AND/OR Graph Search

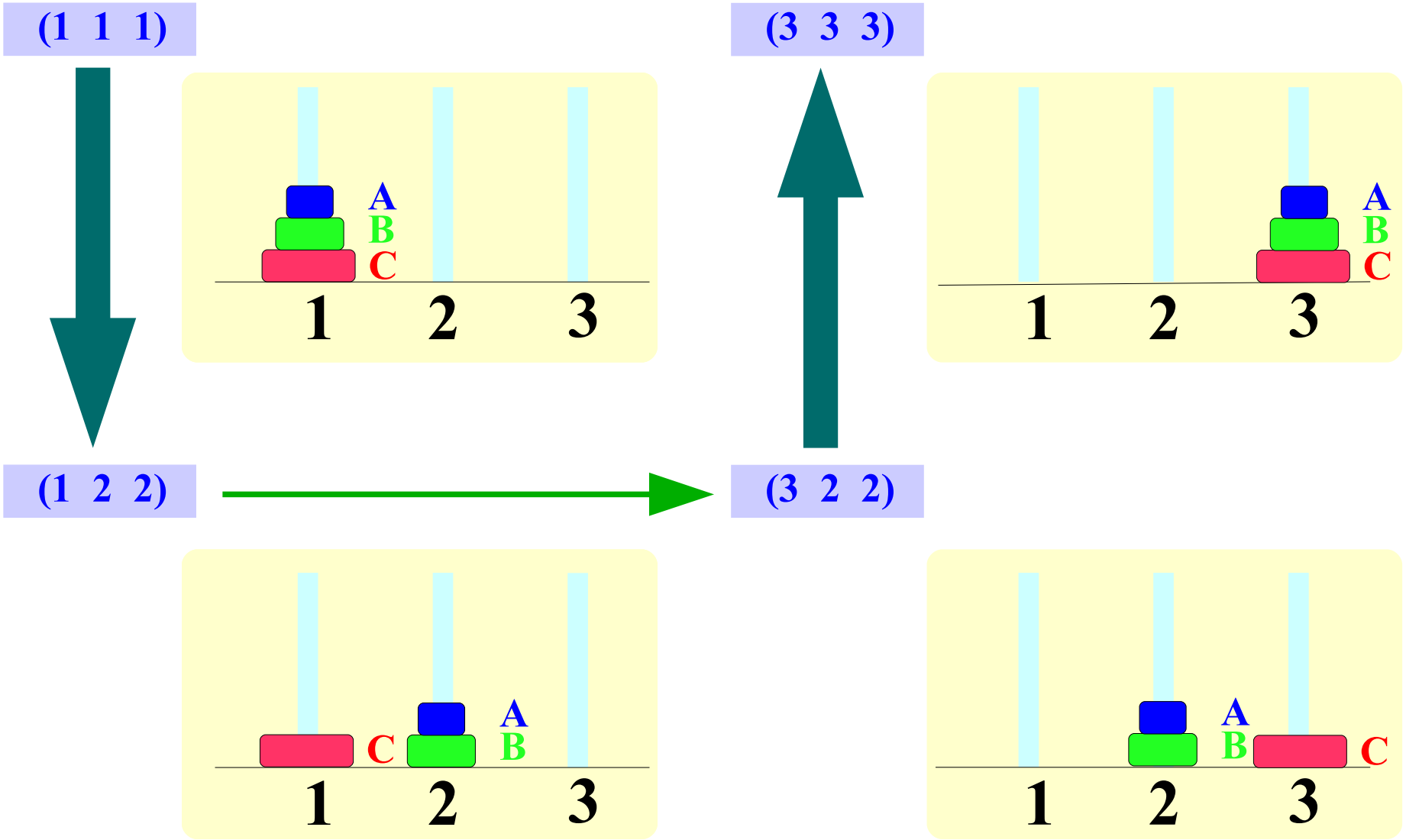
- Problem Reduction
- Hanoi Tower
- Monkey and Banana
- AND/OR Graph Search

Please send corrections (or suggestions) to youngwlim@hotmail.com.

