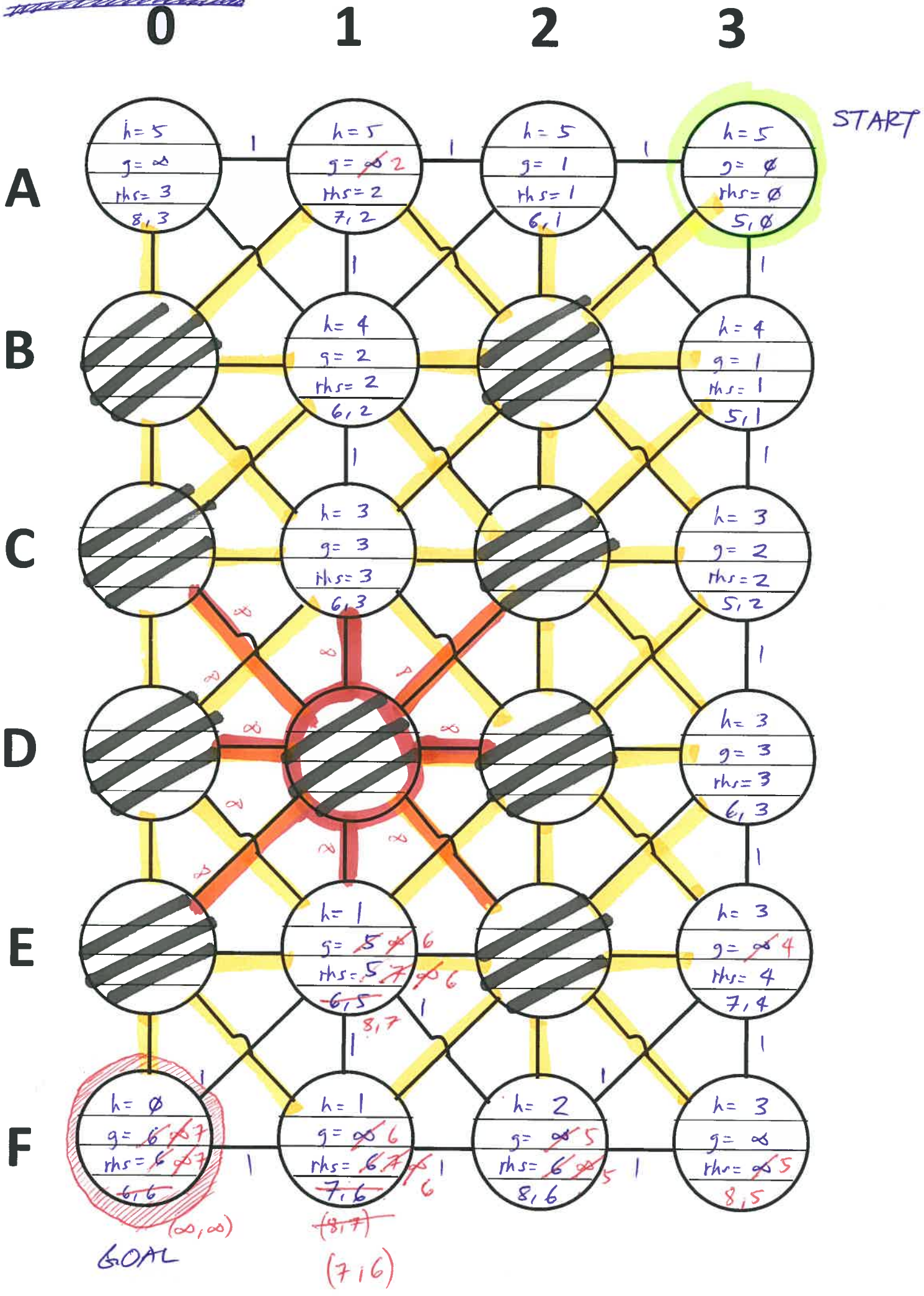
LPA* REPLANNING



LPA* REPLANNING

STEP	DEQ	ENQ
11		F1 g=∞ rhs=6 7,6 ; F2 g=∞ rhs=6 8,6 ; E3 g=∞ rhs=4 7,4 ; A0 g=∞ rhs=3 8,3 ; A1 g=∞ rhs=2 7,2
∅		* Cell D1 gets blocked. Affected cells: C1, E1

(Iteration #1 is journal)

UpdateVertex(C1):

rhs = 2+1 = 3

consistent

UpdateVertex(E1):

rhs = 6+1 = 7

Insert

from predecessor = F∅, this is the GOAL NODE!

