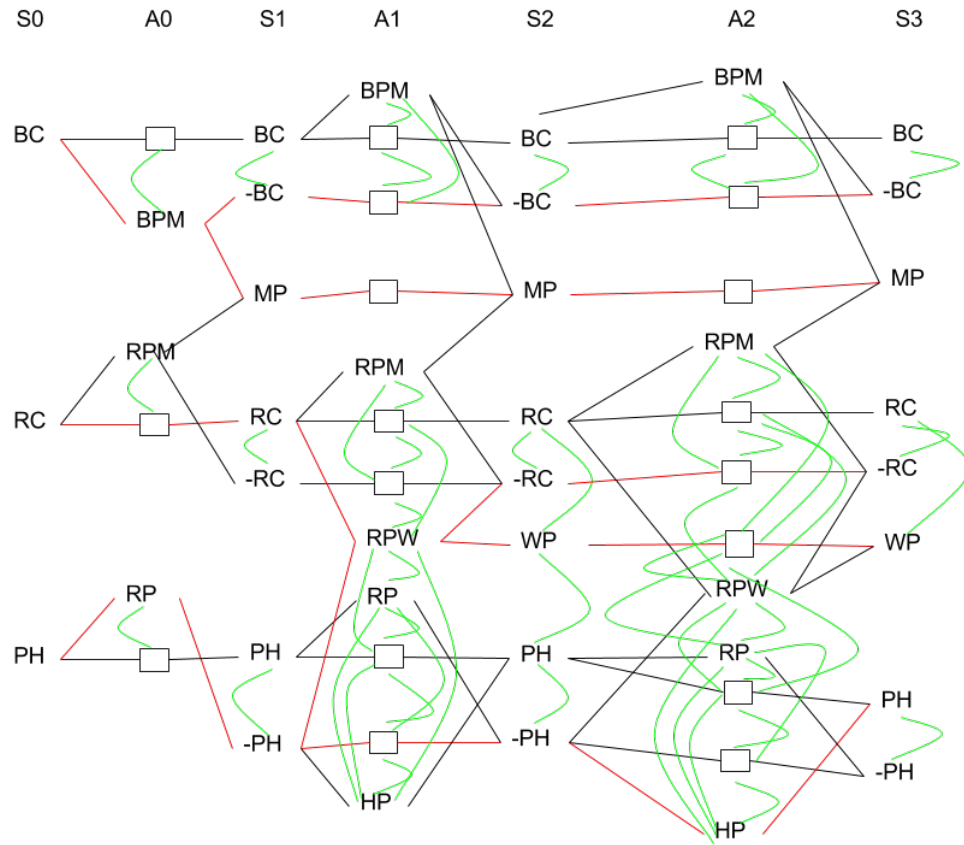
Figure 1: Planning graph