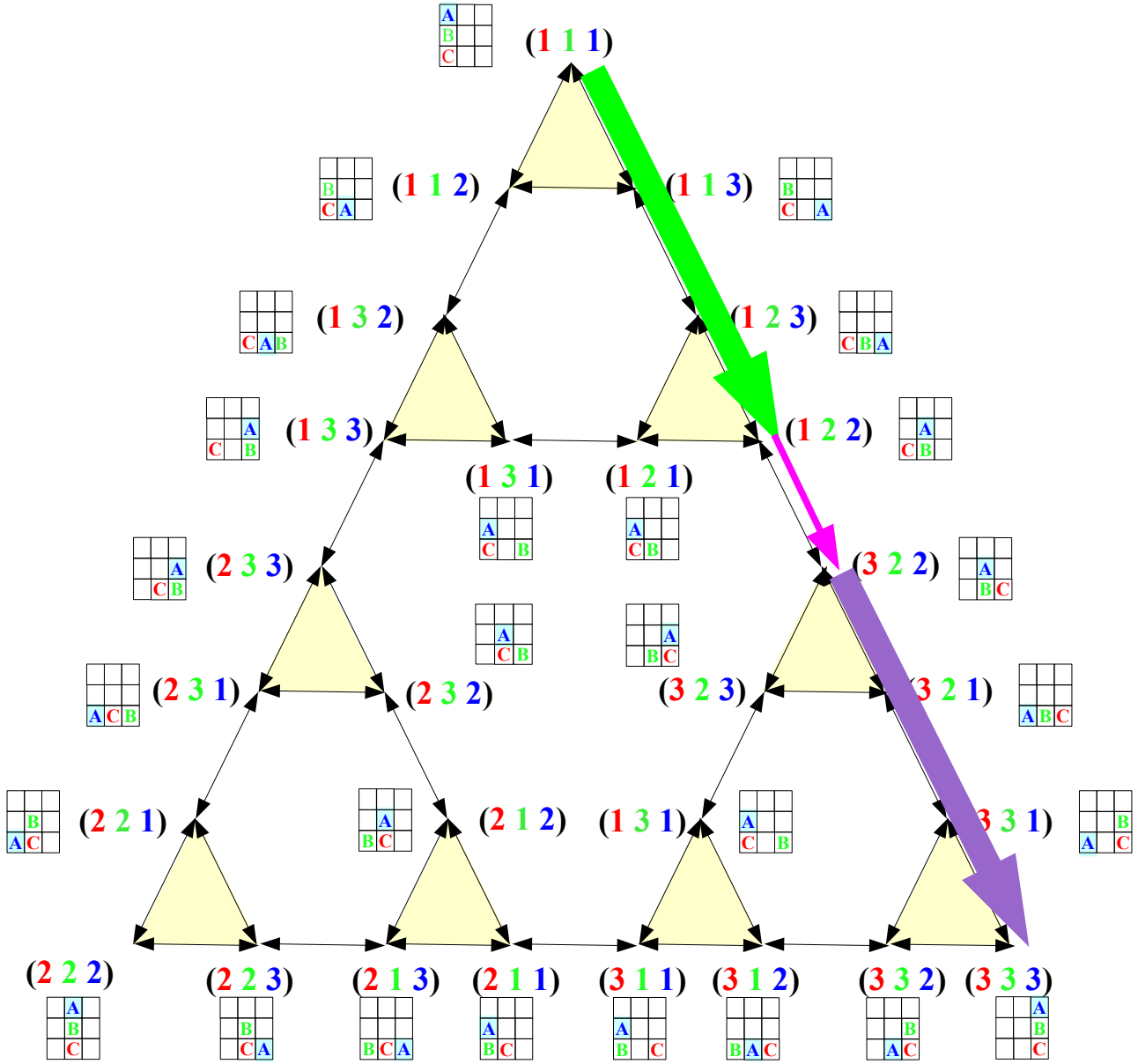
This document was produced by using OpenOffice and Octave.