E1 g=5 rhs=7 6,5 ; F1 g=∞ rhs=6 7,6 ; F2 g=∞ rhs=6 8,6 ; E3 g=∞ rhs=4 7,4 ; A0 g=∞ rhs=3 8,3 ; A1 g=∞ rhs=2 7,2

STEP	DEQ	ENQ	(6,5) < (6,6) true!
1 (Iteration #2 in journal)	E1 g = ~~5~~ ∞ rhs = 7 6,5	F0 g = 6 rhs = ∞ 6,6 F1 g = ∞ rhs = 7 8,7 E1 g = ∞ rhs = 7 8,7 E3 g = ∞ rhs = 4 7,4 A0 g = ∞ rhs = 3 8,3 A1 g = ∞ rhs = 2 7,2	succ(E1) ∪ E1 : F0, F1, F2, E1 updateVertex(F0) rhs = ∞ + 1 = ∞ Insert updateVertex(F1) rhs = 6 + 1 = 7 Remove, Insert back updateVertex(F2) rhs = ∞ + 1 = ∞ Remove, Consistent UpdateVertex(E1) rhs = 6 + 1 = 7 Insert
2 (Iteration #3)	F0 g = ~~6~~ ∞ rhs = ∞ 6,6	E3 g = ∞ rhs = 4 7,4 A0 g = ∞ rhs = 3 8,3 A1 g = ∞ rhs = 2 7,2	(6,6) < (6,6) OR rhs(GOAL) ≠ g(GOAL) false ∞ ≠ 6 true succ(F0) ∪ {F0} : E1, F1, F0 updateVertex(E1): rhs = ∞ + 1 = ∞ Remove, Consistent updateVertex(F1): rhs = ∞ + 1 = ∞ Remove, Consistent UpdateVertex(F0): rhs = ∞ + 1 = ∞ consistent

STEP	DEQ	ENQ
3	A1 g = ~~∞~~ 2 rhs = 2 7, 2	A0 g = ∞ rhs = 3 8, 3 E3 g = ∞ rhs = 4 7, 4
4	E3 g = ~~∞~~ 4 rhs = 4 7, 4	F2 g = ∞ rhs = 5 7, 5 F3 g = ∞ rhs = 5 8, 5 A0 g = ∞ rhs = 3 8, 3

Iteration 4

Iteration #5

(7, 2) < (∞, ∞)

true

succ (A1): A0, A2, B1

updateVertex (A0)

rhs = 2 + 1 = 3

Remove, Insert

updateVertex (A2)

rhs = 0 + 1 = 1

consistent

updateVertex (B1)

rhs = 1 + 1 = 2

consistent

(7, 4) < (∞, ∞)

succ (E3): D3, F2, F3

updateVertex (D3)

rhs = 2 + 1 = 3

consistent

updateVertex (F2)

rhs = 4 + 1 = 5

Insert

updateVertex (F3)

rhs = 4 + 1 = 5

Insert

STEP	OEQ	ENQ	
5	F2 g=~~∞~~ 5 rhs=5 7,5	E1 g=∞ rhs=6 7,6	(7,5) < (∞,∞) succ(F2): E1, E3, F1, F3 updateVertex(E1) rhs = 5+1 = 6 Insert
		F1 g=∞ rhs=6 7,6	
		F3 g=∞ rhs=5 8,5	updateVertex(E3) rhs = 3+1 = 4 consistent
		AØ g=∞ rhs=3 8,3	updateVertex(F1) rhs = 5+1 = 6 Insert updateVertex(F3) rhs = 4+1 = 5 Remove, Insert
6	E1 g=~~∞~~ 6 rhs=6 7,6	FØ g=∞ rhs=7 7,7	(7,6) < (∞,∞) succ(E1): F0, F1, F2 updateVertex(FØ) rhs = 6+1 = 7 Insert
		F1 g=∞ rhs=6 7,6	updateVertex(F1) rhs = 5+1 = 6 Remove, Insert
		F3 g=∞ rhs=5 8,5	updateVertex(F2) rhs = 4+1 = 5 consistent
		AØ g=∞ rhs=3 8,3	

STEP	DEQ	ENQ	
7	(F1 g=∞6 rhs=6 7,6)	(AØ g=∞ rhs=7 7,7) (F3 g=∞ rhs=5 8,5) (AØ g=∞ rhs=3 8,3)	(7,6) < (∞,∞) succ(F1): E1, FØ, F2 updateVertex(E1) rhs = 5+1 = 6 Consistent updateVertex(FØ) rhs = 6+1 = 7 Remove, Insert updateVertex(F2) rhs = 4+1 = 5 Consistent
8	(FØ g=∞7 rhs=7 7,7)	(F3 g=∞ rhs=5 8,5) (AØ g=∞ rhs=3 8,3)	(7,7) < (7,7) or rhs(goal) ≠ g(goal) false 7 ≠ ∞ true ✓ succ(FØ): E1, F1 updateVertex(E1) rhs = 5+1 = 6 Consistent updateVertex(F1) rhs = 5+1 = 6 Consistent
9		topkey (8,3) < (7,7) or (rhs(goal) ≠ g(goal)) false 7 ≠ 7 false FIN.	