

# Search Algorithms

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- Depth First Search
- Breadth First Search
- Uniform Cost Search
- Hill Climbing
- Best First Search
- A\* Algorithm

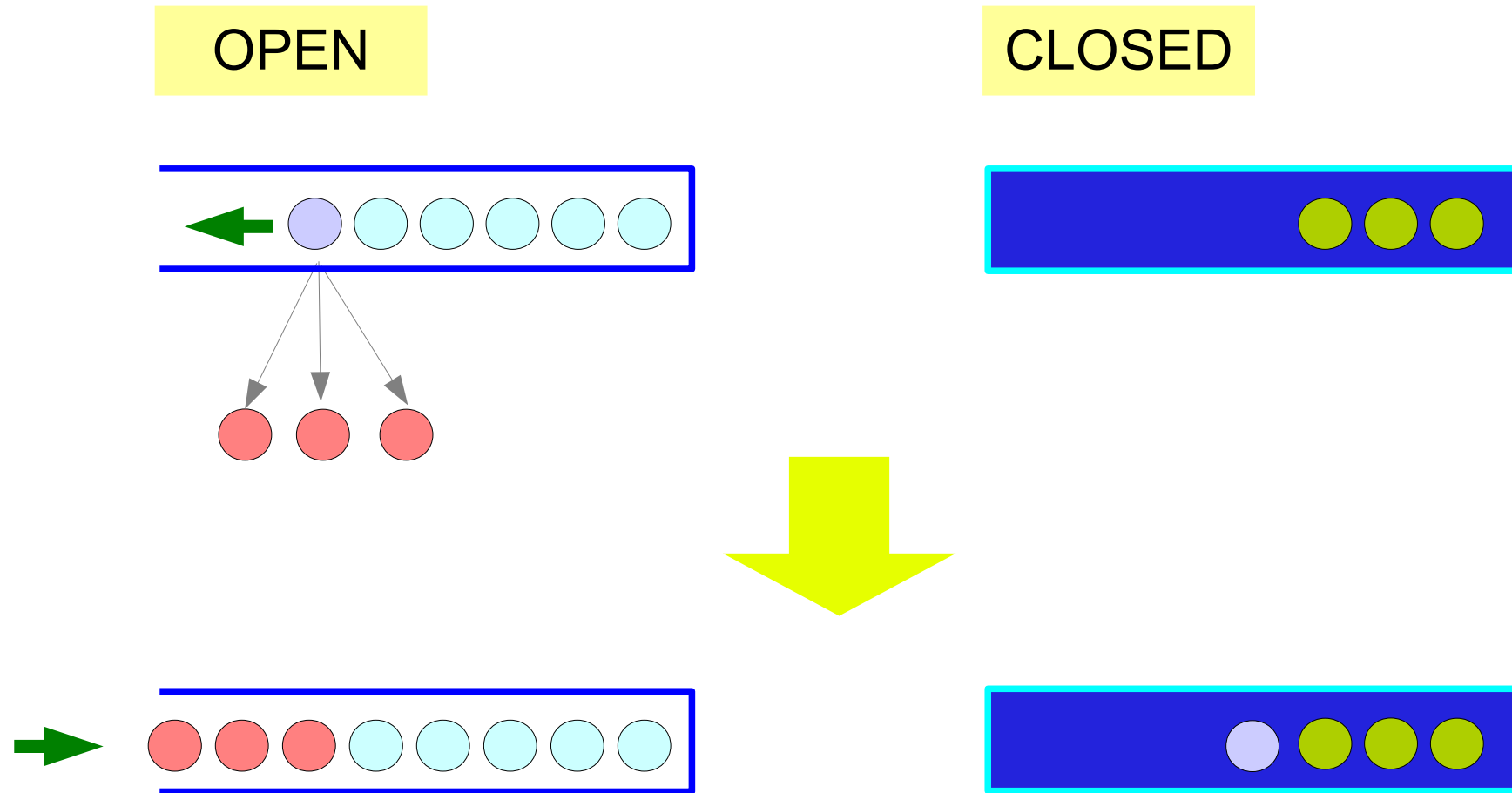
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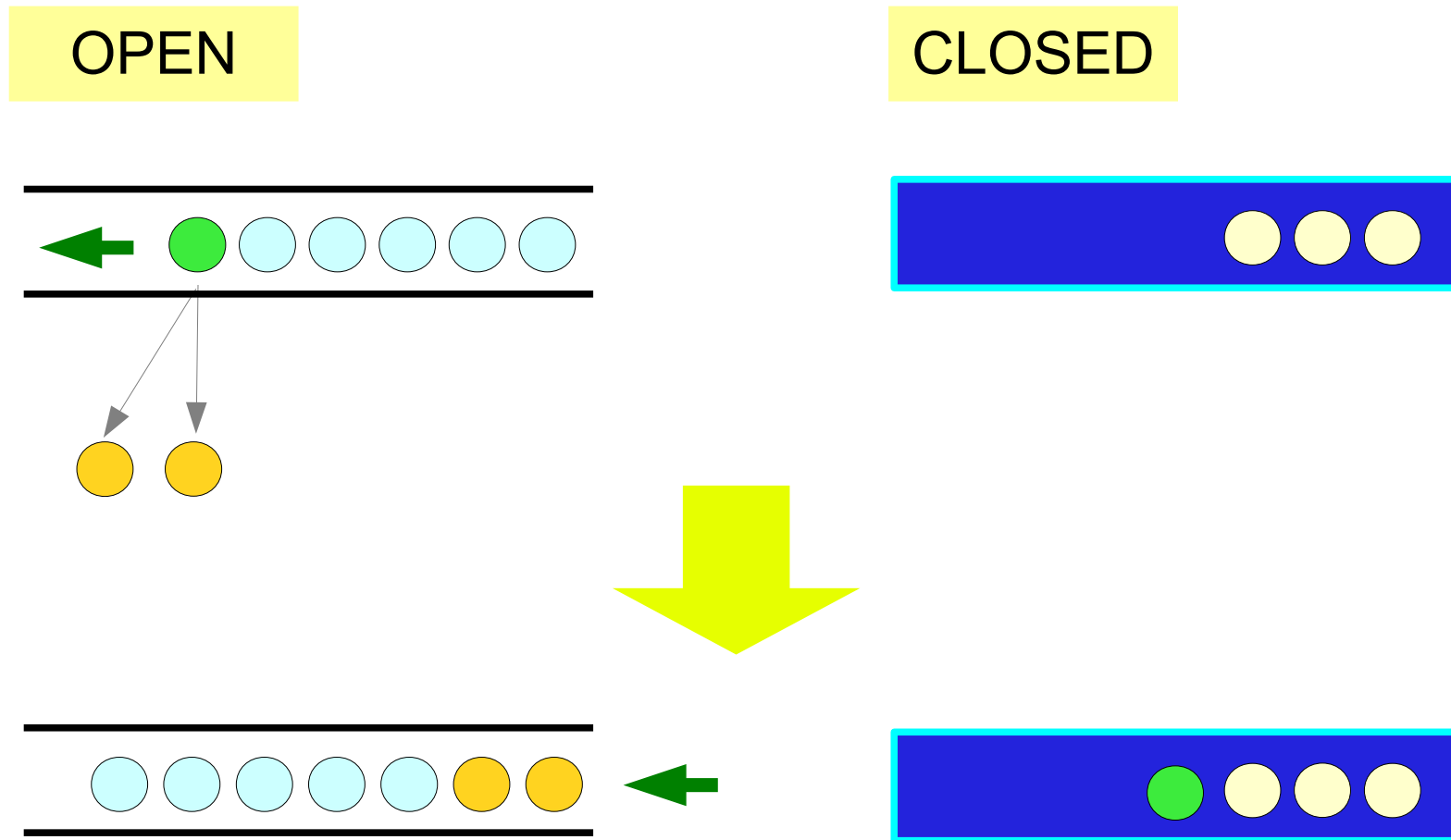
Please send corrections (or suggestions) to [youngwlim@hotmail.com](mailto:youngwlim@hotmail.com).