Young Won Lim
14년 10월 27일

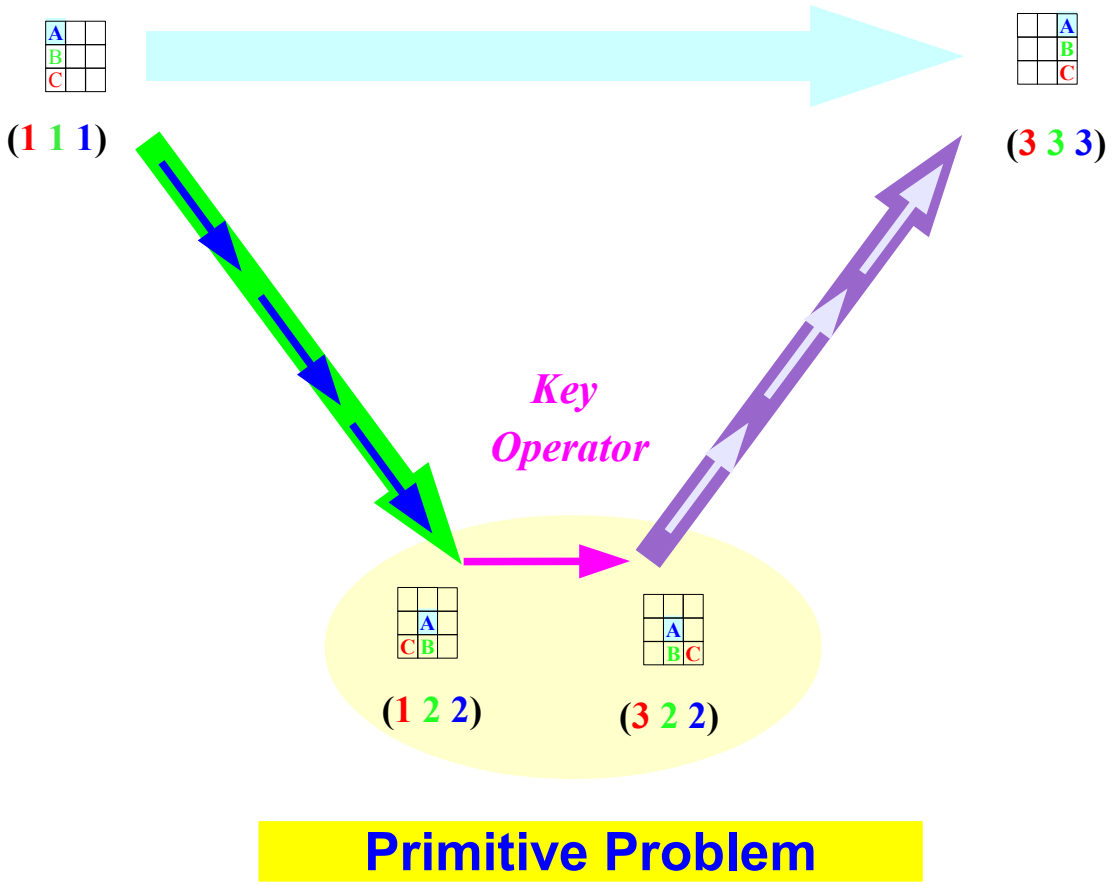
Hanoi Tower – Problem Reduction



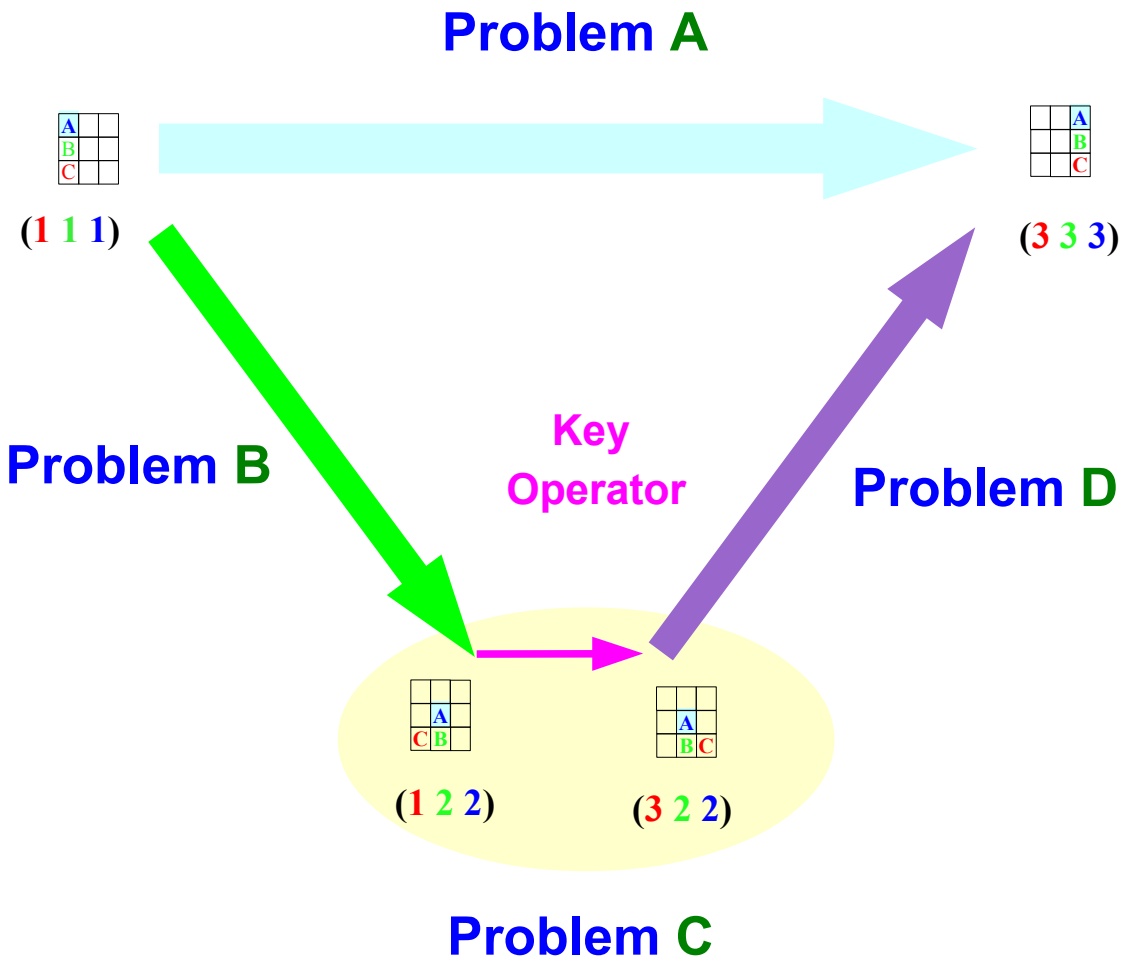
Hanoi Tower – State Space

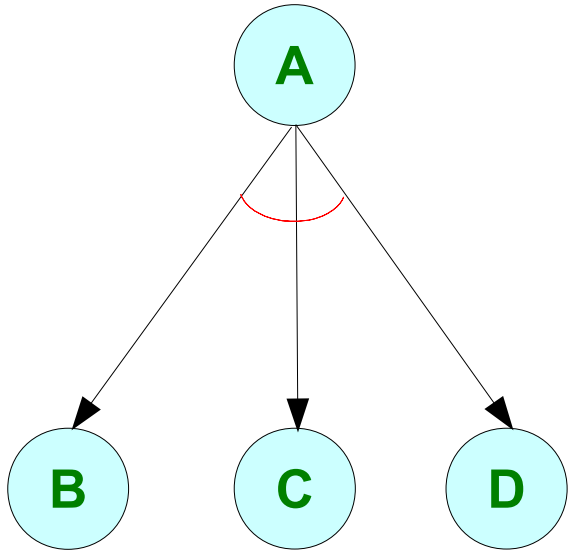


Key Operator



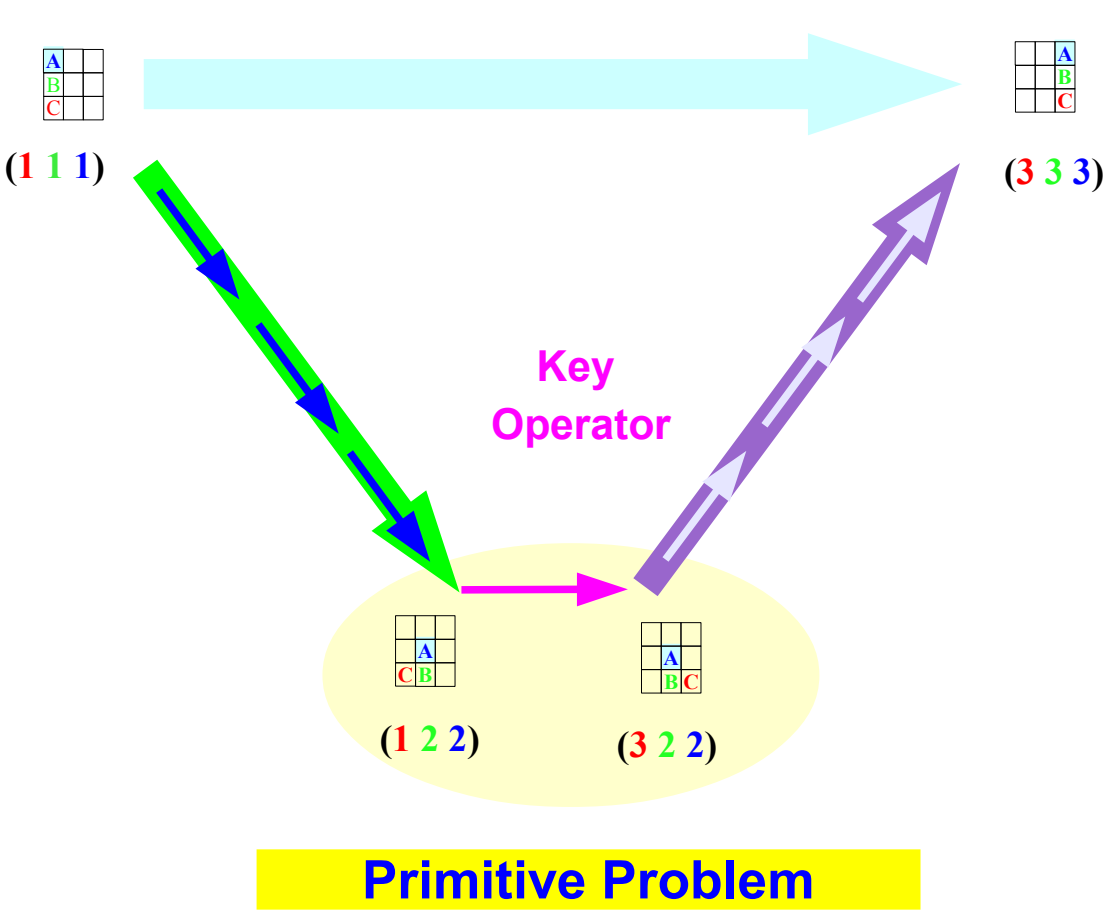
AND/OR Graph

