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CENG-462 HW1 Report

For this homework, I try to introduce pattern database model for our problem as follows:

My heuristic divides 3*3 plane into to 4 pieces (2*2 planes which are same with rotate actions influenced area). After that, I check every element of these subplanes and I calculate how many moves necessary to reach its goal position. After that, I choose maximum value of these calculated moves for h(n) of subplanes. After that, sum of h(n)'s of subplanes will give me h(n) value for 3*3 plane.

We know, we should show that

$0 \leq h(n) \leq h^*(n)$

For every subclass,

$h_{sub}(n) \leq h_{sub}^*(n)$

I guaranteed for every subclass, $h_{sub}(n)$ is not overestimated by checking one by one elements and take maximum of them.

$\sum h_{sub}(n) \leq h^*(n)$

So, heuristic is admissible. There is a cost of being admissible about performance. So, when I check, Manhattan Distance works faster than my heuristic but I also check, my heuristic is works faster than blind search algorithms.