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# DFS (Depth First Search) Algorithm

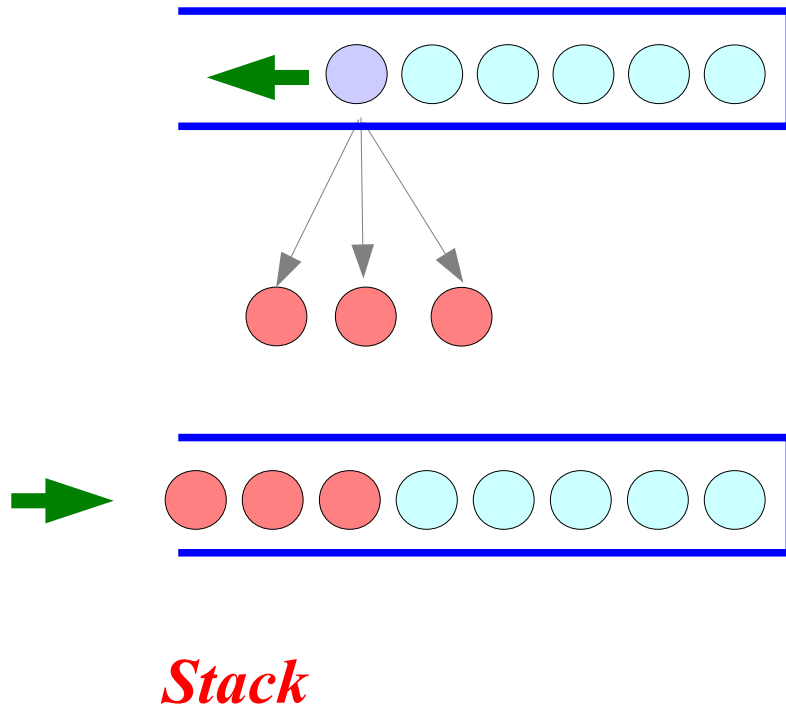


# BFS (Breadth First Search) Algorithm

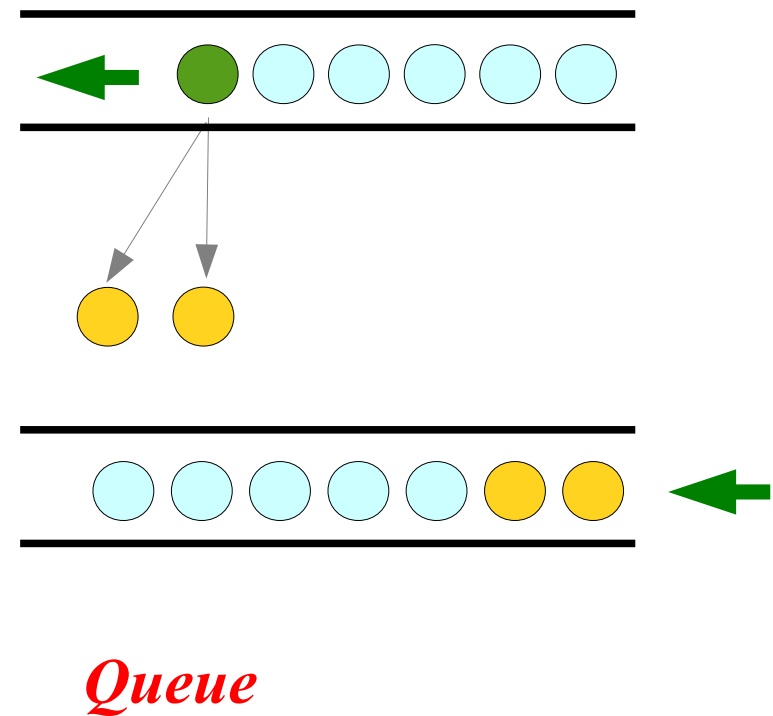


# Expand Function

DFS (Depth First Search)