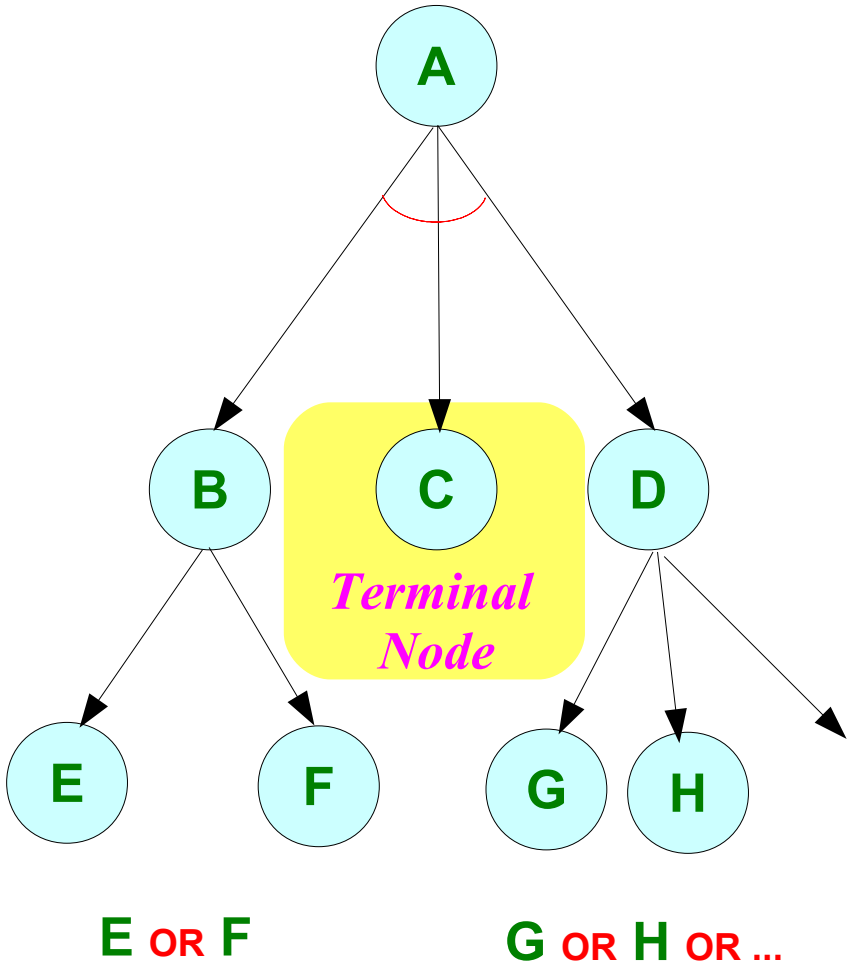




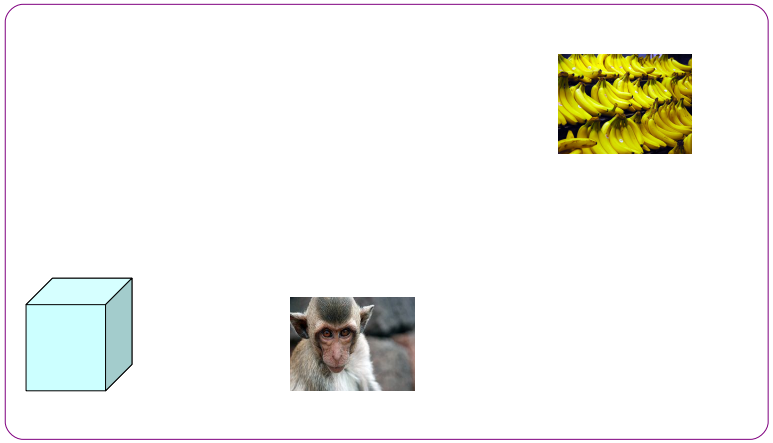
B AND C AND D

AND/OR Graph – Terminal Node

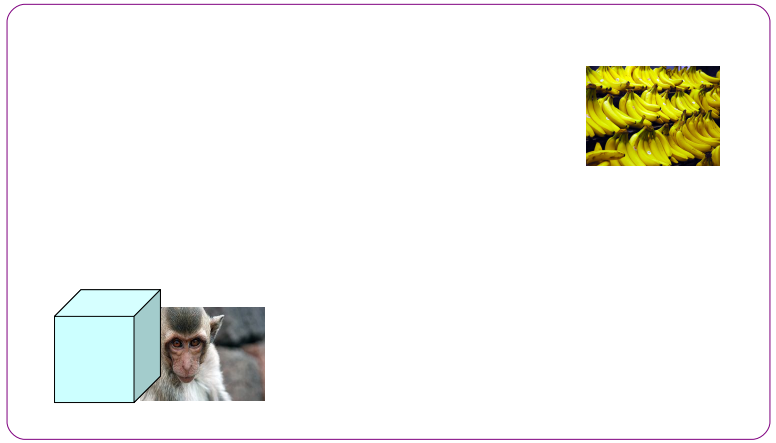




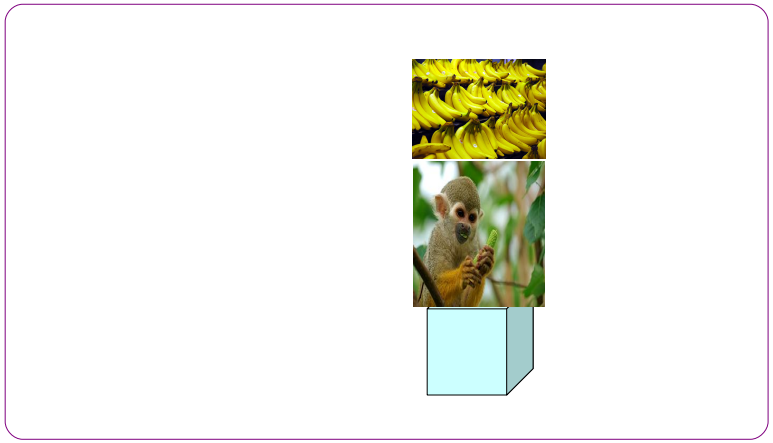
Monkey and Banana



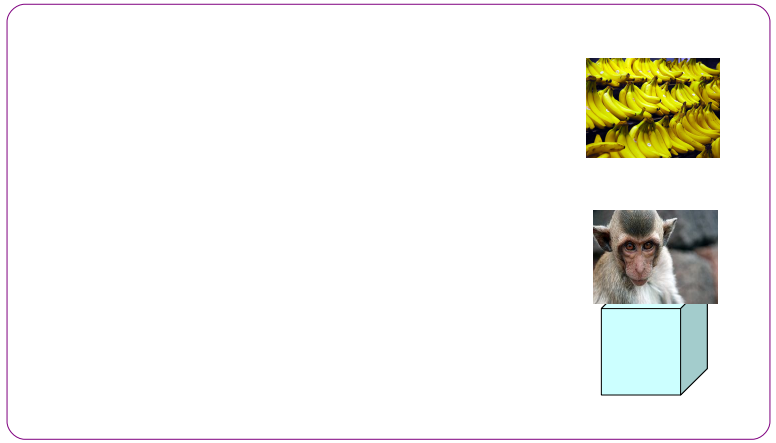
goto



