AMIN ARRIAGA 16-10072, DAVID SEGURA XX-XXXXX, WILFREDO GRATEROL XX-XXXXX

Búsqueda Informada: A* vs IDA*

JUNE 6, 2021

1 15Puzzle

Para el *15Puzzle* usamos como heurística la distancia Manhattan.

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STATE (EASY): 14 1 9 6 4 8 12 5 7 2 3 B 10 11 13 15
|           FUNCTION|  TIME (SEC)|  MEMORY (GB)|       NODES/SEC|  SOL-LEN|
|               A*|  172.613782|      5.39361|   138210.58622|       45|
|        A* pruning|    2.627228|      0.04398|    62283.51708|       45|
|   A* late pruning|    2.593914|      0.04016|    90053.48674|       45|
|              IDA*|  294.174137|      0.00055|   243362.32182|       45|
|       IDA* pruning|    1.537629|       0.0129|   410535.96154|       45|
|  IDA* part pruning|    2.629333|      0.00024|   240086.36411|       45|


STATE (MEDIUM): 12 9 B 6 8 3 5 14 2 4 11 7 10 1 15 13
|           FUNCTION|  TIME (SEC)|  MEMORY (GB)|       NODES/SEC|  SOL-LEN|
|               A*|              TOO MUCH MEMORY                           |
|        A* pruning|  361.748725|      2.56905|    26938.20137|       50|
|   A* late pruning|  184.561287|      2.34054|    85301.65917|       50|
|              IDA*|              TOO MUCH TIME                             |
|       IDA* pruning|  243.698492|      0.00148|   413353.29231|       50|
|  IDA* part pruning|  421.172057|       0.0001|   239603.34577|       50|


STATE (HARD): 5 9 13 14 6 3 7 12 10 8 4 B 15 2 11 1
|           FUNCTION|  TIME (SEC)|  MEMORY (GB)|       NODES/SEC|  SOL-LEN|
|               A*|              TOO MUCH MEMORY                           |
|        A* pruning|  633.547779|       4.1973|    25436.99234|       57|
|   A* late pruning|  305.977159|      3.92621|    77683.54042|       57|
|              IDA*|              TOO MUCH TIME                             |
|       IDA* pruning|  349.547181|      0.00082|   404336.85832|       57|
|  IDA* part pruning|  591.625852|      0.00195|   238931.14461|       57|
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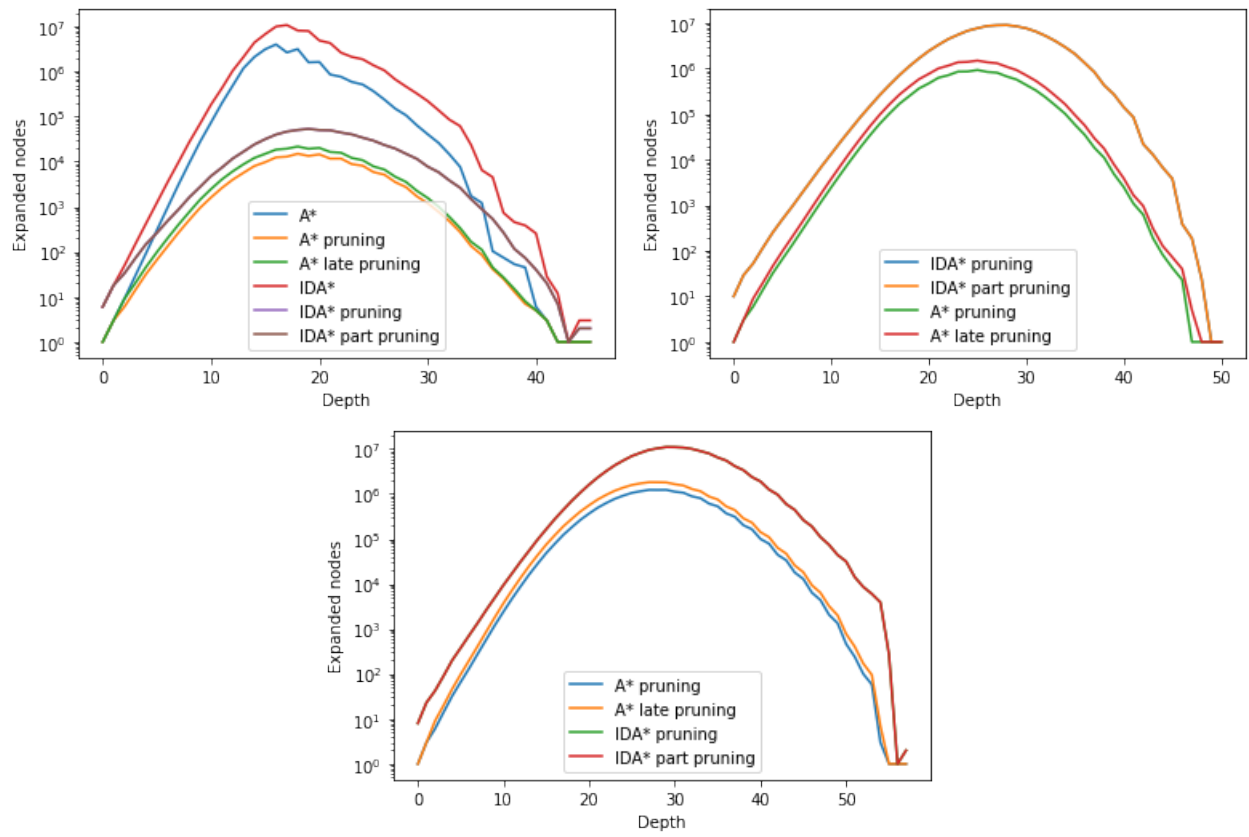
Figure 1: Left, easy. Right, medium. Down, hard