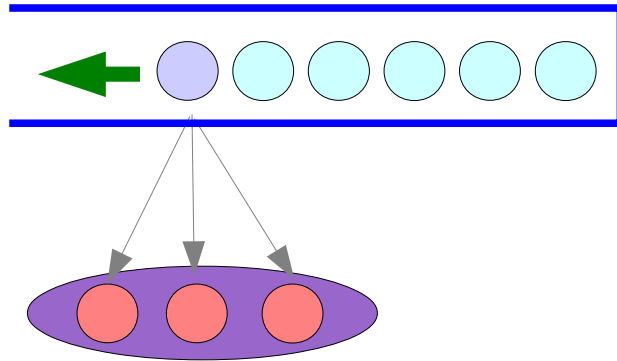


BFS (Breadth First Search)



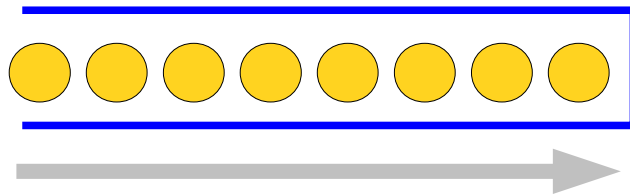
# Uniform Cost Search

OPEN



Add new one to OPEN  
Replace the old one  
with the lower cost

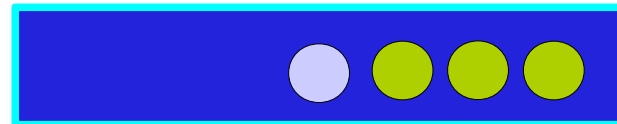
Sort OPEN



CLOSED

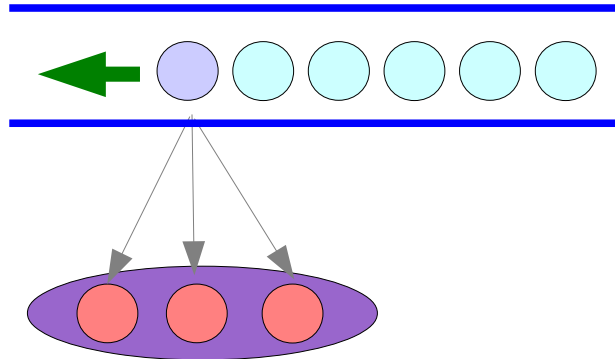


$$g(n_i) = g(n) + C(n, n_i)$$

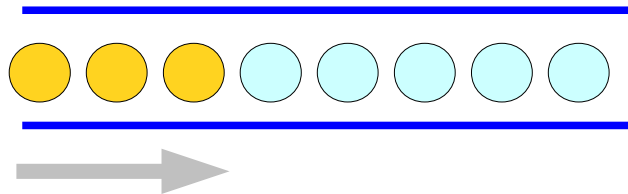


# Hill Climbing Search

OPEN



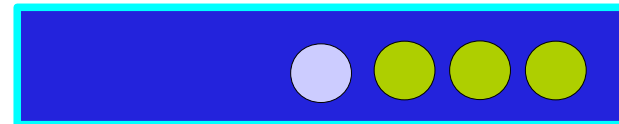
Add  
sorted successors  
at the front of OPEN