pushbox
climbbox



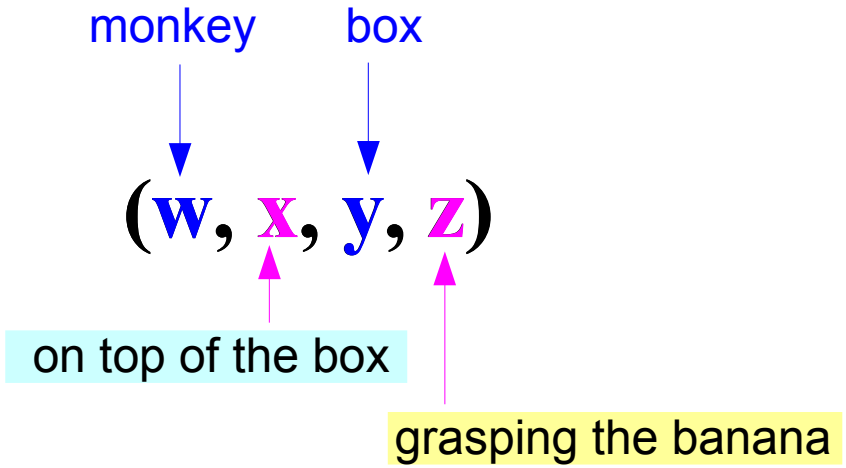
grasp



Monkey and Banana - State

(w, x, y, z)

w: the position of the monkey (horizontal, vertical)
x: monkey on top of the box (1 or 0)
y: the position of the box (horizontal, vertical)
z: monkey grasping the banana (1 or 0)