CLOSED

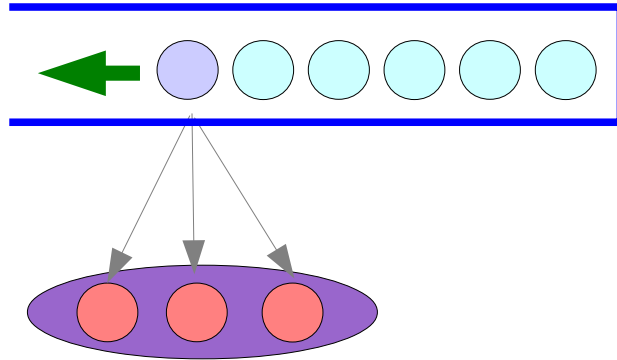


$$\hat{h}(n_i)$$

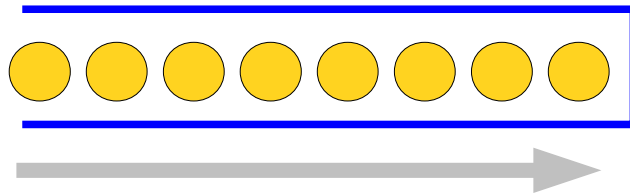


# Best First Search

OPEN



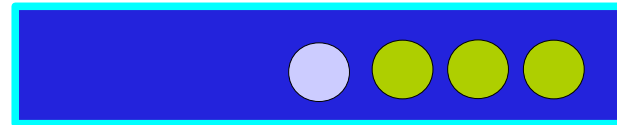
Add to OPEN  
Sort OPEN



CLOSED



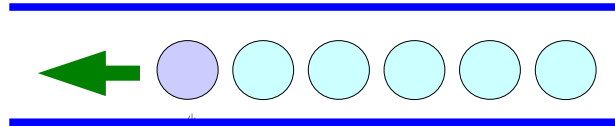
$\hat{h}(n_i)$





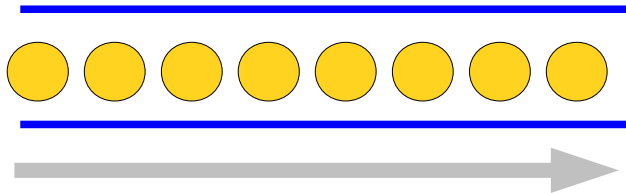
# A\* Algorithm

OPEN



Add new one to OPEN  
Replace the old one  
with the lower cost

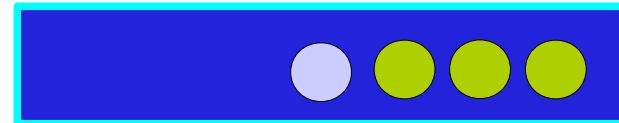
Sort OPEN



CLOSED

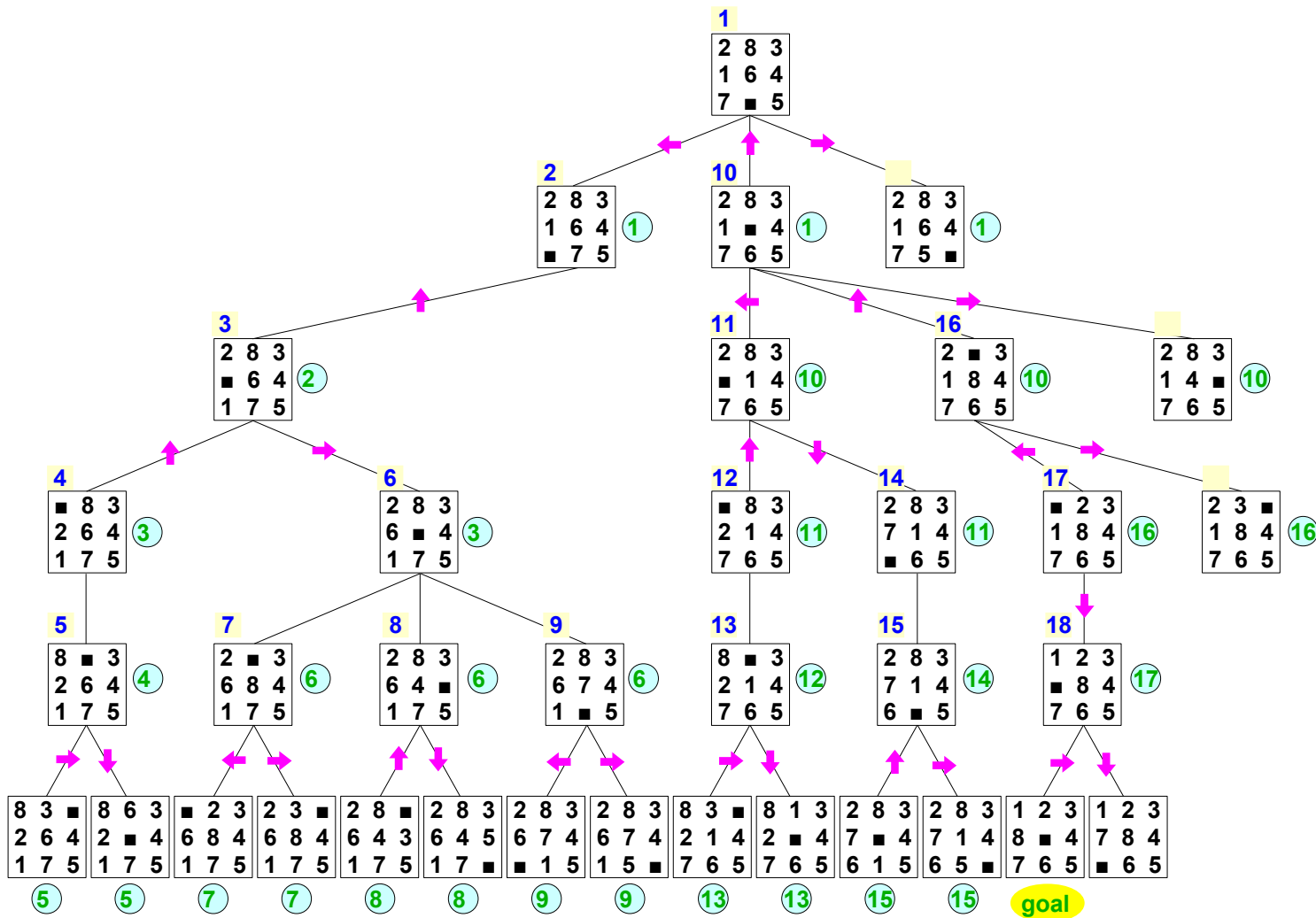


Replace the old one  
with the lower cost

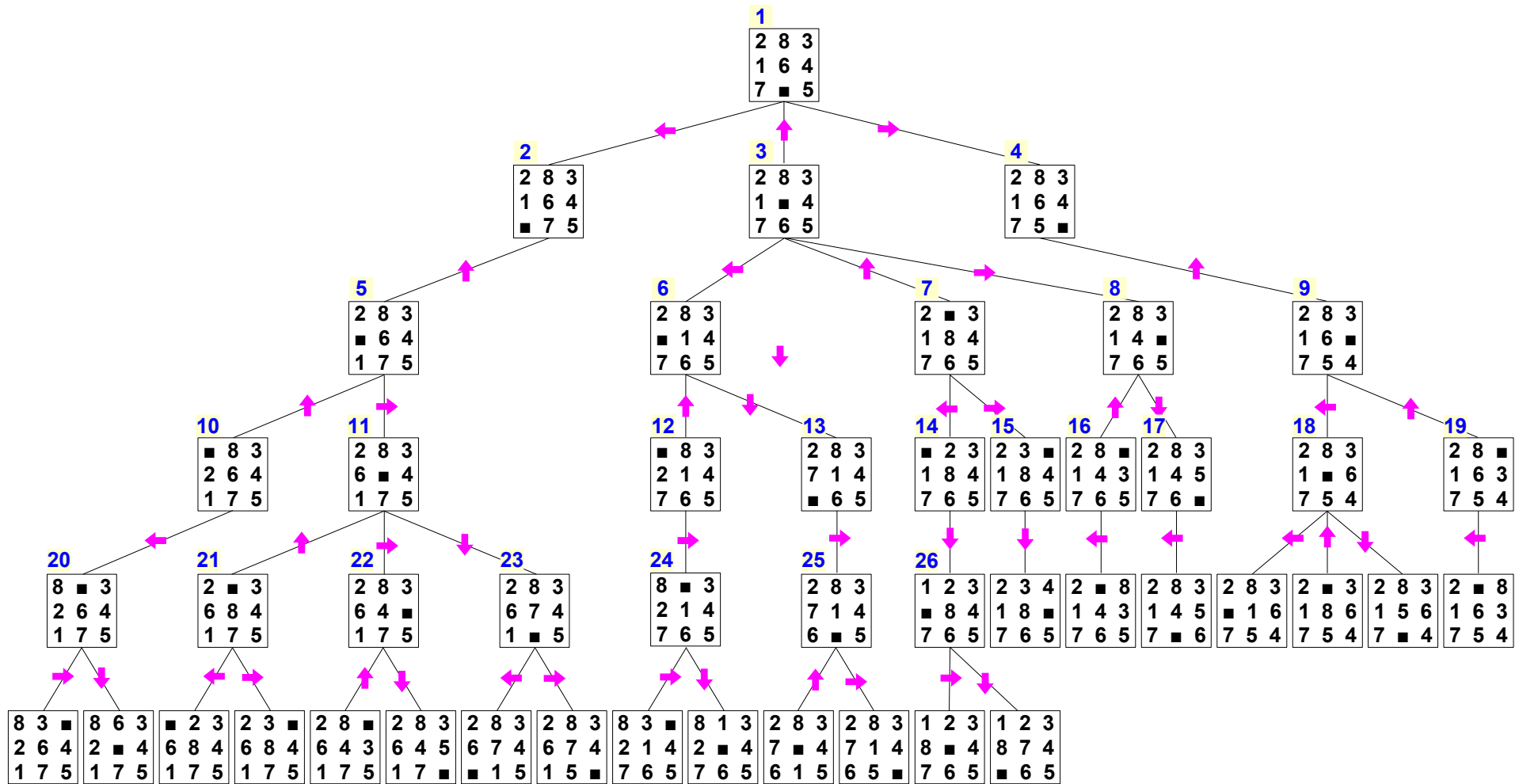


$$f(n) = g(n) + h(n)$$

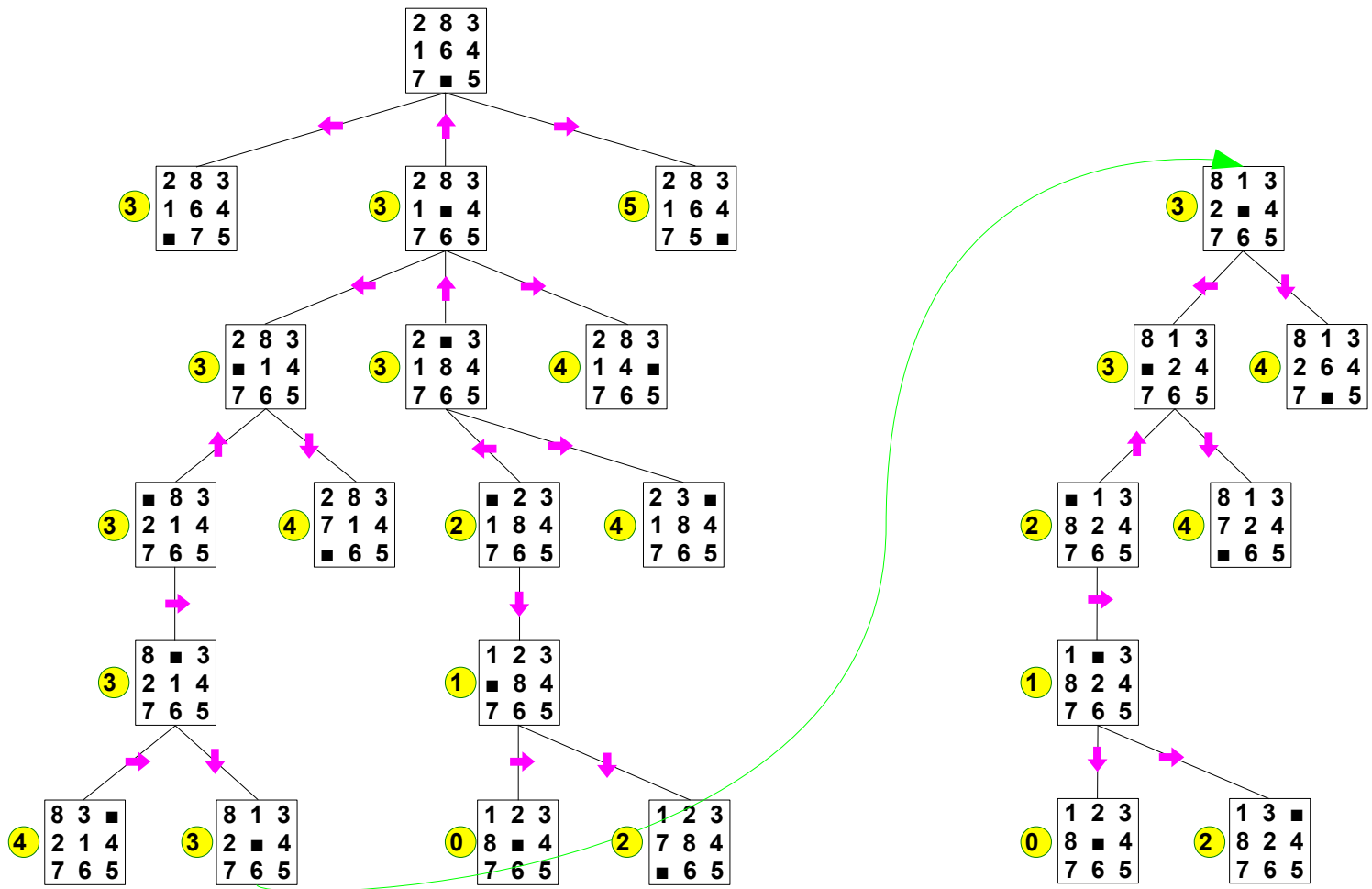
# Depth First Search (DFS)