Operator Difference (1)

precondition:
$x = 0$

$(w, 0, y, z)$ —*goto*(u)→ $(u, 0, y, z)$

difference: The monkey is not at the location u.

precondition:
$w = y, x = 0$

$(w, 0, w, z)$ —*pushbox*(v)→ $(v, 0, v, z)$

difference: The box is not at the location v.

Operator Difference (2)

precondition:
w = y, x = 0

(w, 0, w, z) —*climbbox*→ (w, 1, w, z)

difference: The monkey is not on the box.

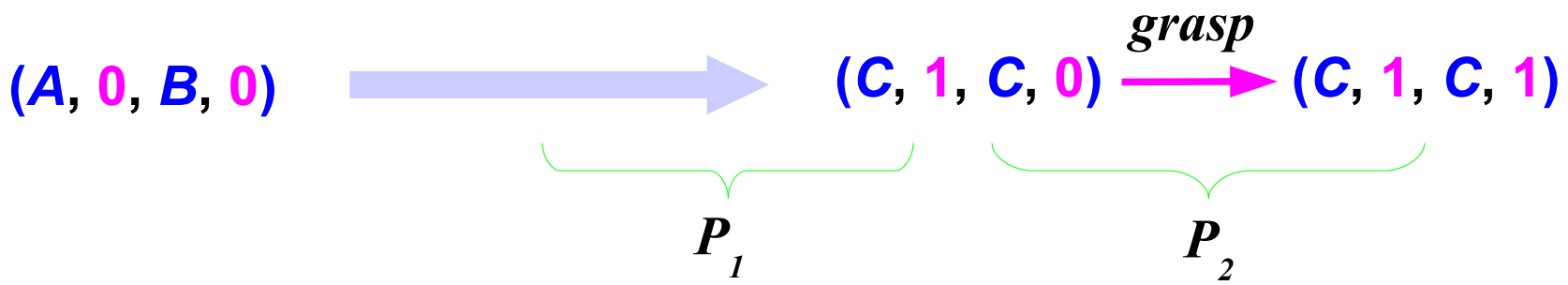
precondition:
x = y = C,
x = 1, z = 0

(c, 1, c, 0) —*grasp*→ (c, 1, c, 1)

difference: The monkey does not have bananas.