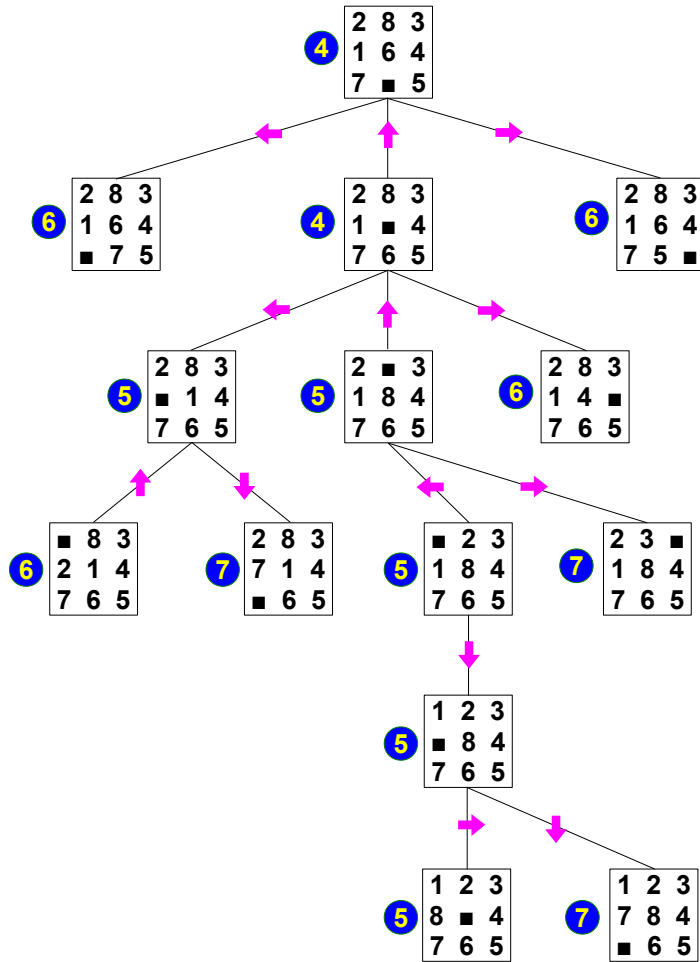
# Breadth First Search (BFS)



# Hill Climbing



# A\* Algorithm



## References

[1] <http://en.wikipedia.org/>

[2] 인공지능개론, 이광형, 조충호, 홍릉과학출판사, 2000