Finding Key Operator (1)

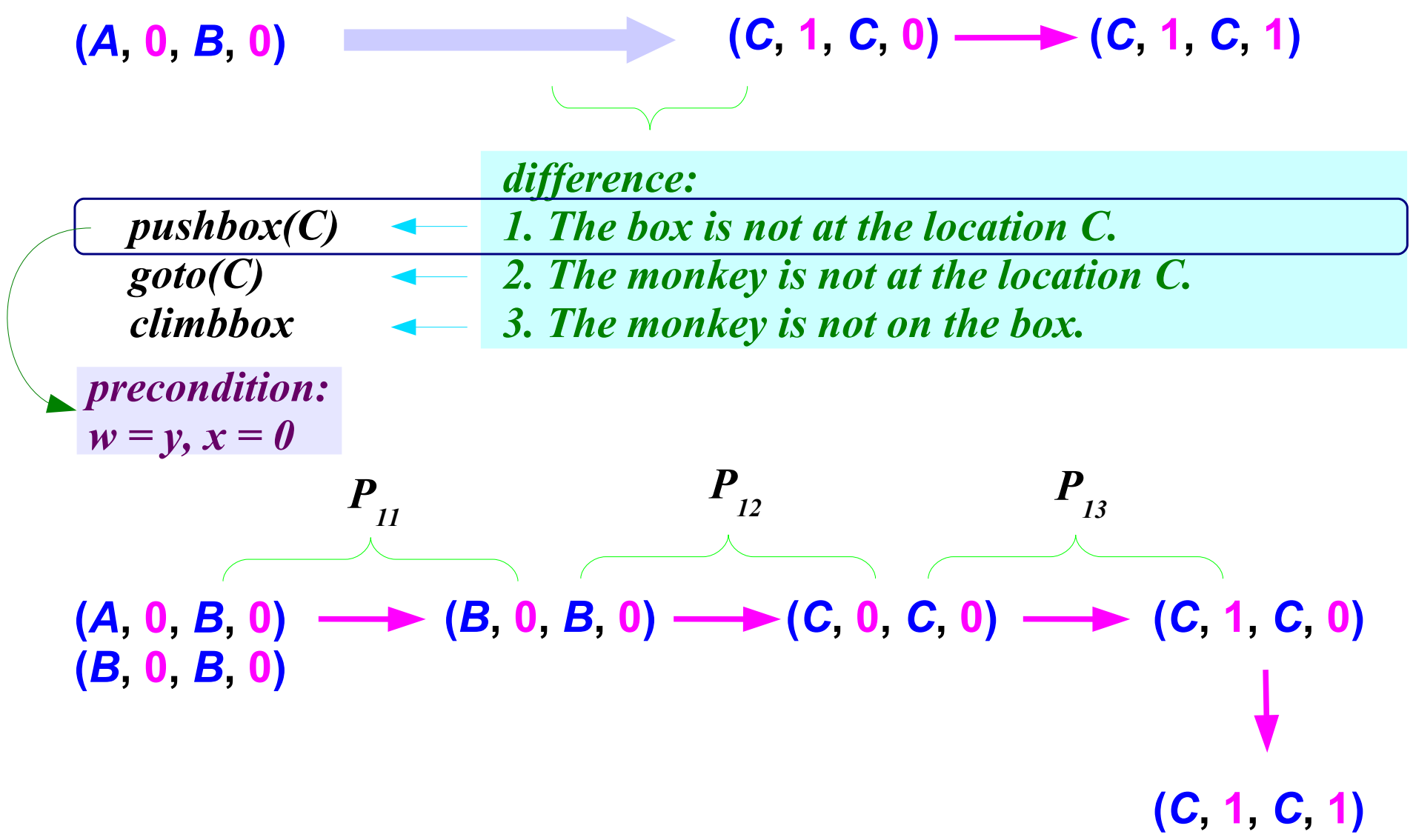
difference: The monkey does not have bananas.



pushbox(C) ←
goto(C) ←
climbbox ←

difference:
1. The box is not at the location C.
2. The monkey is not at the location C.
3. The monkey is not on the box.

Finding Key Operator (2)



References

[1] http://en.wikipedia.org/
[2] 인공지능개론, 이광형, 조충호, 홍릉과학출판사, 2000